



2021-2022 | KYOCERA Precision Tools

GENERAL CATALOG



ADVANCING PRODUCTIVITY



Continuously Create New Value
at the Cutting Edge of Technology

ADVANCING PRODUCTIVITY

Contributing to the betterment of world-wide
manufacturing and our customers' productivity by
providing efficient cutting tool products and
high-precision machining solutions

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KYOCERA CUTTING TOOLS

GLOBAL FACILITIES NETWORK

NORTH AMERICA



KPT Indexable Technical Center
North Carolina (USA)



KPT Indexable Mfg. Facility
Wapakoneta, Ohio (USA)



KPT Round Tool Mfg. Facility
California (USA)



KSPT Round Tool Mfg. Facility
Ohio (USA)



KSPT Tech Hub Mfg. & R&D Facility
Virginia (USA)

GLOBAL



KYOCERA Corp. Indexable Mfg. Facility
Okaya Facility (JAPAN)



KYOCERA Corp. Indexable Mfg. Facility
Yokaichi Facility (JAPAN)



KYOCERA Corp. Indexable Mfg. Facility
Sendai Facility (JAPAN)



KYOCERA Corp. Indexable Mfg. Facility
Silong Facility (CHINA)



KYOCERA Corp. Indexable Mfg. Facility
Incheon Facility (KOREA)

KYOCERA CUTTING TOOLS

GLOBAL TECHNICAL CENTERS



North American Technical Center (NORTH CAROLINA, USA)



Sales & Technical Center (GERMANY)



Technical Center (BRAZIL)



Technical Center (SINGAPORE)



Technical Center (JAPAN)



Technical Center (CHINA)



Technical Center (JAPAN)



Technical Center (KOREA)

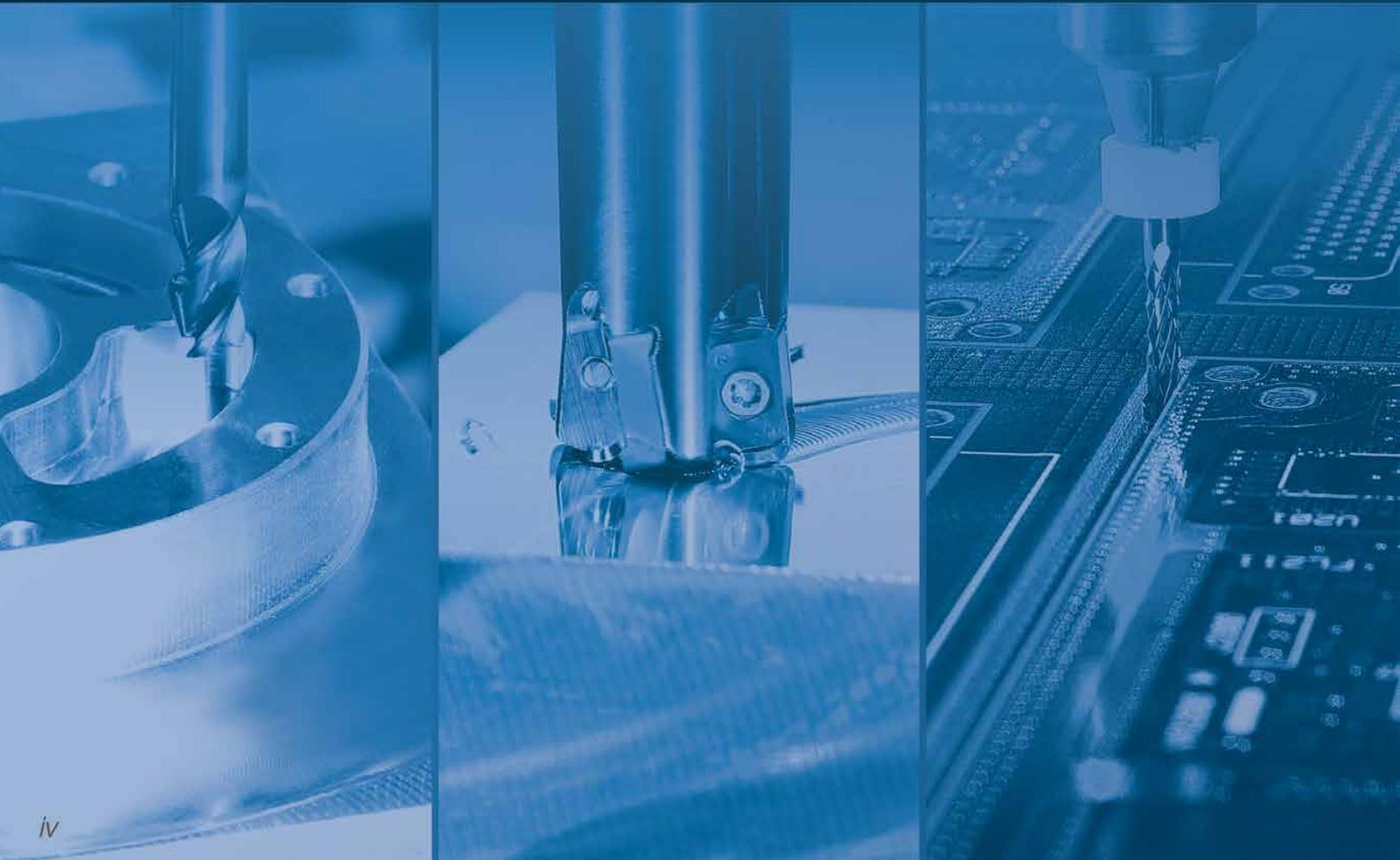


Technical Center (JAPAN)



KYOCERA-SGS Precision Tools Group

The KYOCERA-SGS Precision Tools Group (KSPT-G) is comprised several independently operated divisions, each with unique products to service a variety of industries, including aerospace, automotive, medical, dental, power generation, and printed circuit boards.





KYOCERA Precision Tools

KYOCERA PRECISION TOOLS (KPT)

KYOCERA Precision Tools (KPT) is a division of the Kyocera-SGS Precision Tools Group specializing in the manufacturing, servicing, and marketing of Indexable Cutting Tools and Printed Circuit Board (PCB) drills. With over 40 years of cutting tool expertise, KYOCERA has become the market-leader in Japan and has an established global presence with manufacturing, technical centers and sales offices in the Americas, Europe, and Asia.

CUTTING-EDGE, COST-EFFICIENT SOLUTIONS

KYOCERA Precision Tools develops state-of-the-art indexable cutting tools that exceed quality expectations while providing the cost-efficiency that today's metalworking consumer demands. Though ceramic technologies were the nucleus of the original business model, Kyocera has become a global leader in the metal removal industry by developing state-of-the-art cutting tool solutions using carbide, cermet, CBN and PCD. Over the past 40 years, Kyocera has developed some of the highest-quality, innovative indexable tooling solutions the industry has seen, including the **MEC Ultra-Hurricane** 90° Milling Cutters, the **MFH-Raptor** High-Feed Milling Cutters, the **DRZ & DRV** Family of Magic Drills, and **CCX**, the first-ever CVD Coated Cermet.



PRODUCTS



Turning & Boring



Holemaking



Indexable Milling



Printed Circuit Board (PCB)
Cutting Tools



Quick-Change Tooling &
Specialty Tools



Grooving & Cut-Off

HOW TO REACH US

KYOCERA Precision Tools

102 Industrial Park Road
Hendersonville, NC 28792

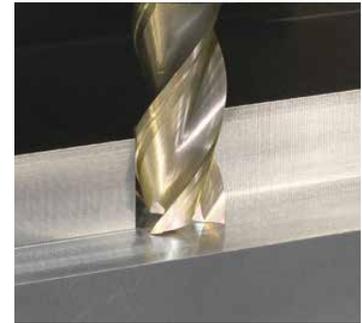
Phone: (800) 823-7284
Email: ctsales@kyocerapti.com
Web: www.kyoceraprecisiontools.com

KYOCERA-SGS PRECISION TOOLS (KSPT)

KYOCERA SGS Precision Tools (KSPT) is an ISO-certified manufacturer of industry leading round solid carbide cutting tools. State of the art manufacturing and warehouse facilities have the capacity and processes to meet the quality and delivery demands of customers in all markets around the world. Complete inspections performed within its metallurgical lab and manufacturing quality departments ensure the use of high quality carbide and reliable manufacturing consistency regardless of when a cutting tool is produced. KSPT Technical Sales Engineers, Application Specialists, and Distribution Partners blanket the globe, delivering reliable service and support to all market segments.

VALUE AT THE SPINDLE®

KYOCERA SGS Precision Tools is a global leader in solid round cutting tools, thanks in part to our unrivaled portfolio of capabilities ranging from world class manufacturing centers, to vigorous research and development teams, to proprietary coatings and dependable logistics. Our dedication to bringing VALUE AT THE SPINDLE® starts with inspecting each batch of raw material, and ends with custom tooling solutions with KSPT Engineers and end users customizing tool paths, machine operation parameters, and work piece testing.



PRODUCTS



Solid Carbide End Mills



Micro Drills and End Mills

TOOL SERVICES

KSPT is committed to providing superior tooling services in the areas of Reconditioning, Recoating, Regrinding, Specials and Alterations. These services are offered to provide unique solutions and enhanced tool life with involvement from the KSPT Technical Support Team. KSPT proudly offers Tooling Services in North America and Europe.



HOW TO REACH US

KYOCERA-SGS Precision Tools

55 South Main Street
Munroe Falls, Ohio 44262

Phone: (330) 686-5700
E-mail: webmaster@kyocera-sgstool.com
Web: www.kyocera-sgstool.com



KYOCERA SGS Tech Hub LLC

KYOCERA-SGS TECH HUB

The KYOCERA SGS Tech Hub (KSTH) is an independent subsidiary of the Kyocera SGS Precision Tools (KSPT) group created to focus on custom cutting tool solutions and explore new technologies. This facility has resources designed to provide MORE than a cutting tool, but a complete scope of services to include managing the entire cutting tool application from conception to application and beyond.

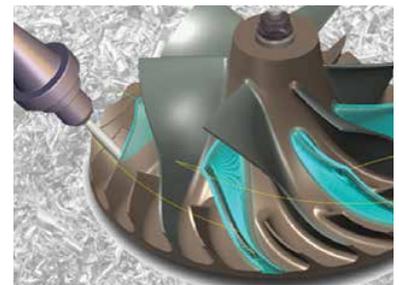
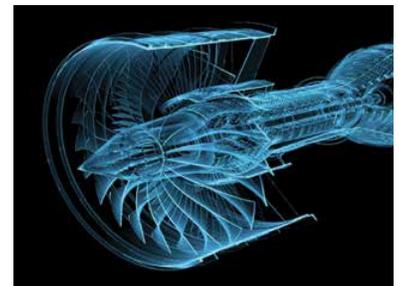
CUSTOMIZED ENGINEERING SOLUTIONS

At KSTH we approach each opportunity as a project and manage it as such. We pride ourselves on engineering each project to the specific needs of our customers. Providing quotes often within 24 hours and following through with detailed drawings, solid models, process plans, and program simulations if needed. Our goal is to work hand in hand with the end user and maintain constant communication to customize our support to their needs.



RELEVANT TESTED SOLUTIONS

KSTH R&D has been created with a dual purpose. First and foremost is to create dedicated resources for testing and evaluating application solutions tailored to each customer project. The second is to focus on evaluating technologies within industry as a whole so that we can provide complete and relevant solutions to our customers. The KSTH R&D space is a collaborative think tank that allows KSTH to work for each customer individually with industry partners, new technology, and Universities to provide thorough next level solutions.



HOW TO REACH US

KYOCERA-SGS Precision Tools Tech Hub

149 Slayton Avenue

Danville, VA 24540

Phone: (434) 791-2020

Web: www.kyocera-techhub.com





KYOCERA-SGS MEDICAL DIVISION

KSPT Medical produces unique, customer designed orthopedic devices using highly trained engineers dedicated to new technology. KSPT Medical is a division of KYOCERA SGS Precision tools—an ISO-certified leader, who proudly pioneered some of the world's most advanced metal cutting technology and sells to more than 60 countries. With over 20 years of industry experience, KSPT Medical Division maintains their ISO13485 certification and is FDA Registered in the production of medical devices in the orthopedic marketplace.

MACHINING CAPABILITIES

- Grinding
- Milling
- Turning
- Profiling
- Bending
- Customized Assembly

SERVICES OFFERED

- Welding
- Various Coatings
- Anodizing
- Passivation
- Electropolishing
- Laser Etching
- Heat Treating

HOW TO REACH US

KYOCERA-SGS Precision Tools Medical Division

724 East Swihart Street
Columbia City, Indiana 46725
Phone: (260) 244-7677
Web: www.kyocera-sgstool.com/medical-division

Request a Quote

rfq@kyocera-sgstool.com

Customer Service and Orders:

salesmd@kyocera-sgstool.com



ISO 13485 CERTIFIED

How to Order

Kyocera Precision Tools' high-performance lineup of indexable and printed circuit board tooling products can be purchased through our vast North American Distribution network.



Locate a Distributor

Use our **Locate a Distributor** map at:

www.KyoceraPrecisionTools.com/locate

Contact Us

INDEXABLE TOOLS

Customer Service

1-800-823-7284

(OPTION 1)

Monday - Friday

5:00AM - 4:30PM (PST)
8:00AM - 7:30PM (EST)

GENERAL INQUIRIES

cuttingtools@kyocerapti.com

PRINTED CIRCUIT BOARD

Customer Service

1-888-848-9266

(U.S.)

001-714-428-3655

(INTERNATIONAL)

Monday - Friday

5:00AM - 4:30PM (PST)
8:00AM - 7:30PM (EST)

CUSTOMER SERVICE

(Indexable Tools)

ctsales@kyocerapti.com

CUSTOMER SERVICE

(Printed Circuit Board)

pcb.cs@kyocerapcb.com

TECHNICAL SUPPORT

1-800-823-7284

(OPTION 2)

Monday - Friday

4:00AM - 2:00PM (PST)
7:00AM - 5:00PM (EST)

TECHNICAL SUPPORT

techs@kyocerapti.com



Authorized Distributor Ordering Guide

TO PLACE ORDERS ONLINE VISIT - <http://mykpti.kyocera.com>

In addition to placing orders, the MyKPTI distributor website allows you to view real-time product availability, lead times, pricing, download product and promotional literature, watch product training videos, and more.

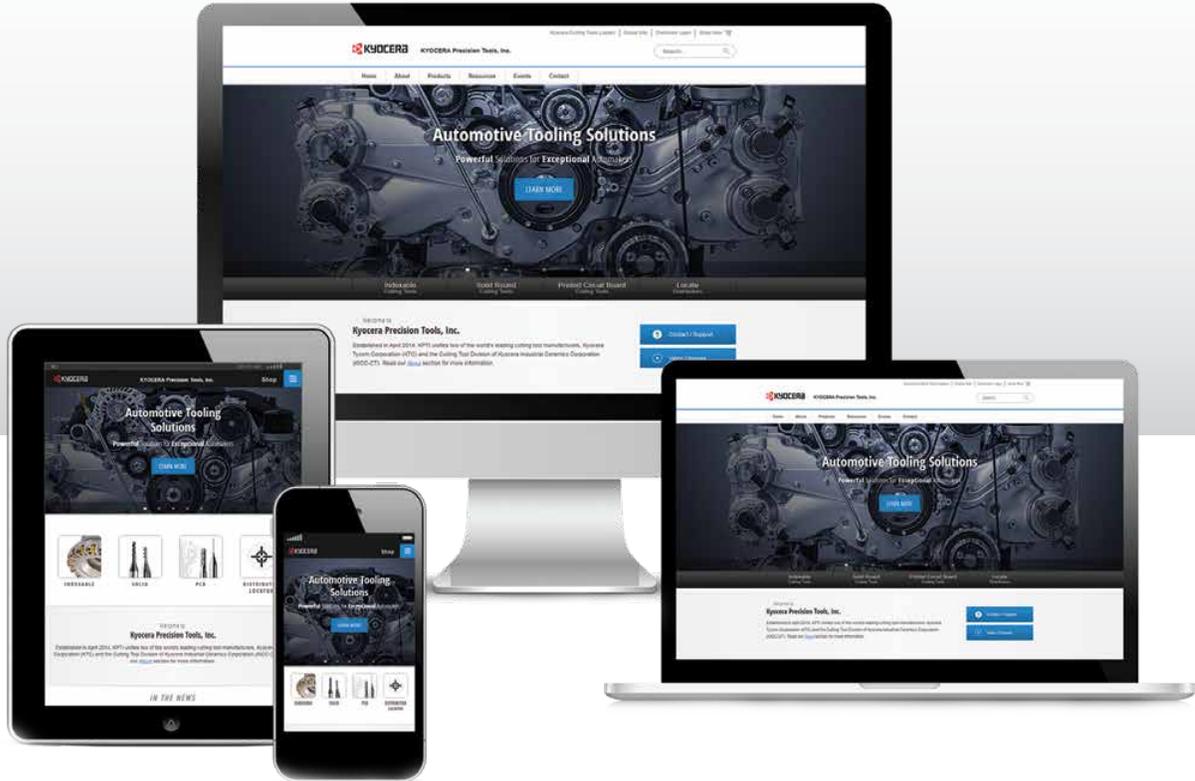
Stock Status Symbols

- Indicates that an item is a **Standard Item** and is available to order. If there is stock in the U.S., items will ship the same day if ordered by 4:30pm (EST). If there is no U.S. stock, please allow 7-10 business days for items to arrive.
- △ Indicates that an item is being phased out of production. Please contact your local Kyocera sales engineer to determine a replacement solution.

*All Standard Items are subject to U.S. or International availability

VISIT US ONLINE

WWW.KYOCERAPRECISIONTOOLS.COM



BUILT FOR SPEED AND OPTIMIZATION ACROSS ALL DEVICES

- *Easy to navigate, sliding mobile menus*
- *Find the information you need faster than ever*
- *Easy-to-read articles transformed on mobile devices*
- *Fast load times allow you to browse products without waiting*
- *View and download digital product brochures and catalogs*
- *Locate distributors in your area on-the-go through our distributor map*

FEATURED PRODUCTS

Turning Inserts



CCX

CVD Coated Cermet for Steel Finishing

➔ [B16~](#)

- Long tool life and improved wear resistance
- High-speed machining of steel and cast iron



PR1725 / PR1705

PVD Coating for Small Parts Machining

➔ [B22~](#)

PR1725

- Great for machining steel and other materials
- Wide range of applications and chipbreakers available

PR1705

- Excellent wear resistance
- High precision machining of free-cutting steel



PV730

Hybrid Cermet for Steel Finishing

➔ [B22~](#)

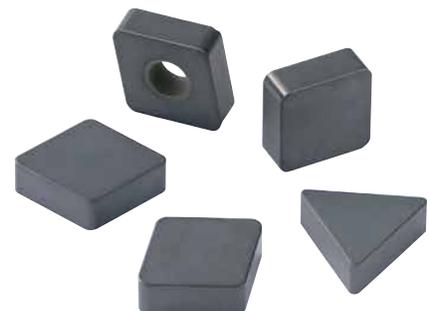
- Kyocera's toughest cermet grade technology
- Stable machining with high-quality surface finish

KS6015

Silicon Nitride Ceramic for Cast Iron

➔ [B106~](#)

- Prevents chipping during scale removal and interrupted cuts
- Excellent wear resistance with reduced grain boundary phase



FEATURED PRODUCTS

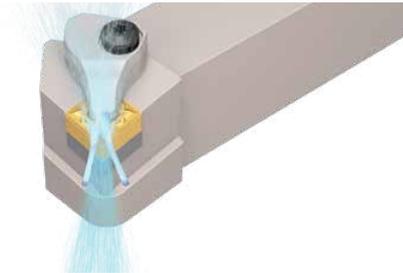
Coolant-Through External Holders



JCT Series

Jet Coolant Through Holders

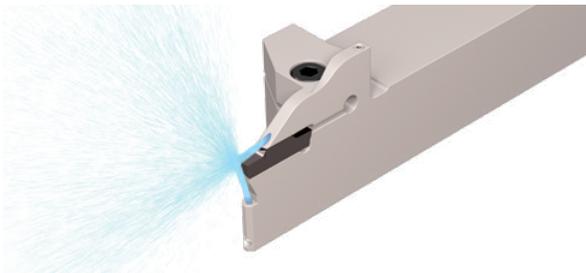
- Excellent chip control and long tool life with high pressure coolant systems
- Large holder lineup for turning, external grooving, cut-off and threading applications
- Internal coolant provides longer tool life and excellent chip control



Double-Clamp-JCT

External Turning Holders

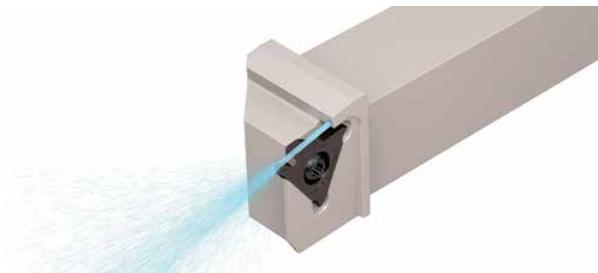
➔ [D8~](#)



KGD-JCT

External Grooving / Cut-Off Holders

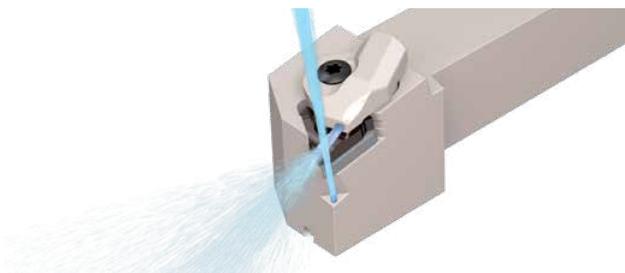
➔ [G32~](#)



KGBA-JCT

External Shallow Grooving Holders

➔ [G13~](#)



KTN-JCT

External Threading Holders

➔ [J21~](#)

FEATURED PRODUCTS

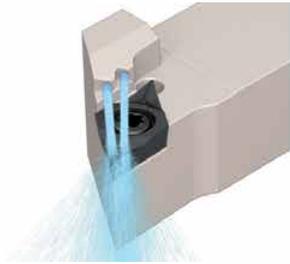
Coolant-Through Small Parts Holders



JCT Series

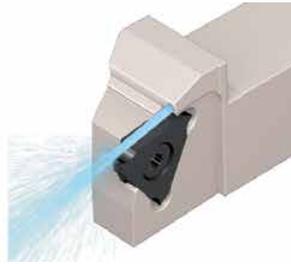
Jet Coolant Through Holders for Small Parts

- Excellent chip control and long tool life with high pressure coolant systems
- Capable of pressure up to 2,900 psi
- Large holder lineup for turning, external grooving, and cut-off



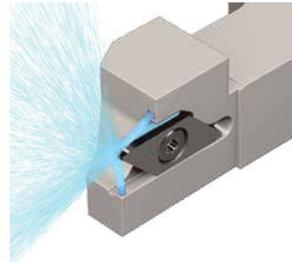
SDJC-JCT
External Turning
(SCLC / SVJB / SVJP)

➔ [E27~](#)



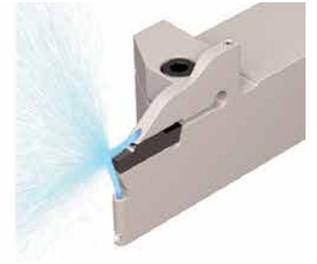
KGBF-JCT
Shallow Grooving

➔ [G19~](#)



KTKF-JCT
Small Dia. Cut-Off

➔ [H13~](#)



KGD-JCT
Grooving / Cut-Off

➔ [G29~](#)

Internal Grooving

SIGC

High-Precision Small Internal Grooving

➔ [G62~](#)

- Excellent chip evacuation with double coolant holes
- Long tool life with PR1725 insert grade
- Minimum bore dia. of Ø8mm
- Steel and carbide bar options available



FEATURED PRODUCTS

Drilling



DRA Magic Drill

High Efficiency Replaceable Insert Tip Drills

➔ **K4~**

- 1.5xD to 12xD drilling holder lineup with a low cutting force design for improved hole accuracy
- Fine chip breaking even in deep hole drilling
- Easy to replace inserts
- New KM insert for cast iron and FTP flat bottom / counterboring insert

KM Insert
for Cast Iron



FTP Insert
Flat Bottom /
Counterboring



Chamfering Attachment



Expanded Lineup from Ø0.500"~Ø2.000" and
Ø12mm~Ø60mm

DRV Magic Drill

High Efficiency Indexable Drills

➔ **K40~**

- 2xD to 6xD drilling lineup with 4 chipbreakers for various machining applications
- High speed and highly efficient machining available with the combination of a CVD outer insert and PVD inner insert
- Excellent hole accuracy with a highly rigid design for better chatter resistance



Chamfering Attachment

FEATURED PRODUCTS

Milling



MEV

High Performance Multi-function Milling

➔ [M84~](#)

- Low cutting forces and higher rigidity for excellent chatter resistance
- Newly developed triangular inserts provide numerous solutions to machining challenges
- Longer insert and holder life when shouldering, slotting, and ramping



New Triangular
Insert Design



PR015S

Milling Grade for Machining Hardened Steel

➔ [M15~](#)

- Long tool life and stable machining
- Improved wear resistance

MEAS

High Efficiency Milling of Aluminum

➔ [M150~](#)

- High speed machining with grooved insert pockets
- Sharp cutting edge with low cutting force design
- Simultaneous 3-axis with a max. ramping angle of 20° (Ø25mm)



INSERT GRADES

A

A1 - A21

SUMMARY OF INSERT GRADES	A2 - A5
TURNING	A2
SMALL TOOLS	A3
GROOVING	A4
CUT-OFF	A4
DRILLING	A5
MILLING	A5

INSERT GRADES	A6 - A21
CERMET	A6
CVD COATED CARBIDE (Turning)	A8
PVD COATED CARBIDE (Turning)	A10
PVD / CVD COATED CARBIDE (Milling, Drilling)	A12
CARBIDE	A14
DLC COATING	A14
CERAMIC	A15
CBN (Cubic Boron Nitride)	A16
PCD (Polycrystalline Diamond)	A17
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A
INSERT
GRADES

Turning

Workpiece Material	Steel (Carbon Steel / Alloy Steel)					Stainless Steel & Cast Steel					Cast Iron (Gray Cast Iron / Nodular Cast Iron)				
	Cutting Range					Cutting Range					Cutting Range				
	Classification	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermets	TN Series	TN610 TN6010 TN620 TN6020 TN60	TN90				TN610 TN6010 TN620 TN6020 TN60	TN90				TN60			
	TC Series		TC60				TC60								
	CCX (CVD Coated)	CCX										CCX			
	PV Series	PV7020 PV90					PV7020 PV90								
	MEGACOAT (PV Series)	PV7010 PV7025					PV7010 PV7025					PV7005			
	MEGACOAT NANO (PV Series)	PV710 PV720 PV730					PV710 PV720 PV730								
Coated Carbide	CA Series	CA510 CA515 CA025P CA525 CA530 CA5505 CA5515 CA5525 CA5535					CA6515 CA6525					CA310 CA315 CA320 CA4010 CA4115 CA4120 CA4505 CA4515			
	PR Series	PR930 PR1005 PR1025					PR930 PR1025 PR1125								
	MEGACOAT (PR Series)		PR1225				PR1225								
	MEGACOAT NANO (PR Series)		PR1425 PR1535				PR1425 PR1535								
	MEGACOAT NANO Plus (PR Series)	PR1705 PR1725					PR1725								
	Ceramic												KA30 KT66 A66N PT600M KS6015 KS6050 CS7050		
Carbide												KW10 GW15			
CBN												KBN475 KBN60M KBN900			

• White bars indicate old grades

A
INSERT
GRADES

Grooving / Cut-Off

Workpiece Material		Steel (Carbon Steel / Alloy Steel)					Stainless Steel & Cast Steel					Cast Iron (Gray Cast Iron / Nodular Cast Iron)			
Cutting Range		Finishing ← → Roughing					Finishing ← → Roughing					Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet	MEGACOAT (PV Series)	PV7040										PV7040			
	TN Series	TN620 TN6020 TN60 TN90					TN620 TN6020 TN60 TN90					TN60			
	TC Series	TC40 TC60					TC60					TC40			
Coated Carbide	CR Series	CR9025					CR9025								
	PR Series	PR630 PR660					PR630 PR660								
		PR915 PR930 PR1025 PR1115					PR915 PR930 PR1025					PR905			
		PR1215 PR1225					PR1215 PR1225					PR1215			
	MEGACOAT NANO (PR Series)	PR1535 PR1625					PR1515 PR1535 PR1625								
Ceramic											A65 A66N PT600M				
Carbide											KW10 GW15				

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Difficult-to-Cut Materials (Titanium)				Hard Materials (Hardened Steel / Chilled Cast Iron)				Powdered Steel			
Cutting Range		Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing				Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
Coated Carbide	MEGACOAT (PR Series)													PR1215 PR1225			
	Cermet													TN60			
Ceramic									A65 A66N PT600M								
Carbide	KW10 GW05 GW15				KW10 GW15												
DLC Coating	PDL025																
CBN									KBN510 KBN525				KBN570				
PCD	KPD001 KPD010				KPD001 KPD010												

• White bars indicate old grades

Drilling

Workpiece Material		Steel (Carbon Steel / Alloy Steel)					Stainless Steel & Nickel-based Alloys					Cast Iron (Gray Cast Iron / Nodular Cast Iron)			
Cutting Range		Finishing ←→ Roughing					Finishing ←→ Roughing					Finishing ←→ Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Coated Carbide	CA Series			CA520D					CA6535			CA415D			
	PR Series			PR660					PR660						
	MEGACOAT (PR Series)			PR830					PR830						
				PR1225					PR1225			PR1210			
MEGACOAT NANO (PR Series)			PR1230												
			PR1535					PR1535					PR1525		
Carbide												KW10			
												GW15			

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Difficult-to-Cut Materials (Inconel / Titanium)				Hard Materials (Hardened Steel / Chilled Cast Iron)			
Cutting Range		Finishing ←→ Roughing				Finishing ←→ Roughing				Finishing ←→ Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30
Coated Carbide	MEGACOAT (PR Series)									PR1230			
Carbide			KW10					KW10					
			GW15					GW15					

Milling

Workpiece Material		Steel (Carbon Steel / Alloy Steel)					Stainless Steel & Cast Steel					Cast Iron (Gray Cast Iron / Nodular Cast Iron)			
Cutting Range		Finishing ←→ Roughing					Finishing ←→ Roughing					Finishing ←→ Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet	TN Series			TN620M					TN60						
				TN60					TN100M						
	TC Series			TC60					TC60						
Carbide	CA Series								CA6535			CA420M			
	PR Series			PR830					PR830						
	MEGACOAT (PR Series)			PR1225					PR1225			PR1210			
				PR1230											
MEGACOAT NANO (PR Series)			PR1525					PR1525			PR1510				
								PR1535					KW10		
Carbide														GW25	

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Difficult-to-Cut Materials (HRSA / Ni-base HRSA)				Difficult-to-Cut Materials (Titanium)				Hard Materials (Hardened Steel / Chilled Cast Iron)			
Cutting Range		Finishing ←→ Roughing				Finishing ←→ Roughing				Finishing ←→ Roughing				Finishing ←→ Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	S01	S10	S20	S30	H01	H10	H20	H30
Coated Carbide	CA Series					CA6535				CA6535							
	MEGACOAT (PR Series)									PR1210							
	MEGACOAT HARD (PR Series)													PR015S			
	MEGACOAT NANO (PR Series)					PR1535				PR1535							
Carbide			KW10									KW10					
			GW25									GW25					
DLC Coated Carbide			PDL025														
PCD			KPD001							KPD001							
			KPD010							KPD010							
			KPD230														
			KPD250														

• White bars indicate old grades

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CERMET & COATED CERMET

A
INSERT
GRADES



CERMET

KYOCERA is known as one of the leading manufacturers of cermets. Cermet is a composite material combining ceramic and metal. Typical materials used in cermets are TiC, TiN, TiCN and NbC. Designed to provide long tool life and excellent surface finishes, cermets combine toughness with superior wear resistance.

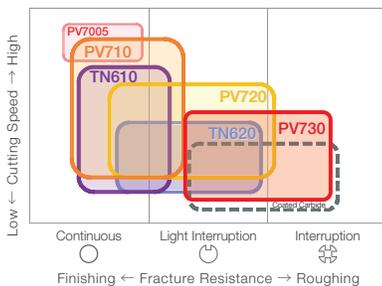
PVD & CVD COATED CERMET

PVD Coated Cermet is a cermet substrate with a thin coating offering high wear resistance and high adhesion resistance. The coating is applied by PVD (Physical Vapor Deposition) technology. CVD Coated Cermet is a cermet substrate with a thin coating offering high-speed wear resistance. The coating is applied by CVD (Chemical Vapor Deposition) technology.

FEATURES OF CERMET & COATED CERMET

Material	Description	Color	Main Component (Coating Composition)	Advantages		
P Steel	Cermet	TN610	Gray	TiCN	· Three hybrid technology attributes maintain superior surface finish and machining stability · Application: Stable machining of steel	
		TN620	Gray	TiCN	· High wear resistance and chipping resistance cermet due to three hybrid technology attributes · Application: Cermet for steel machining, long tool life in high speed and continuous applications	
		TN60	Gray	TiCN+NbC	· Application: Machining of steel, continuous to interruption	
		TN6020 (Super Micro-Grain)	Gray	TiCN	· Application: Uncoated cermet for steel	
		TN620M	Gray	TiCN	· Tough cermet for milling with excellent balance of wear resistance and toughness	
		TN100M	Gray	TiCN+NbC	· Tough cermet with improved oxidation resistance and thermal shock resistance · Application: Milling of steel at high speed	
	CVD Cermet	CCX	Gold	TiCN	· Good balance of wear resistance and toughness · Application: Grooving and threading of steel · Ultra-fine grain, high-strength cermet base material with thick film CVD coating for excellent wear resistance and chipping resistance, achieving a long life in high-speed machining · Application: High-speed finishing of steel to light interrupted cutting	
		MEGACOAT NANO Cermet	PV710	Gold	TiCN (MEGACOAT NANO)	· Superior wear and adhesion resistant MEGACOAT NANO on wear resistant cermet · Application: Long tool life and stability in high speed continuous machining of steel, excellent surface finish
			PV720	Gold	TiCN (MEGACOAT NANO)	· Superior wear and adhesion resistant MEGACOAT NANO on wear resistant, tough cermet · Application: First recommendation PVD coated cermet for steel machining and high quality surface finish
			PV730	Gold	TiCN (MEGACOAT NANO)	· Fracture resistant grade with MEGACOAT NANO on wear resistant, tough cermet · Application: Wear resistant PVD coated cermet for steel machining and high quality surface finish
PV60M			Gold	TiCN+NbC (MEGACOAT NANO)	· Milling grade with improved stability using MEGACOAT NANO coating technology · Application: Stable steel milling and high-quality surface finish	
MEGACOAT Cermet	PV7040	Blackish Red	TiC+TiN (MEGACOAT)	· MEGACOAT cermet for grooving · Application: Excellent surface finish and longer tool life in steel grooving		
	PV7005	Blackish Red	TiC+TiN (MEGACOAT)	· Heat-resistant MEGACOAT on cermet with excellent wear resistance · Application: High speed finishing of gray and nodular cast iron		
K Cast Iron						

Application Map (PVD and Uncoated Cermet)



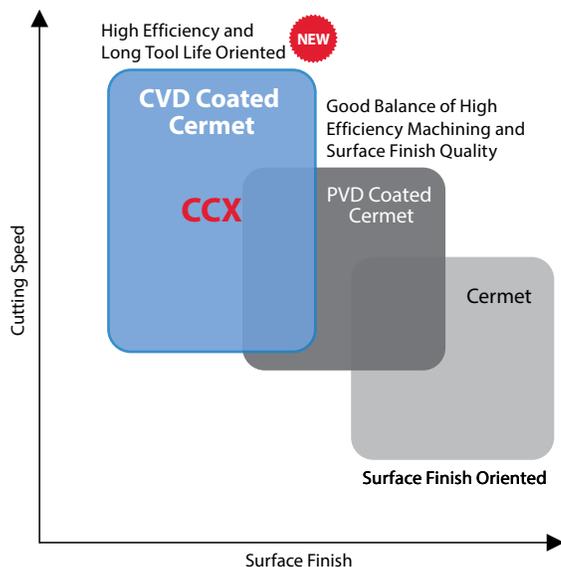
TN-Series (Uncoated Cermet)

- TN610: High Wear Resistance
- TN620: Chipping Resistance

PV-Series (MEGACOAT NANO Cermet)

- PV710: Long Tool Life and Stable Machining for High Speed Continuous Cuts
- PV720: First Recommendation for Efficiency and High Quality Surface Finish
- PV730: Tough Cermet for High Stability and High Quality Surface Finish

Application Map (CVD Coated Cermet)



Uncoated CERMET TN610 / TN620

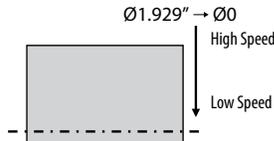
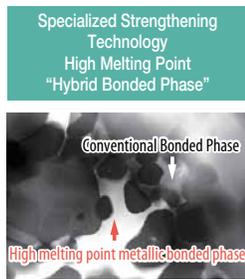
MEGACOAT NANO CERMET PV710 / PV720 / PV730

3 Hybrid Technology Attributes Maintain Superior Surface Finish and Machining Stability

Excellent Surface Finish

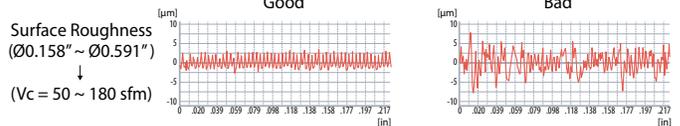
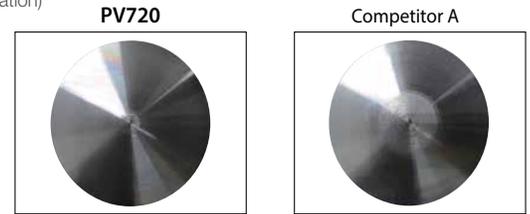
Combining the conventional cermet bonded phase (nickel, cobalt) and the special high melting point metallic bonded phase.

Provides high adhesion resistance to eliminate galling of the work piece.



Surface Finish Comparison (In-house Evaluation)

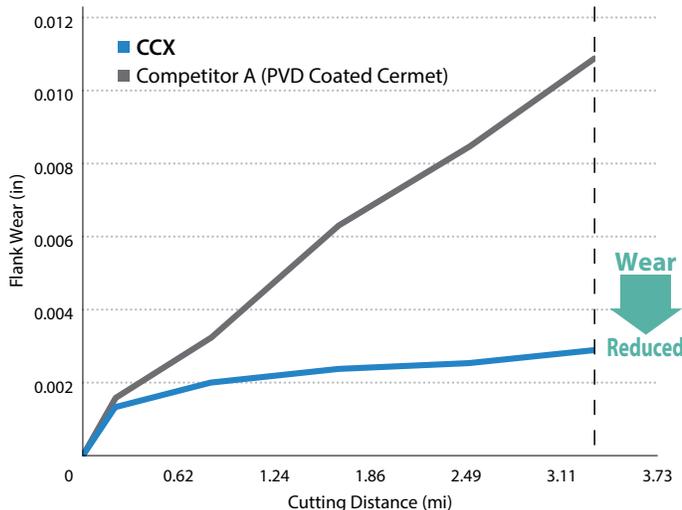
Cutting Conditions: Vc = 590 ~ 0 sfm (Constant Rate), D.O.C. = 0.020"
f = 0.004 ipr, Wet, CNMG431 type Workpiece: 1010



CVD Coated Cermet for Finishing CCX

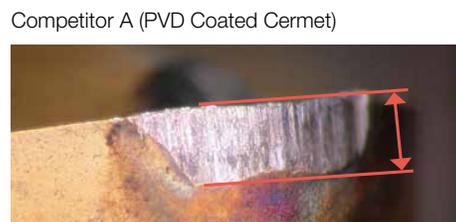
- Combination of cermet with a CVD coating provides high-speed machining for better productivity
- Applicable to a wide range of cutting conditions from general to high-speed applications
- Maintains long tool life in soft steel, general steel and cast iron machining

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : Vc = 3,280 sfm, D.O.C. = 0.010", f = 0.006 ipr, Wet
CNMG432 Type Facing

Cutting Edge (As of 3.29 mi of machining)

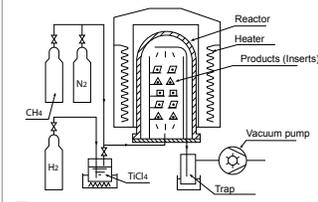


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CVD COATED CARBIDE



CVD (Chemical Vapor Deposition)



Features

- ① Equally deposited on face
- ② Easy application for multilayer deposition
- ③ Enabling thick coating

Processing Temperature: 900° ~ 1100°C

CVD COATED CARBIDE

KYOCERA's CVD coated carbide grades are based on ceramic thin film technology and provide stable, efficient cutting at high speeds or heavily interrupted applications.

- Applicable from low to high speed cutting and from finishing to roughing
- Stable cutting is achieved due to the superior toughness and crack resistance
- Cutting times are reduced due to good chip control from effective chipbreakers

FEATURES OF CVD COATED CARBIDE

Material	Description	Color	Main Component (Coating Composition)	Advantages
P Steel	CA510	Gold	TiCN+Al ₂ O ₃ +TiN	· Special substrate with thermal deformation resistance along with a thick and tough coating layer providing high wear resistance · Application: High speed and high efficiency steel machining
	CA515	Gold	TiCN+Al ₂ O ₃ +TiN	· Improved wear resistance and stability due to special substrate with heat deformation resistance and hard and tough coating layer with reinforced interface · Application: Light interrupted machining of steel
	CA025P	Gold	TiCN+Al ₂ O ₃ +TiN	· Thickened alumina with good thermal resistance (twice as thick as conventional coating) and specialized post-coating process prevents adhesion. · Application: General to interrupted machining of steel
	CA525	Gold	TiCN+Al ₂ O ₃ +TiN	· Stable and long tool life machining due to special substrate with heat deformation resistance and tougher coating layer and reinforced interface · Application: Interrupted to general machining of steel
	CA530	Gold	TiCN+Al ₂ O ₃ +TiN	· Special tough substrate and tough coating layer providing high stability and wear resistance · Application: General to heavy interrupted machining (stability oriented)
	CA5505	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: High speed continuous machining of steel, continuous to light interrupted machining of cast iron
	CA5515	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: Machining of steel, continuous to light interruption
	CA5525	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: For general machining of steel, roughing to interruption
	CA5535	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: Roughing to heavily interrupted machining of steel
	CR9025	Gold	TiCN+TiN	· Application: For general machining of steel, roughing to interruption
M Stainless Steel	CA6515	Gold	TiCN+Al ₂ O ₃ +TiN	· Specialized carbide substrate for machining stainless steel, excellent wear resistance · Application: Continuous machining of stainless steel
	CA6525	Gold	TiCN+Al ₂ O ₃ +TiN	· Specialized carbide substrate for machining stainless steel with excellent notching resistance and toughness · Application: First choice for general machining of stainless steel, from finishing to roughing, continuous to interruption
K Cast Iron	CA310	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	· Grade for high-speed continuous machining and improved tool life through the deposition of a thickened Al ₂ O ₃ coating layer · Application: For finishing to roughing of gray cast iron
	CA315	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	· High efficiency and long tool life for continuous to interrupted machining with a good balance of wear resistance and stability · Excellent performance for machining gray and nodular cast iron
	CA320	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	· Improved stability with CVD layer structure with high adhesion · Application: Roughing to heavy interrupted cutting of nodular cast iron
	CA4010	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: Continuous to light interrupted high speed machining of cast iron
	CA4115	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: Continuous to light interrupted machining of nodular cast iron
	CA4120	Gold	TiCN+Al ₂ O ₃ +TiN	· Application: Roughing to heavy interrupted machining of nodular cast iron
	CA4505	Blackish Gray	TiCN+Al ₂ O ₃	· Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer · Application: For gray cast iron and nodular cast iron at high speed in continuous to light interrupted machining
	CA4515	Blackish Gray	TiCN+Al ₂ O ₃	· Stable, longer tool life due to improved bonding strength of coating layers and special treatment of the surface of the top coating layer · Application: First choice for gray cast iron and nodular cast iron in light to heavy interrupted machining

CVD Coated Carbide for Steel CA025P

Next Generation CVD Coating for Longer Tool Life

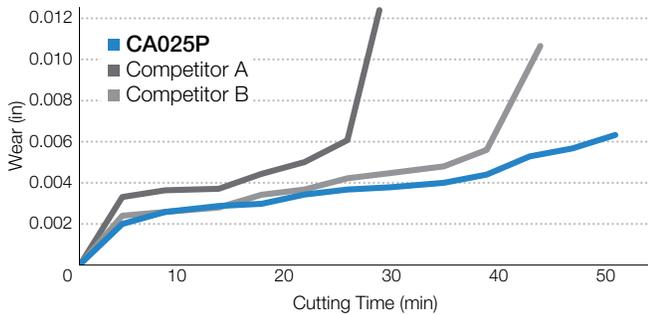


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

1 Improved Wear Resistance with New CVD Grade for Steel

Thickened Alumina with Good Thermal Resistance (Twice as thick as conventional coating)
Improved Plastic Deformation Resistance by Increased Temperature Strength

Wear Resistance Comparison (Internal Evaluation)



CA025P (50.4 min)



Good Surface Condition

Competitor A (29.4 min)



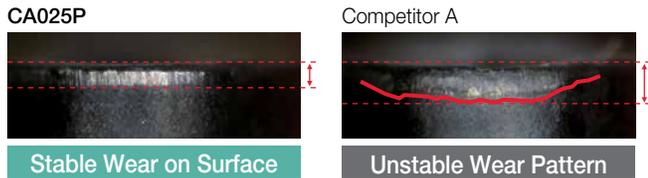
Competitor B (42 min)



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.012 ipr, Wet Workpiece : 4137

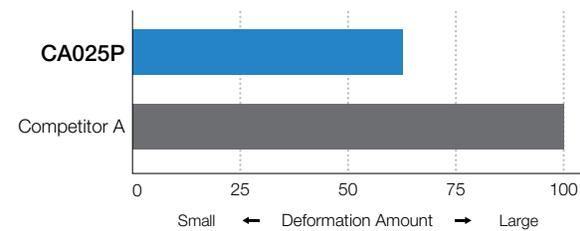
CA025P Maintains Smooth and Flat Surface with Stable Tool Life

Wear Comparison (Internal Evaluation) Cutting Time 25.2 min



Cutting Conditions : Vc = 980 sfm, D.O.C. = 0.059", f = 0.012 ipr, Wet Workpiece : 4137

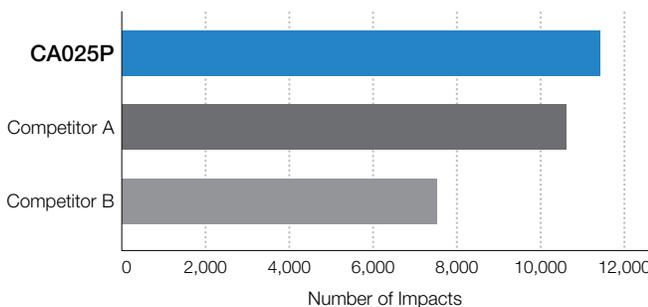
Plastic Deformation Comparison under High Temperature (Internal Evaluation) Comparison with Competitor A



2 Excellent Fracture Resistance

New Substrate with High Stability Provides Excellent Chipping Resistance

Fracture Resistance Comparison (Internal Evaluation) Average of 5 times



Cutting Conditions : Vc = 820 sfm, D.O.C. = 0.059", f = 0.014 ipr, Wet Workpiece : 4140 (with 4 Slots)

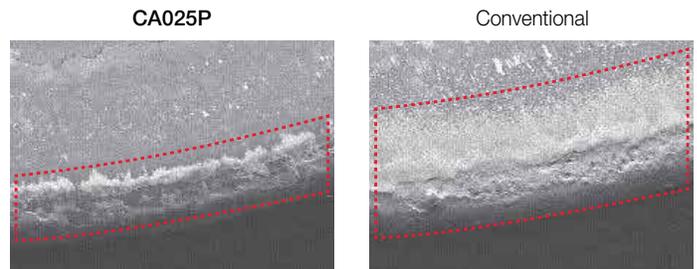
800.823.7284

Visit us online at KyoceraPrecisionTools.com

3 Excellent Adhesion Resistance and Chipping Resistance

Specialized Post-coating Process Prevents Adhesion

Adhesion on the Edge after Cutting (Internal Evaluation)



Less Adhesion

Wide Area of Adhesion
* Adhesion area appears white

Cutting Conditions : Vc = 890 sfm, D.O.C. = 0.039", f = 0.004 ipr, Wet Workpiece : 4140 (with 4 Slots)

PVD COATED CARBIDE FOR TURNING



PVD COATED CARBIDE

KYOCERA's PVD coated carbides for turning utilize very tough carbide substrates. The low processing temperature, compared with CVD, leads to improved bending strength, less deterioration of the coating and superior tool life with stable machining.

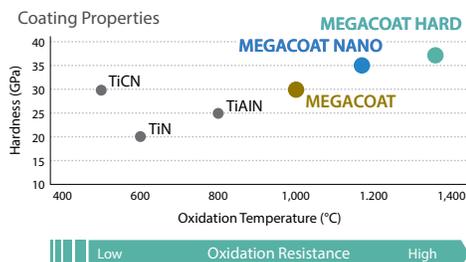
PVD COATED SUPER MICRO-GRAIN CARBIDE

- Smooth fine surface of PVD coated carbide provides good surface finish and high precision machining
- Stable machining with excellent toughness

FEATURES OF PVD COATED CARBIDE FOR TURNING

Material	Description	Color	Main Component (Coating Composition)	Advantages
P Steel	PR915 (Super Micro-Grain)	Bluish Violet	TiAlN	· Application: Stable and reliable high precision machining of steel
	PR930 (Super Micro-Grain)	Reddish Gray	TiCN	· Application: Low machining speed, precise machining with sharp edge
	PR1005	Reddish Gray	TiCN	· TiCN base PVD coated hard micro-grain carbide · Application: Turning of free-cutting steel, longer tool life achieved through anti-adhesion performance
	PR1025	Reddish Gray	TiCN	· Application: General machining of steel and stainless steel, stable and longer tool life
	PR1115	Purple Red	TiAlN	· Superior oxidation resistance with well balanced wear resistance and toughness · Application: Machining of steel and stainless steel, for grooving, cut-off and threading
	PR1215	Blackish Red	MEGACOAT	· Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate · Application: Superior adhesion resistance and longer tool life for steel and stainless steel machining
	PR1425	Blackish Red	MEGACOAT NANO	· Nano thin multi-layer coating MEGACOAT NANO for superior wear resistance and high oxidation resistance · Application: Variety of steels, high speed machining of stainless steel with extended tool life
	PR1625	Blackish Red	MEGACOAT NANO	· Nano thin multi-layer coating MEGACOAT NANO for superior wear resistance and high oxidation resistance · Application: Stable machining and long tool life when grooving steel and stainless steel
	PR1705	Silver	MEGACOAT NANO PLUS	· Special MEGA COAT NANO PLUS nano-laminated coating for excellent wear resistance and welding resistance · Application: Excellent wear resistance and high-precision machining of free-cutting steel
	PR1725	Silver	MEGACOAT NANO PLUS	· Special MEGA COAT NANO PLUS nano-laminated coating for excellent wear resistance and welding resistance · Application: General purpose grade for stable machining and long tool life when turning steel and stainless steel
M Stainless Steel	PR1125	Purple Red	TiAlN	· Hard TiAlN base PVD coated super micro-grain carbide, superior toughness and heat resistance · Application: Finishing and light interrupted machining of stainless steel
	PR1225	Blackish Red	MEGACOAT	· Superior wear and oxidation resistant MEGACOAT on micro grain carbide substrate · Application: Light interrupted to interrupted cutting of stainless steel
	PR1515	Blackish Red	MEGACOAT NANO	· Nano thin multi-layer coating on micro-grain carbide substrate for improved wear resistance and stability · Application: Threading of stainless steel
	PR1535	Blackish Red	MEGACOAT NANO	· Nano thin multi-layer coating on micro-grain carbide substrate for improved wear resistance and stability · Application: Medium to roughing of stainless steel and heat-resistant alloys, cut-off of stainless steel
K Cast Iron	PR905	Bluish Violet	TiAlN	· Smooth fine surface PVD coated hard carbide with plastic deformation resistance · Application: Suitable for machining gray and nodular cast iron
S Heat-Resistant Alloys	PR005S	Blackish Gray	MEGACOAT HARD	· MEGACOAT on hard and superior heat resistant carbide, superior wear resistance · Application: Finishing of heat-resistant alloys
	PR015S	Blackish Gray	MEGACOAT HARD	· High temperature properties of special carbide substrate and excellent heat-resistance of MEGACOAT HARD for high wear resistance · Application: Finishing and high speed application of heat-resistant alloys
	PR1305	Blackish Red	MEGACOAT	· MEGACOAT on hard and superior heat-resistant carbide, superior wear resistance · Application: Finishing of heat-resistant alloys
	PR1310	Blackish Red	MEGACOAT	· MEGACOAT on hard and superior heat-resistant carbide, superior wear and oxidation resistance · Application: First choice for continuous and light interrupted machining and finishing of heat-resistant alloys
	PR1325	Blackish Red	MEGACOAT	· MEGACOAT on tough carbide · Application: Light interrupted machining and roughing of heat-resistant alloys

PVD Coating Properties

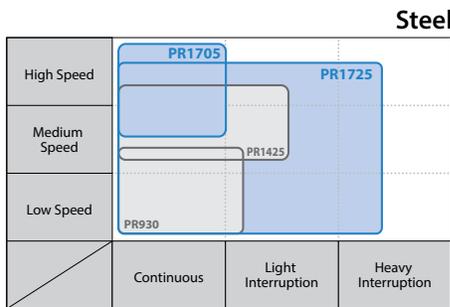


PVD Coated Carbide

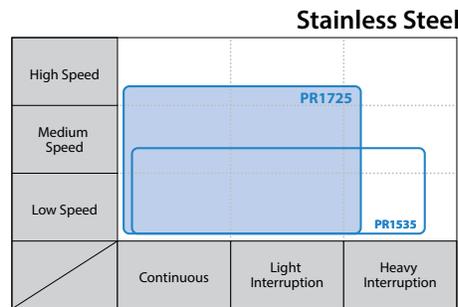
PR1725 / PR1705

Excellent Surface Finish and Long Tool Life

Great Performance in Small Parts Machining Applications



PR1725 : 1st Recommendation for Steel



PR1725 : For general purpose high-speed machining

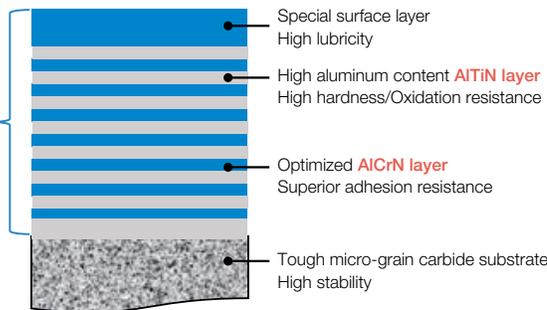
PR1535 : 1st Recommendation for stainless steel machining with long tool life and high-quality surface finish

MEGACOAT NANO PLUS

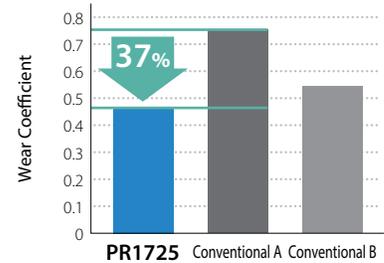
AlTiN/AlCrN Nano laminated film with superior wear resistance and adhesion resistance. Excellent surface finish and long tool life.

REDUCES CRACKING

Reduces abnormal damage such as chipping because of increased lamination layer with a thinner gap than conventional coatings



Wear Coefficient Comparison (Internal evaluation)



Superior Wear and Chipping Resistance

High Strength with nano laminated film layer properties
Internal stress optimization reduces chipping

Excellent Surface Finish

Special surface layer with great lubricity reduces adhesion

Applicable to Various Workpiece Materials

Superior high temperature properties and oxidation resistance make for great performance in steel, stainless steel and free-cutting steel

High Machining Stability

Tough micro-grain carbide substrate provides stable machining

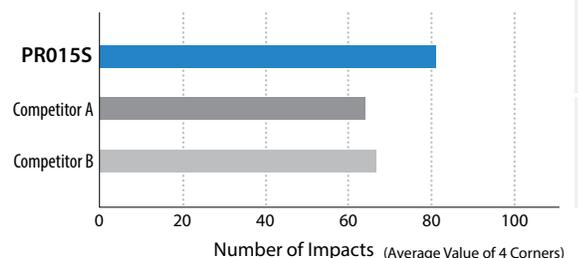
PR005S / PR015S for Heat-Resistant Alloy

PR005S : Hard, Wear-resistant Grade for High-speed Machining

PR015S : General Purpose Grade with Excellent Wear Resistance and Stability

- Improved thermal conductivity by optimum distribution of WC coarse grains
- Resists heat concentration at the cutting edge to promote stable machining
- Improved wear resistance with MEGACOAT HARD coating with high-hardness to resist boundary damage with improved thermal properties

Fracture Resistance Comparison (Internal Evaluation)



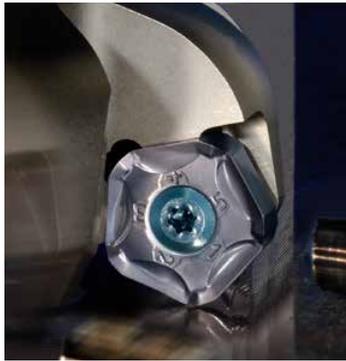
Cutting Conditions: Vc = 80 sfm, D.O.C. = 0.039", f = 0.004 ipr, Wet
CNMG432 Type Workpiece: Nickel-based Superalloy
Cylindrical Workpiece with 1 Flat Face

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK-CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

PVD / CVD COATED CARBIDE FOR MILLING & DRILLING

A

INSERT GRADES



PVD Coated Carbide (MEGACOAT / MEGACOAT NANO)

KYOCERA's PVD coated carbides for milling and drilling utilize very tough carbide substrates. The low processing temperature, compared with CVD, leads to improved bending strength, less deterioration of the coating and superior tool life with stable machining.

CVD Coated Carbide

CVD coated carbide grades provide stable, efficient machining at high speeds or for heavy interrupted applications. Ti-base (TiN, TiCN) coating with superior hardness and wear resistance or ceramic-base (Al₂O₃) coating with high-thermal stability is applied on a tough carbide substrate. Superior fracture and wear resistance.

FEATURES OF PVD / CVD COATED CARBIDE FOR MILLING & DRILLING

Material	Description	Color	Main Component (Coating Composition)	Advantages
<div style="background-color: #0070C0; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">P</div> <div style="background-color: #0070C0; color: white; padding: 2px; text-align: center; width: 30px; margin: 0 auto; font-size: 8px;">Steel</div>	PR830	Gold	TiAlN+TiN	<ul style="list-style-type: none"> Improved high temperature stability and wear resistance with TiAlN base PVD coating Application: Milling of steel
	PR1230	Blackish Red	MEGACOAT	<ul style="list-style-type: none"> Superior wear and oxidation-resistant MEGACOAT on a special tough carbide substrate Application: Stable and high feed milling and drilling of steel
	PR1525	Blackish Red	MEGACOAT NANO	<ul style="list-style-type: none"> MEGACOAT NANO coating technology with a nano thin multi-layer coating performs with superior wear resistance and high oxidation resistance Application: Stable and longer tool life for milling of steel and stainless steel
	CA520D	Gold	TiCN+Al ₂ O ₃ +TiN (CVD)	<ul style="list-style-type: none"> Combination of tough substrate, coating crystal control technology, and advanced layer adhesion coating ensures exceptional wear and fracture resistance Application: 1st recommendation for drilling of steel (high speed applications)
<div style="background-color: #FFD700; color: black; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">M</div> <div style="background-color: #FFD700; color: black; padding: 2px; text-align: center; width: 30px; margin: 0 auto; font-size: 8px;">Stainless Steel</div>	PR1225	Blackish Red	MEGACOAT	<ul style="list-style-type: none"> Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate Application: General high feed milling and drilling of steel and stainless steel
<div style="background-color: #D9534F; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">K</div> <div style="background-color: #D9534F; color: white; padding: 2px; text-align: center; width: 30px; margin: 0 auto; font-size: 8px;">Cast Iron</div>	PR1210	Blackish Red	MEGACOAT	<ul style="list-style-type: none"> Superior wear and oxidation-resistant MEGACOAT coated on specialized carbide substrate Application: Highly efficient stable milling and drilling of gray and nodular cast iron
	PR1510	Blackish Red	MEGACOAT NANO	<ul style="list-style-type: none"> New coating technology [MEGACOAT NANO] is applied. Nano thin multi-layer coating performs superior wear resistance and high oxidation resistance. Application: For gray and nodular cast iron, stable wear resistance and toughness
	CA415D	Gold	TiCN+Al ₂ O ₃ +TiN (CVD)	<ul style="list-style-type: none"> Combination of tough substrate for cast iron, coating crystal control technology, and advanced layer adhesion coating ensures exceptional wear resistance Application: 1st recommendation for drilling of gray and nodular cast iron
	CA420M	Gold	TiCN+Al ₂ O ₃ +TiN (CVD)	<ul style="list-style-type: none"> Kyocera's unique crystal control technology and advanced layer adhesion CVD coating with superior wear resistance and toughness Application: Milling of gray and nodular cast iron
<div style="background-color: #8B4513; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">S</div> <div style="background-color: #8B4513; color: white; padding: 2px; text-align: center; width: 30px; margin: 0 auto; font-size: 8px;">Heat-Resistant Alloys</div>	PR1535	Blackish Red	MEGACOAT NANO	<ul style="list-style-type: none"> Nano thin multi-layer coating MEGACOAT NANO improves wear resistance and stability Application: For milling of Ni-base heat-resistant alloys, titanium alloys and precipitation hardened stainless steel
	CA6535	Gold	TiCN+Al ₂ O ₃ +TiN (CVD)	<ul style="list-style-type: none"> High heat-resistance and wear resistance with CVD coating Application: For milling of Ni-base heat-resistant alloys and martensitic stainless steel
<div style="background-color: #333; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">H</div> <div style="background-color: #333; color: white; padding: 2px; text-align: center; width: 30px; margin: 0 auto; font-size: 8px;">Hardened Materials</div>	PR015S	Blackish Gray	MEGACOAT HARD	<ul style="list-style-type: none"> MEGACOAT NANO HARD coating technology achieves stable machining in hardened materials with excellent wear resistance and chipping resistance Application: Suitable for machining hardened materials of 60 HRC or less and difficult-to-cut materials

Grades for Heat-resistant Alloys and Difficult-to-cut materials

CA6535 ^{CVD}

for Ni-base Heat Resistant Alloy and Martensitic Stainless Steels

PR1535 ^{PVD}

for Titanium Alloy and Precipitation Hardened Stainless Steels

New grades for difficult-to-cut material

Stable cutting prevents insert fracturing for highly efficient machining



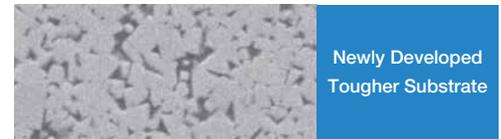
CA6535

- For Ni-base heat resistant alloys and martensitic stainless steel
- High heat resistance and wear resistance with CVD coating
- Improved stability due to thin film coating technology

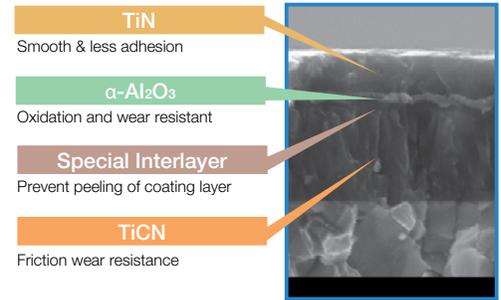


PR1535

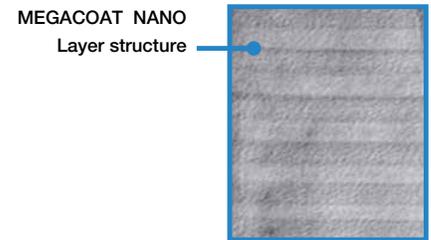
- For titanium alloys and precipitation hardened stainless steel
- Stabilized milling operation and long tool life with Kyocera's MEGACOAT NANO coating technology
- Improved stability due to thin film coating technology



Newly Developed Tougher Substrate

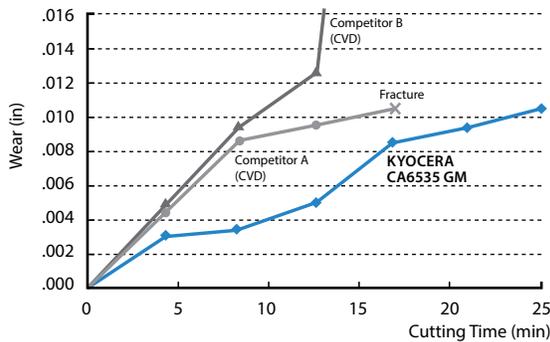


- TiN**
Smooth & less adhesion
- α -Al₂O₃**
Oxidation and wear resistant
- Special Interlayer**
Prevent peeling of coating layer
- TiCN**
Friction wear resistance



MEGACOAT NANO Layer structure

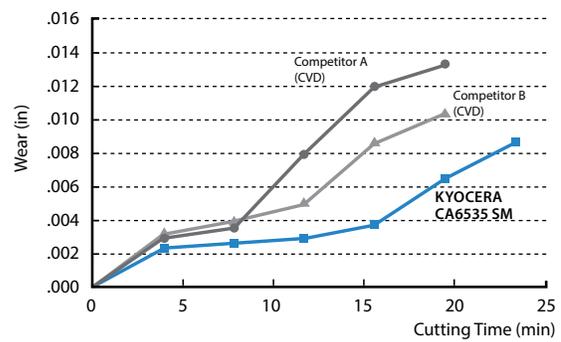
• Ni-base Heat Resistant Alloy



Cutting Conditions: 165 sfm, 0.006 ipt, 0.039" D.O.C., Coolant

(Internal Evaluation)

• Martensitic Stainless Steel



Cutting Conditions: 980 sfm, 0.008 ipt, 0.079" D.O.C., Coolant

(Internal Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CERAMIC



CERAMIC

Ceramic inserts are capable of running at high speeds, thus reducing expensive machining time. Hard turning of 38HRC to 64HRC hardened steel, or rough to finish turning of cast iron are recommended applications for ceramic inserts. KYOCERA's ceramic grades are designed to resist oxidation and maintain hardness at elevated temperatures.

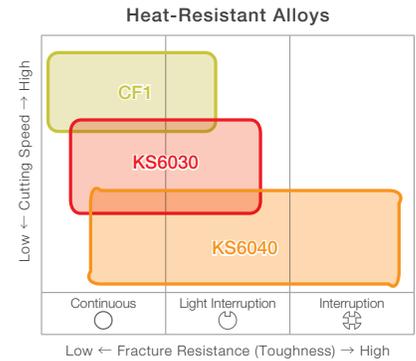
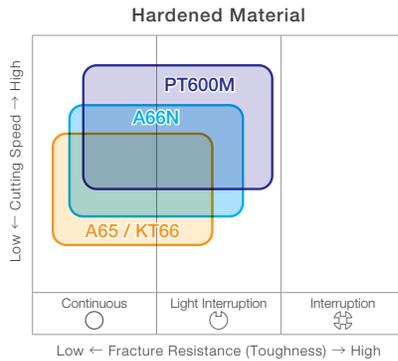
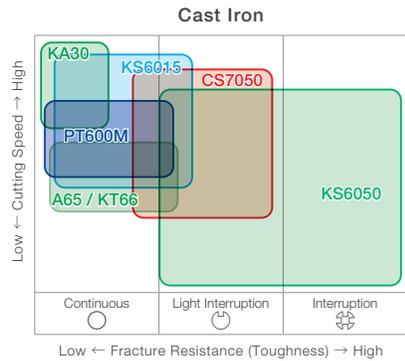
FEATURES

- Excellent wear resistance for high cutting speeds
- Ceramic maintains good surface finishes due to the low affinity to workpiece materials
- Silicon nitride ceramic has improved thermal shock resistance allowing cast iron cutting using coolants

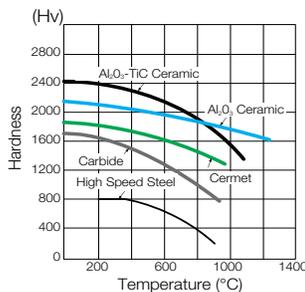
FEATURES OF CERAMIC

Material	Description	Color	Main Component (Coating Composition)	Coating Layer	Hardness of Substrate (GPa)	Fracture Toughness (MPa·m ^{1/2})	Transverse Strength (MPa)	Advantages
K Cast Iron	KA30	White	Al ₂ O ₃	-	17.5	4.0	750	• Aluminum oxide ceramic (Al ₂ O ₃) • Application: Finishing of cast iron at high cutting speeds without coolant
	KS6015	Black	Si ₃ N ₄	-	15.2	7.8	1,000	• Silicon nitride ceramic (Si ₃ N ₄) • Application: High-speed continuous machining of cast iron. Focus on wear resistance. (with or without coolant)
	KS6050	Gray	Si ₃ N ₄	-	15.6	8.0	1,200	• Silicon nitride ceramic (Si ₃ N ₄) • Application: General purpose and interrupted machining of cast iron. Focus on stability. (with or without coolant)
	CS7050	Grayish White	Si ₃ N ₄ (Special Al ₂ O ₃ Coat)	Thin Coating	15.6	8.0	1,200	• Silicon nitride ceramic (Si ₃ N ₄) CVD Coated Carbide (Special Al ₂ O ₃ COAT) • Application: Finishing and continuous machining, high speed and high efficient machining (with or without coolant)
K Cast Iron	KT66	Black	Al ₂ O ₃ +TiC	-	20.1	4.1	980	• Aluminum Oxide and Titanium Carbide ceramic (Al ₂ O ₃ +TiC) • Application: Hard materials and hardened roll materials
	A65	Black	Al ₂ O ₃ +TiC	-	20.1	4.1	980	• Aluminum Oxide and Titanium Carbide ceramic (Al ₂ O ₃ +TiC) • Application: Semi-roughing to finishing of cast iron, and hard materials
H Hardened Materials	A66N	Gold	Al ₂ O ₃ +TiC (TiN Coat)	Thin Coating	20.1	4.1	980	• TiN PVD coated Aluminum Oxide and Titanium Carbide ceramic (TiN coated Al ₂ O ₃ +TiC) • Application: Semi-roughing to finishing of hard materials
	PT600M	Blackish Red	Al ₂ O ₃ +TiC (MEGACOAT)	Thin Coating	20.1	4.1	980	• Heat-resistant MEGACOAT on Aluminum Oxide and Titanium Carbide ceramic (MEGACOAT Al ₂ O ₃ +TiC) • Application: Semi-roughing to finishing of cast iron, hard materials and hardened roll materials
S Heat-Resistant Alloys	KS6030	Gray	SiAlON	-	15.2	6.0	600	• SiAlON Ceramic with superior wear resistance and high resistance against boundary wear • Application: Finishing to medium machining of heat-resistant alloys
	KS6040	Brown	SiAlON	-	16.7	7.0	900	• High stability SiAlON ceramic with wear resistance and fracture resistance • Application: Roughing of heat-resistant alloys

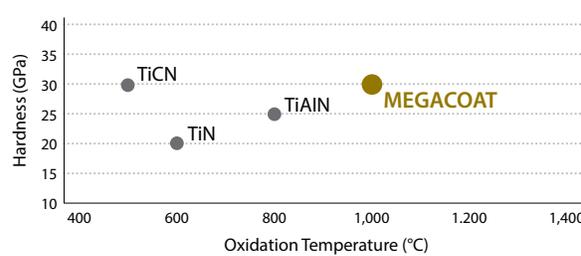
Application Maps



High Temperature Hardness



PVD Coating Properties



CBN



CBN

KYOCERA CBN is second only to diamond in hardness. CBN (Cubic Boron Nitride) is a synthetically produced material with high thermal conductivity which provides stable cutting.

FEATURES

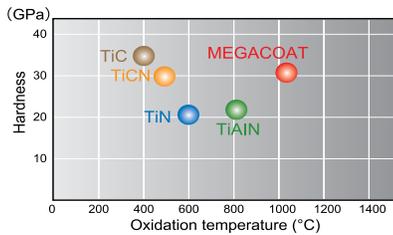
- Superior wear resistance when cutting hardened materials
- Suitable for high speed cutting of cast iron and sintered steel
- High thermal conductivity provides stable cutting

FEATURES OF CBN

Material	Description	Color	Av. Grain Size (µm)	Hardness of Substrate (GPa)	Transverse Strength (MPa)	Advantages
H Hardened Materials	KBN510	Black	2	28	1,000	<ul style="list-style-type: none"> • Excellent wear resistance and crack resistance, non-coated CBN • Application: Finishing and continuous cutting of hardened die steel
	KBN525	Black	1 and Under	25	1,250	<ul style="list-style-type: none"> • Good balance of toughness and wear resistance, non-coated CBN • Application: General grade for hardened steel, high stability at high speed and high feed cutting
	KBN05M (MEGACOAT)	Blackish Red	0.5-1.5	27	1,000	<ul style="list-style-type: none"> • Heat-resistant MEGACOAT on highly heat-resistant CBN substrate • Application: High speed finishing of hardened steel
	KBN10M (MEGACOAT)	Blackish Red	2	28	1,000	<ul style="list-style-type: none"> • Heat-resistant MEGACOAT on CBN with hard binder phase, superior anti-crater wear resistance • Application: High speed finishing of hardened die steel
	KBN25M (MEGACOAT)	Blackish Red	1 and Under	25	1,250	<ul style="list-style-type: none"> • Heat-resistant MEGACOAT on micro-grain CBN with heat resistant binder phase • Application: Stable cutting of hardened steel at high speed
Sintered Steel	KBN570	Black	2-4	34	1,350	<ul style="list-style-type: none"> • High CBN content ratio • Application: Machining of sintered steel (preventing burr formation)
	KBN70M (MEGACOAT)	Blackish Red	2-4	34	1,350	<ul style="list-style-type: none"> • Heat-resistant MEGACOAT on CBN rich substrate • Application: General cutting of sintered steel (ferrous sintered alloy) at high speed
K Cast Iron	KBN475	Black	2	39	1,400	<ul style="list-style-type: none"> • Excellent wear resistance due to high CBN content and special binder • Application: High speed machining of gray cast iron
	KBN60M (MEGACOAT)	Blackish Red	0.5-6	33	1,250	<ul style="list-style-type: none"> • Heat-resistant MEGACOAT on CBN rich substrate with hard binder phase • Application: High speed finishing of gray cast iron
	KBN900 (TIN COAT)	Gold	9	31	630	<ul style="list-style-type: none"> • TiN coated solid CBN • Application: Heavy duty, interrupted cutting and finishing of hardened steel, hardened roll steel and cast iron

MEGACOAT CBN

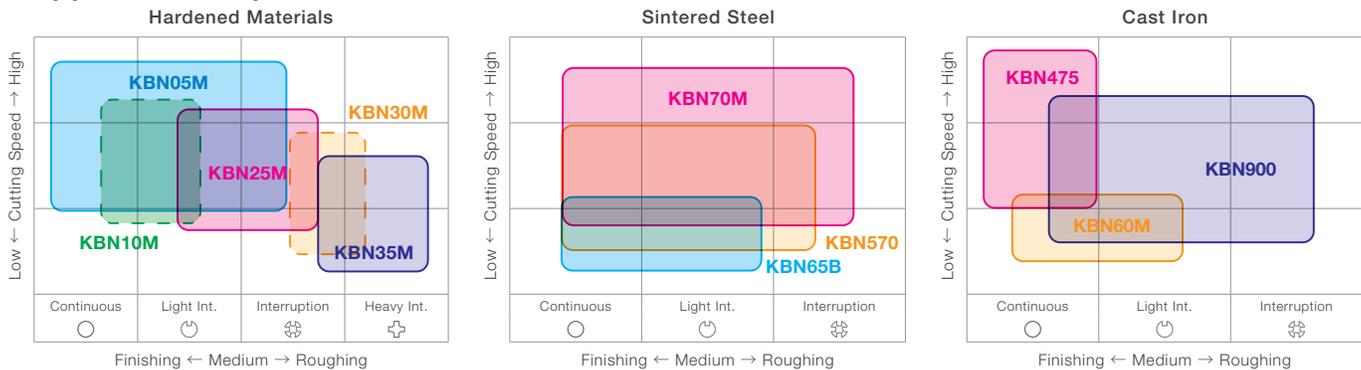
● Properties of PVD Coated Layer



● Advantages of MEGACOAT

- Long tool life and stable cutting due to superior heat-resistance and hardness
- Improvement of crater wear (oxidation, diffusional wear) resistance
- High thermal stability and surface smoothness provide excellent surface finish

Application Map



PCD



PCD (Polycrystalline Diamond)

KYOCERA diamond material is a synthetic diamond sintered under high temperatures and pressures. PCD (Polycrystalline diamond) is ideal for non-ferrous metals and non-metals.

FEATURES

- Applicable for non-ferrous metals, non-metals turning, milling and other various type of cutting
- Long tool life due to extreme hardness
- Capable of high cutting speeds which increases cutting productivity
- Reduced edge build-up allows for high precision cutting
- Diversified applications for cutting of non-ferrous materials and non-metals
- Finished surface will be rainbow colored.
(a mirror-like finished surface will not be obtained as when single crystal diamond is used.)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

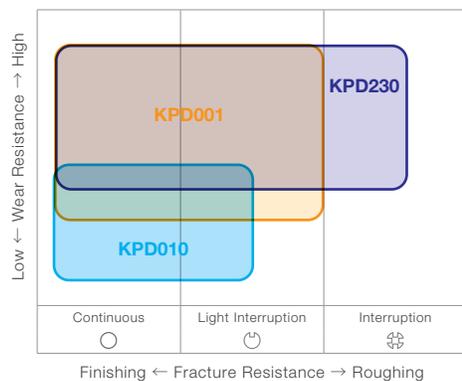
FEATURES OF PCD

Material	Description	Avg. Grain Size (µm)	Advantages
	KPD001	0.5	<ul style="list-style-type: none"> • Super Micro-Grain PCD features cutting edge strength, wear resistance, fracture resistance, good edge-sharpening performance and long, stable tool life. • Application: High speed cutting of aluminum alloys, brass, non-ferrous metals and non-metals including plastics, fiberglass, carbide and ceramics.
	KPD010	10	<ul style="list-style-type: none"> • Good wear resistance and toughness, good grindability • Application: General purpose, high speed cutting of aluminum alloys, non-ferrous metals and non-metals including plastics, fiberglass, carbide and ceramics.
	KPD230	2-30	<ul style="list-style-type: none"> • Superior abrasive wear resistance and toughness due to high density PCD with mixed rough and fine grains • Application: High speed milling of aluminum alloys, non-ferrous metals, plastics and fiberglass
	KPD250	25	<ul style="list-style-type: none"> • Excellent wear resistance due to coarse-grained PCD (25 µm) • Application: High-speed processing of high-silicon aluminum alloy, processing of cemented carbide

Applications

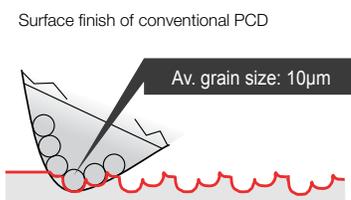
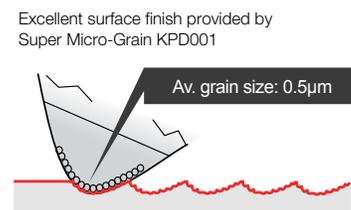
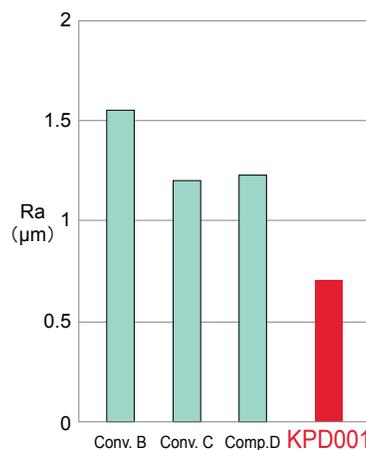
Workpiece Material	Non-ferrous materials (Aluminum / Non-ferrous metals / Non-metals)				Difficult-to-Cut Materials Titanium / Titanium alloys				
	Finishing ← → Roughing				Finishing ← → Roughing				
Cutting Range									
Classification	N01	N10	N20	N30	S01	S10	S20	S30	
Turning Milling	PCD	KPD001				KPD001			
		KPD010				KPD010			
		KPD230							
		KPD250							

Application Map



Surface Finish Roughness

Comparison of Aluminum Cutting



(Grain size affects surface finish quality)

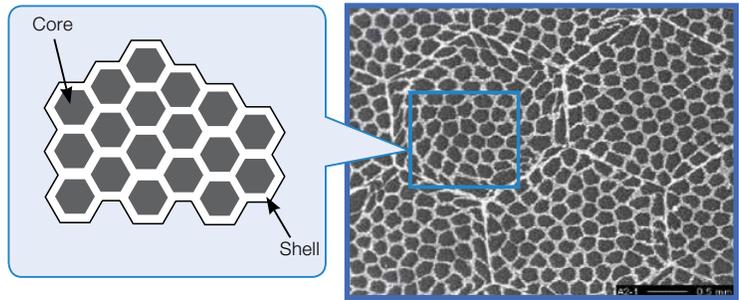
Honeycomb Structure CBN / CERAMIC

Honeycomb Structure CBN / CERAMIC

Honeycomb structure is a composite material consisting of a hard and superior wear-resistant core (gray portion) and a tough shell (white portion) with a precisely controlled grain structure.

FEATURES

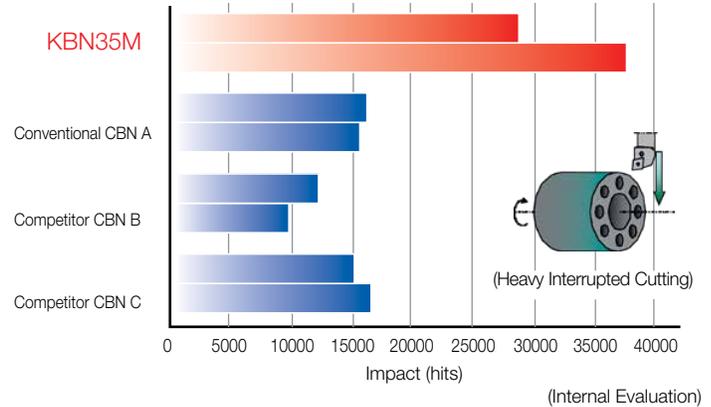
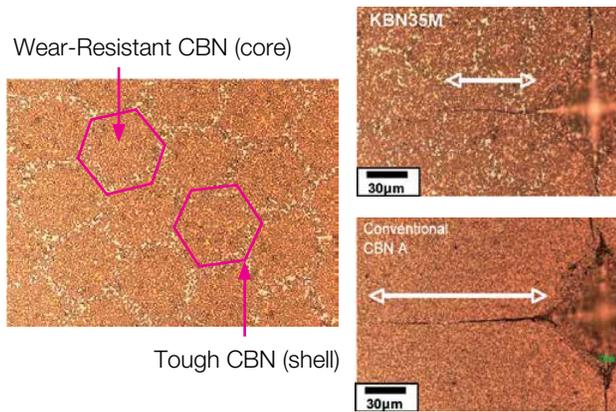
- Cell Fibers combine a hard, wear-resistant core and a tough shell into one insert.
- The tough shell stops cracks that form in the core.
- CBN is good for interrupted machining of exceptionally hard material and ceramic is good for heat-resistant alloys



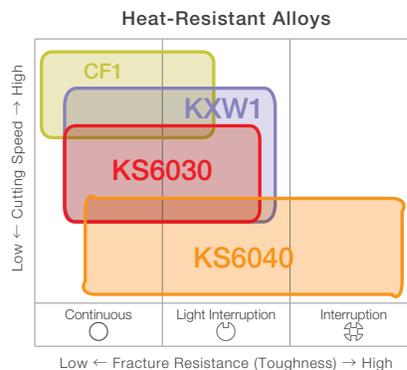
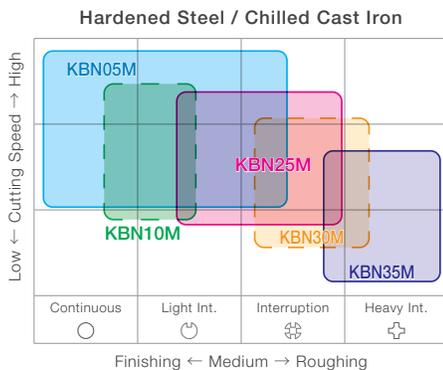
FEATURES OF CBN				
Material	Description	Color	Main Component (Coating Composition)	Advantages
H Hardened Materials	KBN35M (MEGACOAT)	Blackish Red	CBN	<ul style="list-style-type: none"> • Honeycomb structure CBN composite material consisting of wear resistant CBN (core) and tough CBN (shell) • Heat-resistant MEGACOAT on tough Honeycomb structure CBN • Application: Stable machining of hardened steel at interrupted machining
S Heat-Resistant Alloys	CF1	Gray	Ceramic	<ul style="list-style-type: none"> • Honeycomb structure ceramic composite material consisting of wear resistant ceramic (core) and tough ceramic (shell) • Application: Machining of heat-resistant alloys like Ni-base heat-resistant alloys

■ KBN35M (MEGACOAT Honeycomb Structure CBN)

● Tough CBN (Shell) Prevents Crack Growth



■ Application Map



Insert Material Selection Table

Applications		Cutting Range	P	M	K	N	S	H	Powdered Metal		
			Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-Ferrous Metals	Heat-Resistant Alloys		Titanium Alloys	Hardened Materials
Turning		Finishing ↑ ↓ Roughing	TN610	TN610	KBN475						
			CCX	TN620	KBN60M			CF1	KT66		
			TN620	TN60	KA30	TN60		KS6040	A66N	TN610	
			TN60	PV720	PV7005	PV7005	KPD001	KW10	PT600M	TN60	
			PV710	CA6515	CA5505	CA5505	KPD010	CA6515	KPD001	KBN05M	
			PV720	CA6525	CA310	CA310	PDL010	CA6525	KPD010	KBN10M	
			PV730	PR1535	CA315	CA315	PDL025	PR005S	SW05	KBN25M	
			CA510			CA320	KW10	PR015S	SW10	KBN35M	
			CA515					PR1535	SW25	KBN900	
			CA025P								
CA530											
Small Tools		Finishing ↑ ↓ Roughing	TN610	TN610							
			TN620	TN620							
			PV720	PV720	CA310	CA310	KPD001	CA6515	KPD001	KBN05M	
			PR1705	PR1725	CA315	CA315	KPD010	PR1125	KPD010	KBN10M	
			PR1725	PR930	KW10	CA320	PDL010	PR1225	KW10	KBN25M	
			PR930	PR1025		KW10	PDL025	PR1535	PR1535	KBN30M	
			PR1025	PR1225			GW05				
			PR1535	PR1535			KW10				
Boring		Large ↑ ↓ Small	TN610	TN60	KBN475						
			TN620	CA6515	KBN60M				PT600M	TN610	
			PV720	CA6525	PV7005	PV7005	KPD001	CA6515	KPD001	KBN05M	
			PV730	PR1725	CA310	CA310	KPD010	CA6525	KPD010	KBN10M	
			CA515	PR1025	CA315	CA315	PDL010	PR1125	KW10	KBN25M	
			CA525	PR1225	KW10	CA320	PDL025	PR1225	SW05		
			CA530	PR930		KW10	GW05	PR1535	PR1535		
			PR1705	PR1535			KW10				
			PR1725								
			PR1025								
General Cut-Off		Large ↑ ↓ Small	CR9025	CR9025							
			PR930	PR930							
			PR915	PR915	KW10	KW10	PDL025	KW10	KW10		
			PR1215	PR1215	PR1215	PR1215	KW10	PR1225			
			PR1225	PR1225				PR660			
			PR1535	PR1535							
Small Dia. Cut-Off		Depends on Workpiece Material	PR1025	PR1025	KW10	KW10	PDL025	KW10	KW10		
			PR1225	PR1225			KW10	PR1025			
			PR1535	PR1535				PR1225			
			TC40	TC40							
Grooving		Glossy Finish ↑ ↓ Stable	TN620	TN620							
			TN90	TN90	PR905	PR905	KPD001	PR915	KPD001	KBN510	
			PV7040	PV7040	PR1215	PR1215	PDL025	KW10	KW10	KBN525	
			PR930	PR930	KW10	KW10	GW15	PR1215	GW15	PT600M	
			PR1115	PR1115	GW15	GW15	GW15	PR1225	PR1535		
			PR1215	PR1215				PR1535	PR1535		
			PR1225	PR1225							
PR1625	PR1625										
Threading		Glossy Finish ↑ ↓ Stable	TC60	TC60	KW10	KW10	KW10	KW10	KW10	PR1515	
			PR1215	PR1515	GW15	GW15	GW15	GW15	GW15	PR1115	
			PR1115	PR1115							
			PR930	PR930							
Drilling		Wear Resistance ↑ ↓ Toughness	CA520D		CA415D						
			PR1225	PR1225	PR1210	PR1210	KW10	PR1225	KW10		
			PR1230	PR1535	KW10	KW10	GW15	KW10			
			PR1535				GW15	GW15			
Milling		Toughness ↑ ↓ Finishing ↑ ↓ Roughing	TN100M	CA6535			KPD230	CA6535	KPD230		
			TN620M	PR1225	PR1210	PR1210	KPD001	PR1225	KPD001		
			PV60M	PR1525	PR1510	PR1510	KPD010	PR1535	KW10	PR015S	
			PR1225	PR1535	KW10	KW10	PDL025		PR905		
			PR1230				KW10		PR1210		
				GW25		PR1535					

· Highlighted Items are Recommended Grades

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GRADE PROPERTIES

A
INSERT
GRADES

Cermet								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
TN610	Gray	TiCN	-	6.6	1,750	17.2	6.0	2,100
TN620	Gray	TiCN	-	6.9	1,550	15.2	9.0	2,500
TN620M	Gray	TiCN	-	6.9	1,550	15.2	9.0	2,500
TN6020	Gray	TiCN	-	6.4	1,500	14.7	10.0	2,500
TN60	Gray	TiCN+NbC	-	6.6	1,600	15.7	9.0	1,760
TN90	Gray	TiCN+NbC	-	6.4	1,450	14.2	10.0	1,960
TN100M	Gray	TiCN+NbC	-	6.7	1,520	14.9	10.5	1,860
TC40	Gray	TiC+TiN	-	6.0	1,650	16.2	9.0	1,570
TC60	Gray	NbC	-	8.1	1,500	14.7	10.5	1,670

CVD Coated Cermet								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
CCX	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	7	1,500	14.7	10.0	2,600

PVD Coated Cermet								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
PV710	Gold	MEGACOAT NANO	Thin Coating	6.6	1,750	17.2	6.0	2,100
PV720	Gold	MEGACOAT NANO	Thin Coating	6.9	1,550	15.2	9.0	2,500
PV730	Gold	MEGACOAT NANO	Thin Coating	7.0	1,450	14.2	10.0	2,500
PV7005	Blackish Red	MEGACOAT	Thin Coating	6.0	1,650	16.2	8.5	1,470
PV7040	Blackish Red	MEGACOAT	Thin Coating	6.0	1,650	16.2	9.0	1,570
PV7020	Gold	TiAlN+TiN	Thin Coating	6.4	1,500	14.7	10.0	2,500
PV90	Gold	TiN	Thin Coating	6.4	1,450	14.2	10.0	1,960
PV60M	Gold	MEGACOAT	Thin Coating	6.6	1,600	15.7	9.0	1,760

CVD Coated Carbide								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
CA310	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	Thick Coating	15.0	1,570	15.4	12.0	2,780
CA315	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	Thick Coating	15.0	1,570	15.4	12.0	2,780
CA320	Rose Gold	TiCN+Al ₂ O ₃ +Ti Base	Thick Coating	15.0	1,570	15.4	12.0	2,780
CA415D	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	15.0	1,570	15.4	12.0	2,780
CA420M	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.5	1,600	15.8	13.0	3,400
CA4505	Blackish Gray	TiCN+Al ₂ O ₃	Thick Coating	15.0	1,790	17.5	9.5	2,350
CA4515	Blackish Gray	TiCN+Al ₂ O ₃	Thick Coating	15.0	1,570	15.4	12.0	2,780
CA510	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.5	1,470	14.4	11.5	2,500
CA515	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.4	1,440	14.1	12.5	2,650
CA520D	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.7	1,370	13.4	16.0	3,100
CA025P	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.2	1,400	13.7	13.5	2,800
CA525	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.2	1,360	13.3	13.5	2,750
CA530	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	13.9	1,340	13.1	14.5	2,850
CA5505	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.7	1,730	17.0	10.0	2,540
CA5515	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.7	1,550	15.2	12.0	2,750
CA5525	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.5	1,400	13.7	12.0	2,780
CA5535	Gold	TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.1	1,340	13.1	16.5	2,970
CA6515	Gold	TiCN+Al ₂ O ₃ +TiN	Thin Coating	14.7	1,530	15.0	12.0	2,780
CA6525	Gold	TiCN+Al ₂ O ₃ +TiN	Thin Coating	14.7	1,370	13.4	16.0	3,100
CA6535	Gold	TiCN+Al ₂ O ₃ +TiN	Thin Coating	14.3	1,320	12.9	16.0	3,700
CR9025	Gold	TiCN+TiN	Thick Coating	14.5	1,400	13.7	12.0	2,780

PVD Coated Carbide								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
PR005S	Blackish Gray	MEGACOAT HARD	Thin Coating	15.0	1,750	17.2	8.0	2,000
PR015S	Blackish Gray	MEGACOAT HARD	Thin Coating	14.9	1,680	16.5	9.0	2,400
PR630	Gold	TiN	Thin Coating	12.5	1,500	14.7	11.0	2,160
PR660	Gold	TiN	Thin Coating	13.7	1,450	14.2	13.0	2,250
PR830	Gold	TiAlN+TiN	Thin Coating	13.7	1,450	14.2	13.0	2,250
PR905	Bluish Violet	TiAlN	Thin Coating	14.8	1,720	16.8	9.0	2,450
PR915	Bluish Violet	TiAlN	Thin Coating	14.1	1,700	16.7	11.0	4,140
PR930	Reddish Gray	TiCN	Thin Coating	14.1	1,700	16.7	11.0	4,140
PR1005	Reddish Gray	TiCN	Thin Coating	14.9	1,800	17.6	10.0	3,300
PR1025	Reddish Gray	TiCN	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1115	Purple red	TiAlN	Thin Coating	14.7	1,700	16.7	11.0	3,000
PR1125	Purple red	TiAlN	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1210	Blackish Red	MEGACOAT	Thin Coating	14.8	1,720	16.8	9.0	2,450
PR1215	Blackish Red	MEGACOAT	Thin Coating	14.7	1,700	16.7	11.0	3,000
PR1225	Blackish Red	MEGACOAT	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1230	Blackish Red	MEGACOAT	Thin Coating	13.7	1,450	14.2	13.0	2,250
PR1305	Blackish Red	MEGACOAT	Thin Coating	15.0	1,790	17.5	9.5	2,350
PR1310	Blackish Red	MEGACOAT	Thin Coating	14.8	1,720	16.8	9.0	2,450
PR1325	Blackish Red	MEGACOAT	Thin Coating	14.7	1,370	13.4	16.0	3,100
PR1425	Blackish Red	MEGACOAT NANO	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1510	Blackish Red	MEGACOAT NANO	Thin Coating	14.8	1,720	16.8	9.0	2,450
PR1515	Blackish Red	MEGACOAT NANO	Thin Coating	14.7	1,700	16.7	11.0	3,000
PR1525	Blackish Red	MEGACOAT NANO	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1535	Blackish Red	MEGACOAT NANO	Thin Coating	14.3	1,320	12.9	16.0	3,700
PR1625	Blackish Red	MEGACOAT NANO	Thin Coating	14.5	1,600	15.8	13.0	3,400
PR1705	Silver	MEGACOAT NANO PLUS	Thin Coating	14.9	1,800	17.6	10.0	3,300
PR1725	Silver	MEGACOAT NANO PLUS	Thin Coating	14.5	1,600	15.8	13.0	3,400

Carbide								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
KW10	Gray	WC+Co	-	15.0	1,650	16.2	10.0	1,470
GW05	Gray	WC+Co	-	14.9	1,800	17.6	10.0	3,300
GW15	Gray	WC+Co	-	14.7	1,700	16.7	11.0	3,000
GW25	Gray	WC+Co	-	14.5	1,600	15.8	13.0	3,400
SW05	Gray	WC+Co	-	15.0	1,790	17.5	9.5	2,350
SW10	Gray	WC+Co	-	14.8	1,720	16.8	9.0	2,450
SW25	Gray	WC+Co	-	14.7	1,370	13.4	16.0	3,100

DLC Coated Carbide								
Grade Name	Color	Coating / Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Flexural Toughness (MPa)
					(HV)	(GPa)		
PDL010	Iridescent	C	Thin Coating	15.0	1,650	16.2	10.0	1,470
PDL025	Iridescent	C	Thin Coating	14.5	1,600	15.8	13.0	3,400

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
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CERMET / COATED CARBIDE / CARBIDE LINEUP B16 - B104

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DN□□...55° Diamond B23

KN□□...55° Parallelogram B31

RN□□...Round B31

SN□□...90° Square B32

TN□□...60° Triangle B36

VN□□...35° Diamond B44

WN□□...80° Trigon B46

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POSITIVE TURNING INSERTS CC□□, CP□□...80° Diamond B53

DC□□, DP□□...55° Diamond B62

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SC□□, SP□□...90° Square B75

TB□□, TC□□, TP□□...60° Triangle B76

VB□□, VC□□, VP□□...35° Diamond B89

WB□□, WP□□...80° Trigon B97

BACK TURNING INSERTS TKFB, TKF B100

ABS15 / ABW15 / ABW23 B102

BEARING MACHINING R□MT-BB / SNMF B103

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NEGATIVE TURNING INSERTS CN□□...80° Diamond B106

DN□□...55° Diamond B107

EN□□...75° Diamond B107

RN□□...Round B108

SN□□...90° Square B109

TN□□...60° Triangle B111

VN□□...35° Diamond B112

WN□□...80° Trigon B112

POSITIVE TURNING INSERTS RP□□...Round B113

SP□□...90° Square B113

TB□□, TC□□, TP□□...60° Triangle B113

ROLL MACHINING INSERTS RBG / RCGX / RPGX / RCMA / LNU B114

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INSERT IDENTIFICATION SYSTEM

B TURNING INSERTS

Symbol	Insert
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
J	70° Diamond
V	35° Diamond
W	80° Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stands for acute angle for diamond and parallelogram inserts.

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

Symbol (Class)	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005	0.0010	0.025	0.0010	0.025
F	0.0002	0.005	0.0010	0.025	0.0005	0.013
C	0.0005	0.013	0.0010	0.025	0.0010	0.025
H	0.0005	0.013	0.0010	0.025	0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G	0.0010	0.025	0.0050	0.130	0.0010	0.025
J	0.0002	0.005	0.0010	0.025	0.002-0.006	0.05-0.15
K※	0.0005	0.013	0.0010	0.025	0.002-0.006	0.05-0.15
L※	0.0010	0.025	0.0010	0.025	0.002-0.006	0.05-0.15
M※	0.003-0.007	0.080-0.180	0.0050	0.130	0.002-0.006	0.05-0.15
N※	0.003-0.007	0.080-0.180	0.0010	0.025	0.002-0.006	0.05-0.15
U※	0.005-0.015	0.130-0.380	0.0050	0.130	0.003-0.009	0.08-0.25

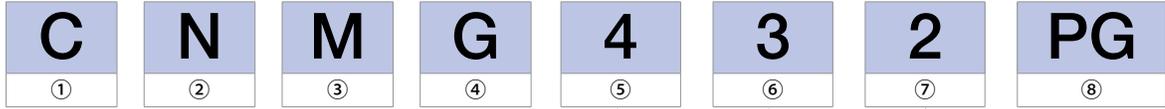
※ Insert's periphery is as fired.
Tolerance difference depends on size and shape of insert

Symbol	Hole	Hole Shape	Chipbreaker	Insert
N	No	-	No	
R			One Side	
F			Two Sides	
A	With Hole	-	No	
M			One Side	
G			Two Sides	
W	With Hole and One Countersink 40°-60°	-	No	
T			One Side	
Q	With Hole and Two Countersink 40°-60°	-	No	
U			Two Sides	
B	With Hole and One Countersink 70°-90°	-	No	
H			One Side	
C	With Hole and Two Countersink 70°-90°	-	No	
J			Two Sides	
X	-	-	-	-

ISO (metric)



ANSI (inch)



⑤ Edge Length Symbol (ISO)							I.C. Size (mm)	I.C. Size (ANSI)	
							I.C. Size (mm)	I.C. Size (inch)	Symbol
03	04		03	06			3.97	5/32	1.2
04	05		04	08	08		4.76	3/16	1.5
		05					5		
05	06		05	09		03	5.56	7/32	1.8
		06					6		
06	07		06	11	11	04	6.35	1/4	2
08	09		07	13		05	7.94	5/16	2.5
		08					8		
09	11	09	09	16	16	06	9.525	3/8	3
	12	10					10		
		12					12		
12	15	12	12	22	22	08	12.7	1/2	4
16	19	15	15	27	27	10	15.875	5/8	5
		16					16		
19	23	19	19	33	33	13	19.05	3/4	6
		20					20		
22	27		22	38			22.225	7/8	7
		25					25		
25	31	25	25	44	44	17	25.4	1	8
32	38	31	31	54	54	21	31.75	1-1/4	10
		32					32		

⑥ Thickness Symbol			
ISO		ANSI	
Thickness (mm)	Symbol	Thickness (inch)	Symbol
1.59	01	1/16	1
1.98	T1	5/64	1.2
2.38	02	3/32	1.5
2.78	T2	-	-
3.18	03	1/8	2
3.97	T3	5/32	2.5
4.76	04	3/16	3
5.56	05	7/32	3.5
6.35	06	1/4	4
7.94	07	5/16	5
9.525	09	3/8	6

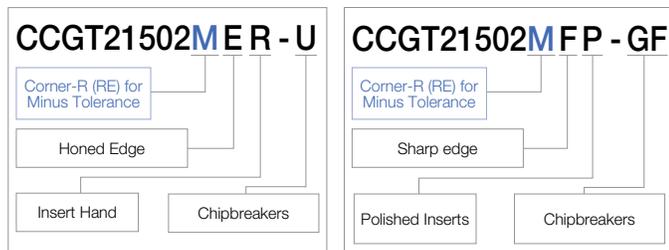
Thickness displayed as the distance between bottom surface and highest point on cutting edge.

⑦ Corner-R (RE) Symbol			
ISO		ANSI	
Corner-RE (mm)	Symbol	Corner-RE (inch)	Symbol
Sharp Corner	00	0.000	00
0.03	003	0.001	0.1
0.05	005	0.002	0.13
0.10	01	0.004	0.2
0.20	02	0.008	0.5
0.40	04	1/64	1
0.80	08	1/32	2
1.20	12	3/64	3
1.60	16	1/16	4
2.00	20	5/64	5
2.40	24	3/32	6
2.80	28	7/64	7
3.20	32	1/8	8
Round insert	00 (inch) or MO (metric)	Round insert	

⑧ Manufacturer's Option
Hand Symbol, Chipbreaker, Symbol, Etc.

- Expressed as edge length for ISO.
- ANSI expresses the inscribed circle diameter in inches.

● **Positive Insert Identification System**
(e.g. of (8) Manufacturer's Option)



● **When a minus tolerance is specified for the corner-R (RE)**

- If a minus tolerance is specified for the corner-R (RE) as shown in the Fig.1, using an insert with corner-R (RE) = 0.008" may result in larger radius than specified.
- Use an insert the corner of which R (RE) has a minus tolerance.

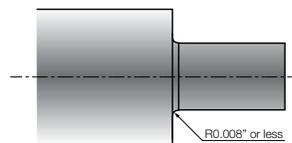


Fig.1 Example of a specified corner-R in the drawing

INSERT COLORS

Insert Color

- Cermet, CVD Coated Cermet, MEGACOAT NANO Cermet, MEGACOAT Cermet, and PVD Coated Cermet

Grades	Cermet									CVD Cermet	MEGACOAT NANO Cermet				MEGACOAT Cermet				PVD Cermet	
	TN610	TN620	TN620M	TN6010	TN6020	TN60	TN100M	TC40	TC60	NEW CCX	PV710	PV720	NEW PV730	NEW PV60M	PV7005	PV7010	PV7025	PV7040	PV7020	PV90
Insert Color																				

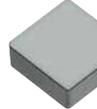
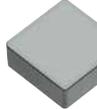
- CVD Coated Carbide

Grades	CVD Coated Carbide																						
Insert Color	CA310	CA315	CA320	CA415D	CA520D	CA420M	CA4505	CA4515	CA4010	CA4115	CA4120	CA510	CA515	CA025P	CA525	CA530	CA55 Series	CA65 Series	CR9025				
Insert Color																							

- PVD Coated Carbide

Grades	MEGACOAT NANO					MEGACOAT NANO PLUS	MEGACOAT NANO HARD	MEGACOAT					PVD Coated Carbide													
Insert Color	PR1425	PR1510	PR1515	PR1525	PR1535	PR1625	PR1705	PR1725	PR005S	PR015S	PR1210	PR1215	PR1225	PR1230	PR1305	PR1310	PR1325	PR660	PR830	PR905	PR915	PR930	PR1005	PR1025	PR1115	PR1125
Insert Color																										

- Ceramic

Grades	Alumina Ceramic			PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic	Whisker Reinforced Ceramic	Cell Fiber Ceramic		
Insert Color	KA30	A65	KT66	A66N	PT600M	NEW KS6015	KS6050	CS7050	KS6030	KS6040	KXW1	CF1
Insert Color												

- CBN and PCD

Grades	CBN					PCD			MEGACOAT CBN	PVD Coated CBN
Insert Color	KBN65B	KBN475	KBN510	KBN525	KBN570	KPD001	KPD010	KPD230	KBN..M	KBN900
Insert Color										

- DLC Coated Carbide

Grades	DLC	
Insert Color	PDL010	PDL025
Insert Color		

- Uncoated Carbide

Grades	Carbide				
Insert Color	GW05	GW15	GW25	KW10	SW05
Insert Color					

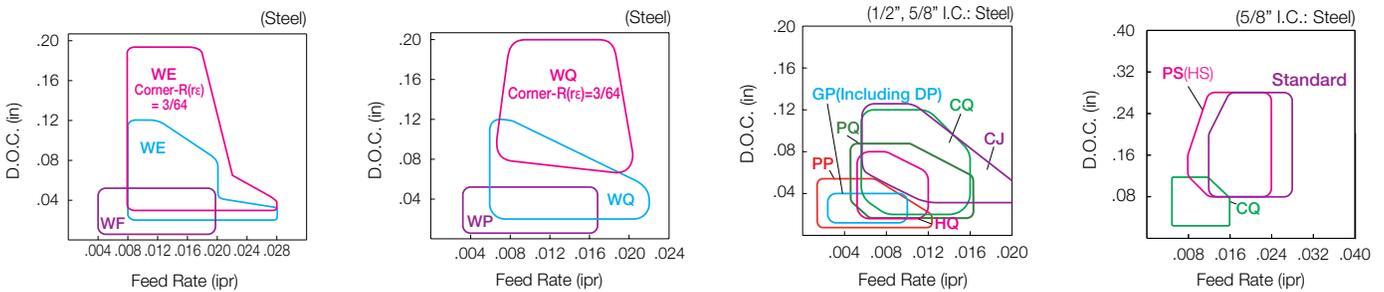
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel

1 Molded Chipbreaker

Insert	Finishing (Wiper Edge)		Description	Insert	Finishing-Medium		Description
	Image	Diagram			Image	Diagram	
Finishing (Wiper Edge)	WF			PP			3-step dot structure realizes stable chip control at a wide range of feed rates. Less cutting force due to sharp cutting edge and smooth rake face.
	WP			PQ			Stable chip control over a wide feed rate range. Well-balanced edge sharpness and toughness.
	WE			GP			Finishing to light machining. Good chip control.
	WQ			HQ			Sharp cutting performance with 3-D rake angle and double projection design.
Finishing-Medium (Wiper Edge)	WF			CQ			Good chip control at various D.O.C. such as copying. Applicable for up-facing.
	WP						
	WE						
	WQ						

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



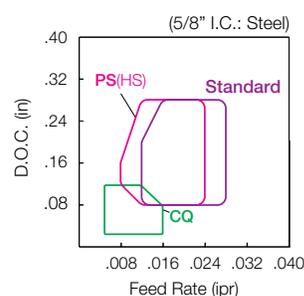
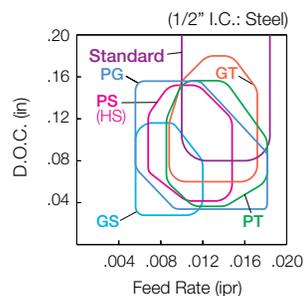
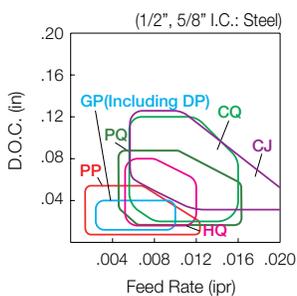
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel

1 Molded Chipbreaker

Finishing-Medium (Up-Facing)	CJ		Ensures chips will curl even in small depth, high feed rate machining. Improves chip evacuation when copying and up-facing.	Medium-Roughing	HS		General purpose chipbreaker. Applicable for copying.		
	Medium-Roughing	PG			Stable machining with a balance of edge sharpness and strength. Prevents chip clogging at high feed rates. Good chip control at low feed rates. Stable machining with wide chip control range.	Medium-Roughing / High Feed Rate	PT		Low cutting force during high feed machining. Land support structure.
		GS			Strong edge chipbreaker. Stable for continuous machining and light interrupted machining.		Medium-Roughing / High Feed Rate	GT		Strong edge chipbreaker. Wide land design and smooth chip control even at high feed rate machining.
	Medium-Roughing	PS			General purpose chipbreaker. More stable due to large contact surface.	Roughing Standard			Low cutting force and suitable for large D.O.C. roughing.

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

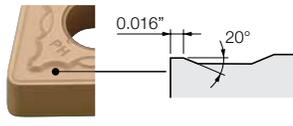
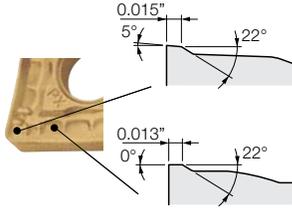


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

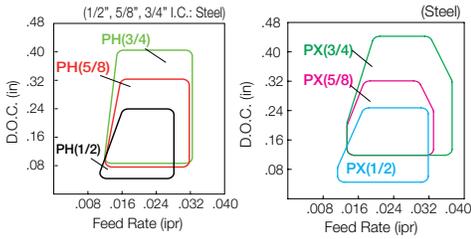
CHIPBREAKER SELECTION (NEGATIVE INSERTS)

Steel

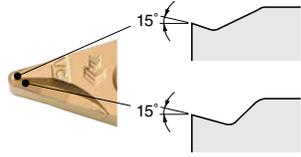
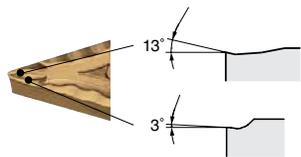
1 Molded Chipbreaker

TURNING INSERTS	B	Roughing			<p>For roughing of steel and cast iron. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.</p>
		Single Sided Roughing (High Feed Rate)			<p>Roughing and high feed rate operation. Low cutting force chipbreaker.</p>

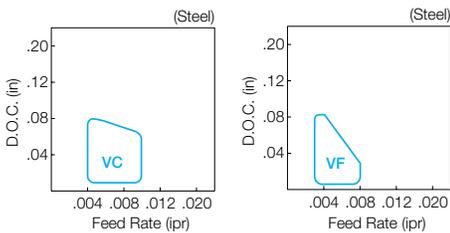
● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel (Copying / Undercutting, Varied D.O.C.)

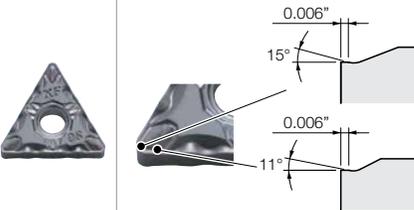
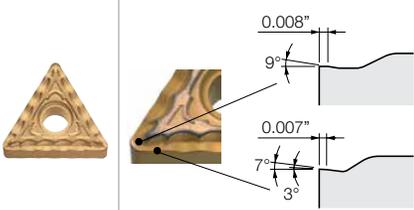
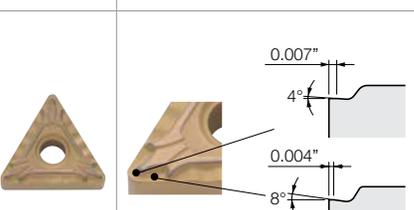
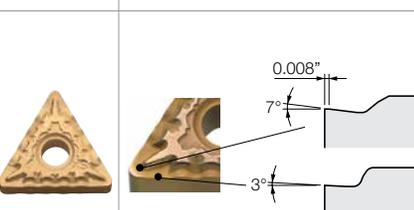
Finishing-Medium			<p>Handed chipbreaker for copying. Good chip control at varied D.O.C. because of the large space on the main cutting edge side.</p>
Finishing-Medium			<p>Good chip control for varied D.O.C. such as copying and undercutting.</p>

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

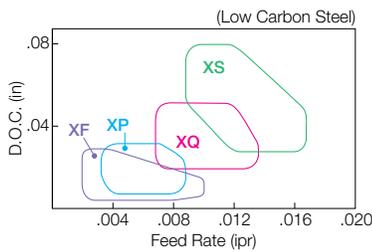


CHIPBREAKER SELECTION (NEGATIVE INSERTS)

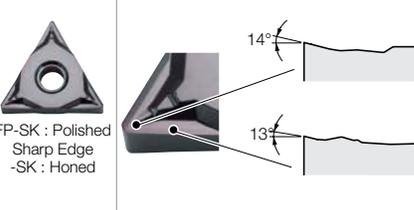
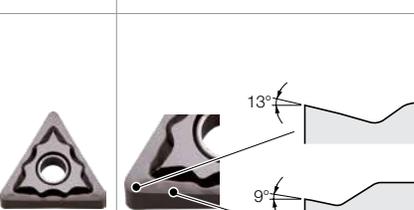
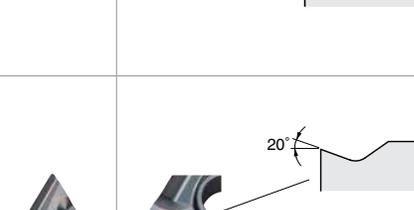
Steel (Copying / Undercutting, Varied D.O.C.)

Finishing	XF		Excellent chip control at high speed and small D.O.C. machining of low carbon steel.	Medium	XQ		Consistent chip breaking at medium machining due to moderate rake face and special design.
	XP		Short chips when finishing due to sharp cutting and special design.		Roughing	XS		Consistent chip breaking when roughing due to special rake angle design.

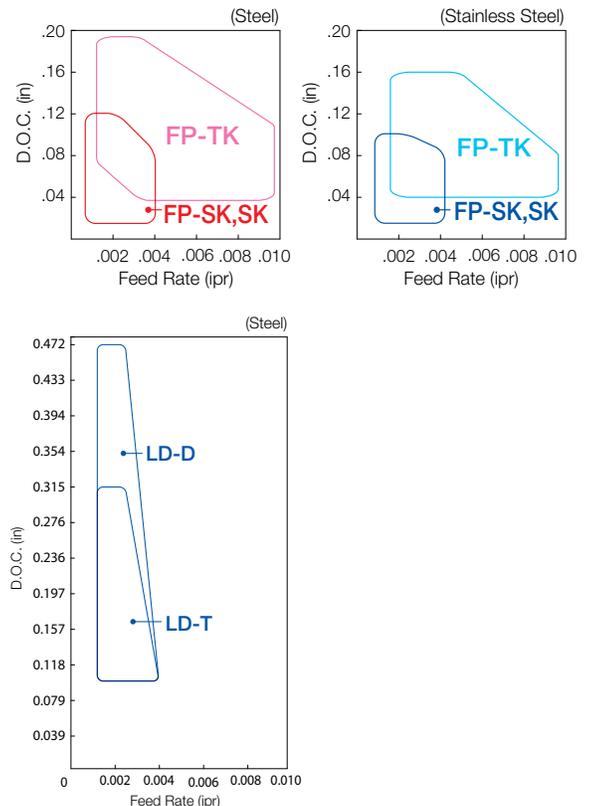
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Steel / Stainless Steel (Small Parts Machining)

Finishing-Medium	SK		For finishing to medium machining in automatic lathes. Sharp cutting performance equivalent to positive inserts. 2-step dot design provides reliable chip control at various D.O.C..
Medium-Roughing	FP-TK		For medium to high feed rate in automatic lathes (When machining workpieces of medium to large dia.) Superior cutting performance achieved by sharp edge and polished surface. Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.
Large D.O.C.	LD		Available for greater depths of cut than many conventional chipbreakers. Achieves high-precision machining in a single pass. Chipbreaker shape optimized for various depths of cut. Stable chip control in a wide range of machining applications.

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

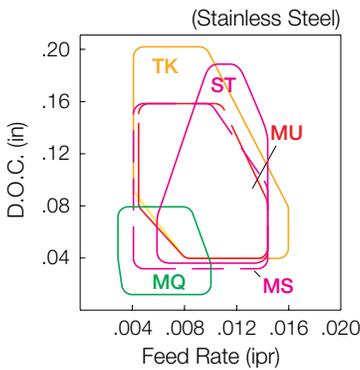
Stainless Steel / Heat-Resistant Alloy / Titanium Alloy

B
TURNING
INSERTS

Finishing	MQ		Large rake angle and circular edge line. Low cutting force and good chip control.	Medium-Roughing	TK		Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.
	MS		Superior cutting edge sharpness and strength achieved by a positive land. Extra strength of cutting edge inhibits damage from wall shouldering.		ST		Lower cutting forces due to large rake angle. Less notching with special design.
	MU		Large rake angle reduces cutting force. Less burring achieved by diminishing damage from notching.				

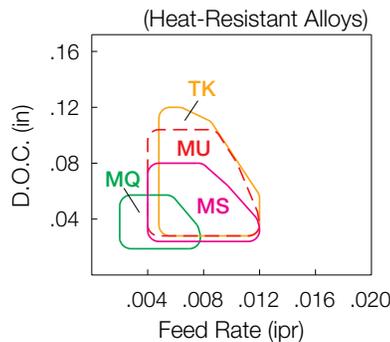
Stainless Steel

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)



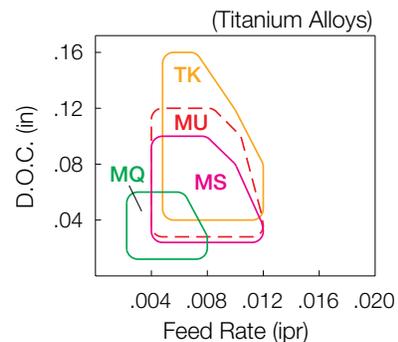
Heat-Resistant Alloy

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)



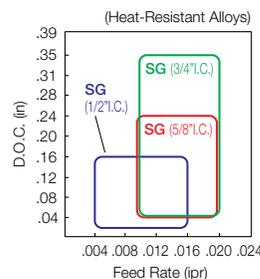
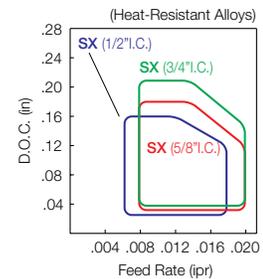
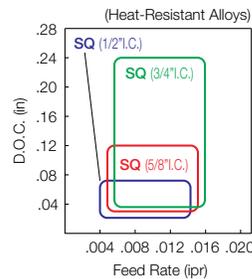
Titanium Alloy

Applicable Chipbreaker Range
(D.O.C. Refers to Radial Depth of Cut)



Heat-Resistant Alloy

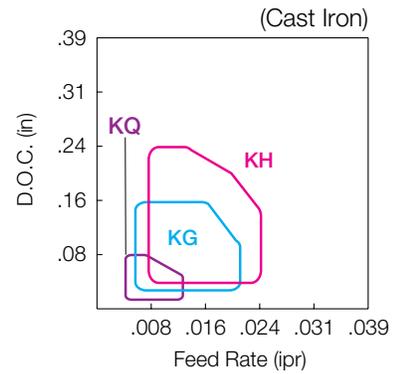
Finishing-Medium	SQ		Effective for burr suppression and reducing notching with slant cutting edge (inclined in (-) direction)
Roughing	SG		Stable chip control during heavy machining applications and high-strength land with low cutting force design.
Roughing (Single Sided)	SX		Slant cutting edge reduces cutting force. Less burring achieved by unique cutting edge design.



Cast Iron (K Series)

Sharp Cutting	KQ		Sharp cutting chipbreaker. Edge geometry is great when requiring sharpness such as machining thin-walled workpieces.
Medium	KG		Excellent balance of sharpness and strength. Excellent stability in continuous machining.
Medium-Roughing	KH		Good for heavily interrupted machining. Strong edge chipbreaker. Improved locating/seating in the toolholder pocket, with high reliability.

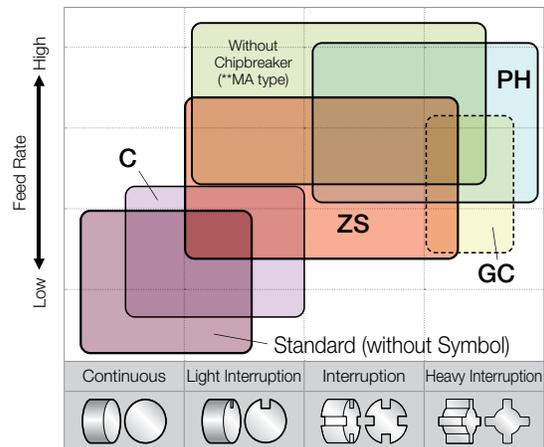
Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Cast Iron

Sharp Cutting Oriented ↑	Standard		Standard chipbreaker for continuous to light interrupted machining of cast iron. (Low cutting force)
	C		High feed rate chipbreaker for continuous to light interrupted machining of cast iron.
	ZS		Standard chipbreaker for light interrupted to interrupted machining of cast iron. (High stability)
	Without Chipbreaker		High feed rate chipbreaker for light interrupted machining of cast iron.

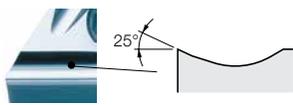
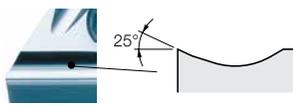
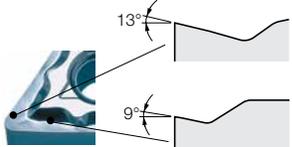
Stability Oriented ↓	GC		Chipbreaker for heavy interrupted machining of cast iron. (Tough edge chipbreaker)
	PH		Chipbreaker for roughing of cast iron and steel. Suitable for heavy interrupted machining and for workpieces with scale due to strong cutting edge.



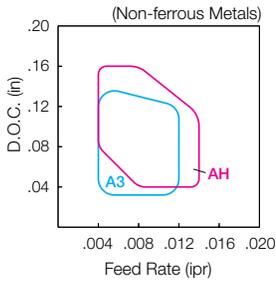
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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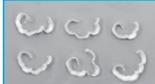
■ Non-ferrous Metals

B
TURNING
INSERTS

Finishing-Medium	A3			Large rake angle and smooth surface. Good chip control and less adhesion.
				
Medium-Roughing	AH			Polished chipbreaker. Smooth chip control and less adhesion.
			G Class: Sharp Edge Prep. M Class: Horned Edge Prep.	

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

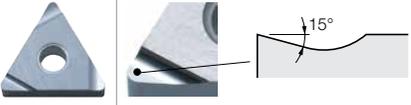
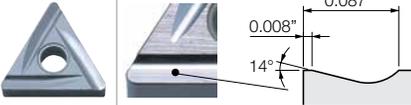
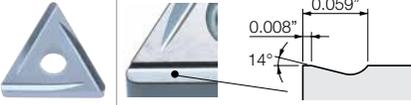


A3 Chipbreaker	
	D.O.C.= 0.08" f= 0.008 ipr
	D.O.C.=0.08" f= 0.012 ipr

AH Chipbreaker	
	D.O.C.= 0.08" f= 0.008 ipr
	D.O.C.= 0.08" f= 0.012 ipr

Steel

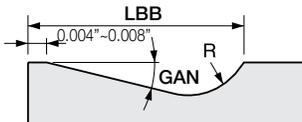
2 Ground Chipbreaker

Sharp Cutting	S		Sharp edge and less cutting force. Good chip control and smooth chip evacuation.	Sharp Cutting	C		Suitable for general purpose machining at feed rate from 0.008 to 0.014ipr.
	Medium	B			Suitable for general purpose machining at feed rate from 0.006 to 0.010ipr.	Medium	25R

Effectiveness of Ground Chipbreaker

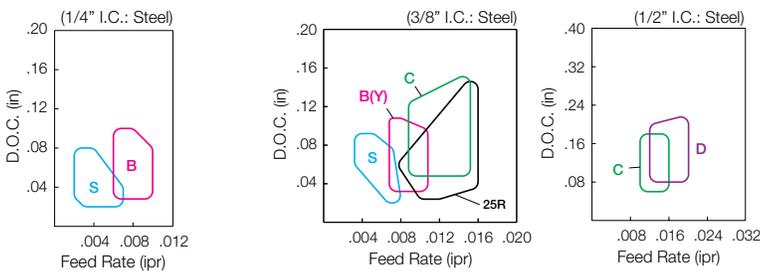
- (1) Lower cutting force and sharper cutting edge
- (2) Improved adhesion resistance
- (3) Improved dimensional accuracy and surface finish
- (4) Controlled chip flow

Specification of B, C, D and Parallel Ground Chipbreaker



Insert Type	I.C. Size	Chipbreaker Name	LBB (in)	GAN	R (in)
CNGG	3/8, 1/2	Without Indication (Similar to C)	0.087	14°	0.040
WNGG	3/8	Without Indication (Similar to C)	0.087	14°	0.040
TNGG	1/4, 3/8	B	0.060	14°	0.020
	3/8, 1/2	C	0.087	14°	0.040
DNGG	3/8, 1/2	Without Indication (Similar to C)	0.100	14°	0.080
VNGG	3/8	Without Indication (Similar to B)	0.060	14°	0.020
SNGG	3/8, 1/2	B	0.060	14°	0.020
	1/2	C	0.087	14°	0.040

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
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GROOVING	G
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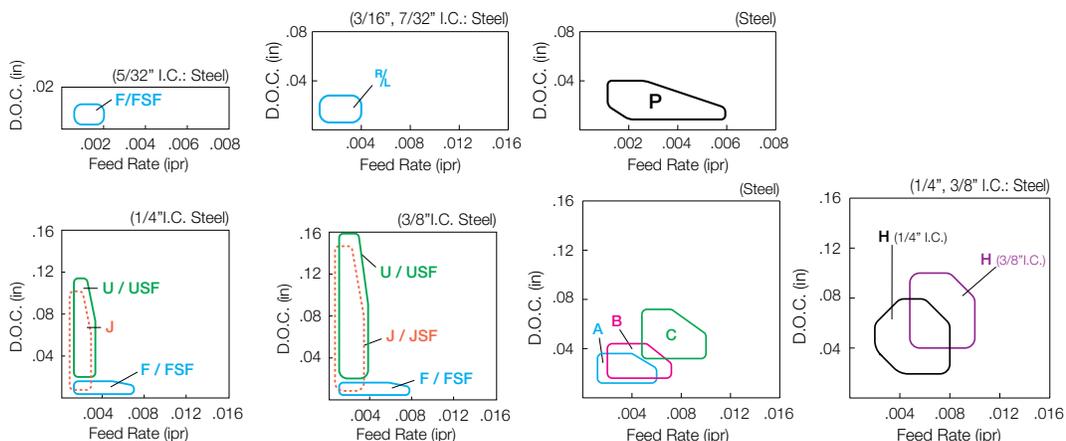
CHIPBREAKER SELECTION (POSITIVE INSERTS)

Steel

2 Ground Chipbreaker

Finishing (Without Indication)			Good chip control during finishing to light machining with low cutting forces.	Finishing A			Large rake angle and low cutting force. Narrow chipbreaker width and consistent chip control.																																	
Finishing F			Good chip control during finishing to light machining with low cutting forces.	Finishing-Medium B			General purpose chipbreaker for medium machining. Good balance between chip control and sharp cutting.																																	
Finishing P			Chipbreaker smoothly breaks chips and directs them towards the outside of the workpiece when boring. Sharp cutting performance and good surface finish.	Medium C			Applicable to high load machining. Good chip flow and less resistance.																																	
Finishing-Medium Y			Sharp cutting performance and good surface finish.	Finishing-Medium H			Sharp cutting performance and small curled chips.																																	
Low Feed J			Slant chipbreaker width provides chip control at various D.O.C..	<p>● Specification of A, B, C and parallel ground chipbreaker</p>																																				
Low Feed U			Good chip control at low feed rates and varied D.O.C. with low cutting force. Suitable for automatic lathes.	<table border="1"> <thead> <tr> <th>Insert Type</th> <th>Size</th> <th>Chipbreaker Name</th> <th>LBB (in)</th> <th>GAN</th> <th>R (in)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">TPGR</td> <td>1/4</td> <td>A</td> <td>0.040</td> <td>17°</td> <td>0.020</td> </tr> <tr> <td>1/4, 3/8</td> <td>B</td> <td>0.060</td> <td>14°</td> <td>0.020</td> </tr> <tr> <td>3/8</td> <td>C</td> <td>0.087</td> <td>14°</td> <td>0.040</td> </tr> <tr> <td rowspan="2">SPGR</td> <td>3/8</td> <td>Without Indication (Similar to B)</td> <td>0.060</td> <td>14°</td> <td>0.020</td> </tr> <tr> <td>1/2</td> <td>Without Indication (Similar to C)</td> <td>0.087</td> <td>14°</td> <td>0.040</td> </tr> </tbody> </table>				Insert Type	Size	Chipbreaker Name	LBB (in)	GAN	R (in)	TPGR	1/4	A	0.040	17°	0.020	1/4, 3/8	B	0.060	14°	0.020	3/8	C	0.087	14°	0.040	SPGR	3/8	Without Indication (Similar to B)	0.060	14°	0.020	1/2	Without Indication (Similar to C)	0.087	14°	0.040
Insert Type	Size	Chipbreaker Name	LBB (in)	GAN	R (in)																																			
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SPGR	3/8	Without Indication (Similar to B)	0.060	14°	0.020																																			
	1/2	Without Indication (Similar to C)	0.087	14°	0.040																																			

● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)

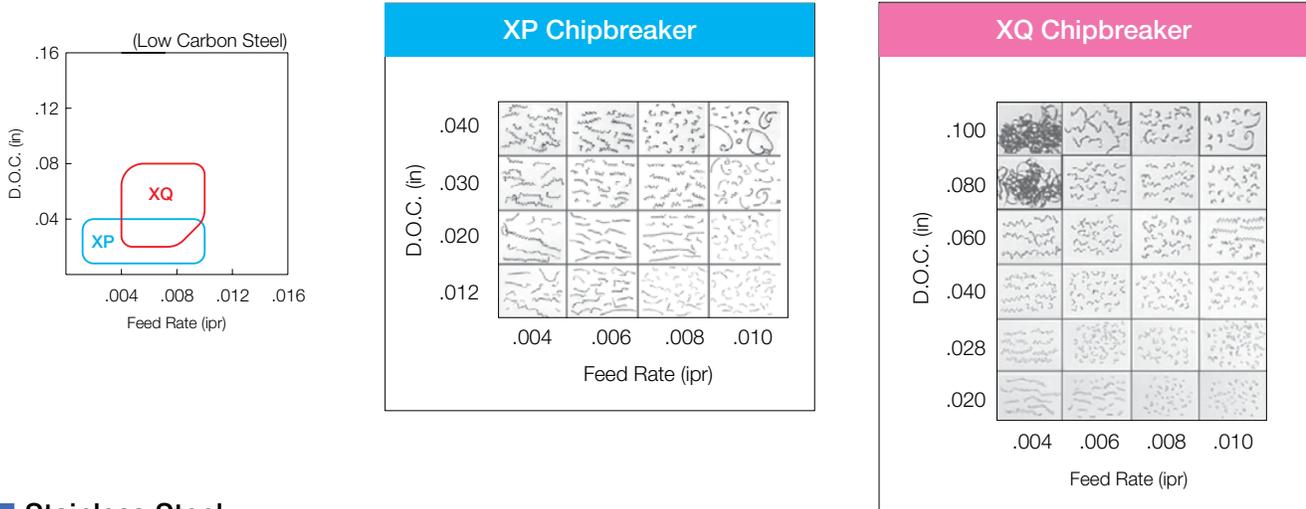


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Low Carbon Steel (Pipe / Rolled Plate / Rolled Steel)

Finishing	XP		Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.
	XQ		Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.

Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)



Stainless Steel

Finishing	MQ		Good chip evacuation when boring. Small curled chips. Prevents chip entanglement with toolholder and stabilizes surface roughness.
	<p>● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)</p>		

Non-ferrous Metals

Finishing	AP		Stable chip evacuation and good surface finish when boring stainless steel with small curled chips evacuated towards the outside of the workpiece.
	AH		Large rake angle, smooth chip flow and less adhesion. Sharp edge and good surface finish.

Finishing-Medium	A3		Positive chip groove and good chip control with low cutting forces. Polished surface reduces adhesion.
	<p>● Applicable Chipbreaker Range (D.O.C. Refers to Radial Depth of Cut)</p>		

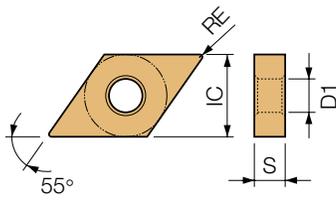
How to read this page **B15**

55° Diamond

Negative Insert with Hole

Part Number	IC	S	D1
DN_33_	3/8	3/16	0.150
DN_43_	1/2	3/16	0.203

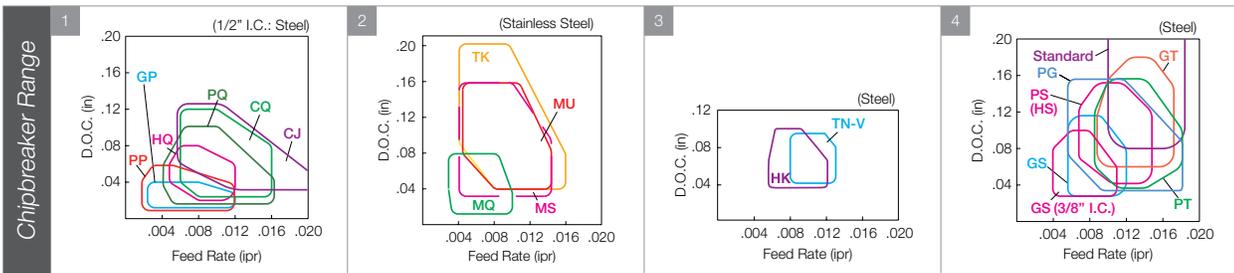
Part Number	IC	S	D1
DN_44_	1/2	1/4	0.203



Material	P	M	K	N	S	H
Free-Cutting Steel	●	●	●	●	●	●
Carbon/Alloy Steel	●	●	●	●	●	●
Stainless Steel	●	●	●	●	●	●
Gray Cast Iron	●	●	●	●	●	●
Nodular Cast Iron	●	●	●	●	●	●
Non-ferrous Metals	●	●	●	●	●	●
HRSA	●	●	●	●	●	●
Titanium Alloy	●	●	●	●	●	●
Hard materials	●	●	●	●	●	●

ANSI Part Number ISO Part Number

Material	Corner Radius (in)	Cermet	CVD Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO PVD Coated Carbide	PVD Coated Carbide	DLC	Carbide	Toolholder Page	Chipbreaker Range																																						
RE	TN610	TN620	TN60	CCX	PV710	PV720	PV730	PV7005	PV90	CA510	CA515	CA025P	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	CA310	CA315	CA320	CA4505	CA4515	PR1705	PR1725	PR1425	PR1225	PR005S	PR015S	PR1305	PR1310	PR1325	PR1535	PR930	PR1005	PR1025	PR1125	PDL010	PDL025	KW10	SW05							
Finishing-Medium	DNMG 3305HQ 331HQ 431HQ 432HQ 433HQ	110402HQ	110404HQ	0.008	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D13 F87	1	
		150404HQ	150408HQ	1/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82 F88-F89		
		150412HQ	150604HQ	1/32	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82		
		150608HQ	150612HQ	3/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		D12 D13 F82
		150604CQ	150404CQ	1/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82 F88-F89		
		150608CQ	150412CQ	1/32	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82		
Up Facing	DNMG 441CQ 442CQ 443CQ	150604CQ	150608CQ	1/64	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82			
		150612CQ	150408CJ	1/32	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88-F89			
		150412CJ	150608CJ	3/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88-F89			
Up Facing	DNMG 442CJ 443CJ	150608CJ	150612CJ	1/32	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88-F89			
		150612CJ	150408TK	3/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82			
Finishing-Medium	DNMP 442TK	150608TK	1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82	2			
		150608TK	1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88 F89			
Medium	DNMG 431TN-V 432TN-V	150404TN-V	150408TN-V	1/64	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88 F89	3		
		150408TN-V	1/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12 D13 F82 F88 F89			
Medium-Roughing	DNMG 331GS 332GS 431GS 432GS 433GS 441GS 442GS	110404GS	110408GS	1/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D13 F86	4	
		150404GS	150408GS	1/32	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82 F88-F89		
		150404GS	150408GS	1/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82 F88-F89		
		150408GS	150412GS	1/32	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82		
		150604GS	150608GS	3/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82		
		150604GS	150608GS	1/64	●	●	●	●	●	△	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D12-D13 F82		



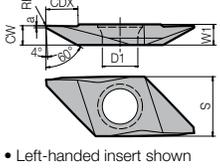
Back Turning

Turning Inserts (Small Tools)

P	Free-Cutting Steel Carbon Steel / Alloy Steel	●	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
M	Stainless Steel	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
K	Gray Cast Iron Nodular Cast Iron																		●
N	Non-ferrous Metals																		●
S	Heat-Resistant Alloys Titanium Alloy		☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
H	Hard materials																		

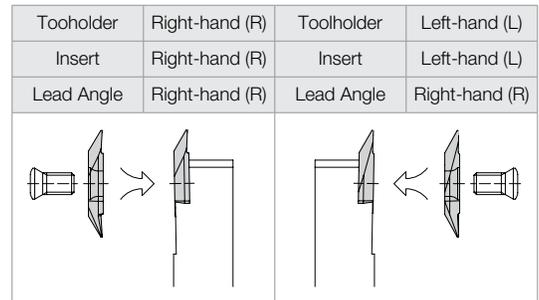
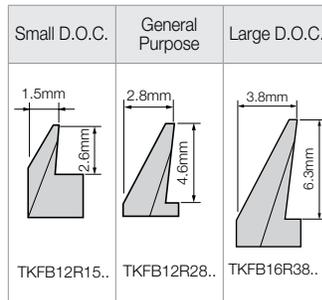
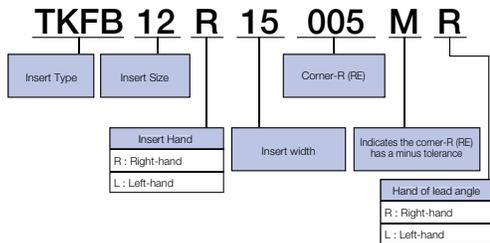
TKFB Inserts (for KTKF Toolholders)

ANSI
Part Number

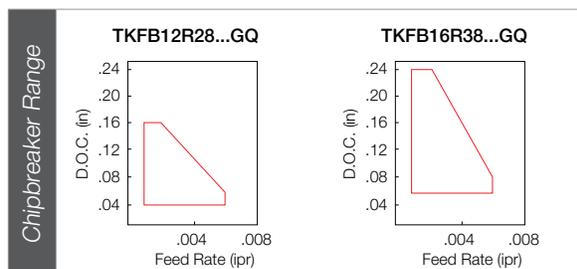
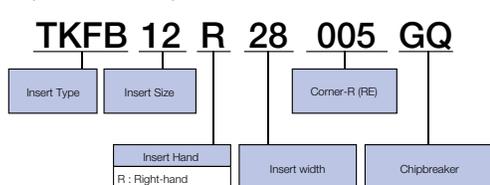
		Dimensions (in)							MEGACOAT NANO				PVD Coated Carbide		Toolholder Page	
		CW	a	CDX	RE	W1	S	D1	θ	PR1725	PR1425	PR1535	PR1225	PR1025		KW10
	TKFB 12R15005M	0.059	0.010	0.102	<0.002	0.118	0.343	0.205	-	●	△	●	●	△	●	E12 E14
	12R28005M	0.110	0.012	0.181	<0.002	0.118	0.343	0.205	-	●	△	●	●	△	●	
	12R28010M	0.110	0.012	0.181	<0.004	0.118	0.343	0.205	-	●	△	●	●	△	●	
	TKFB 16R38005M	0.150	0.012	0.248	<0.002	0.157	0.374	0.205	-	●	△	●	●	△	●	
	16R38010M	0.150	0.012	0.248	<0.004	0.157	0.374	0.205	-	●	△	●	●	△	●	
	TKFB 12L28005MR	0.110	0.012	0.181	<0.002	0.118	0.343	0.205	-			●	●			
	TKFB 12L28010MR	0.110	0.012	0.181	<0.004	0.118	0.343	0.205	-			●	●			
	TKFB 16L38005MR	0.150	0.012	0.248	<0.002	0.157	0.374	0.205	-			●	●			
	16L38010MR	0.150	0.012	0.248	<0.004	0.157	0.374	0.205	-			●	●			
	TKFB 12R28005P-GQ	0.110	0.059	0.181	0.002	0.118	0.343	0.205	74°	●	△	●	●			
	12R28015P-GQ	0.110	0.059	0.181	0.006	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 16R38005P-GQ	0.150	0.071	0.248	0.002	0.157	0.374	0.205	72°	●	△	●	●			
	16R38015P-GQ	0.150	0.071	0.248	0.006	0.157	0.374	0.205	72°	●	△	●	●			
	TKFB 12R28005-GQ	0.110	0.059	0.181	0.002	0.118	0.343	0.205	74°	●	△	●	●			
	12R28015-GQ	0.110	0.059	0.181	0.006	0.118	0.343	0.205	74°	●	△	●	●			
	TKFB 16R38005-GQ	0.150	0.071	0.248	0.002	0.157	0.374	0.205	72°	●	△	●	●			
	16R38015-GQ	0.150	0.071	0.248	0.006	0.157	0.374	0.205	72°	●	△	●	●			

● Insert with corner R (RE) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (RE).

● Insert Identification System (See Tables Below)



● Insert Identification System (See Tables Below)



How to read this page **B15**

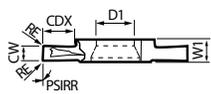
Back Turning

Turning Inserts (Small Tools)

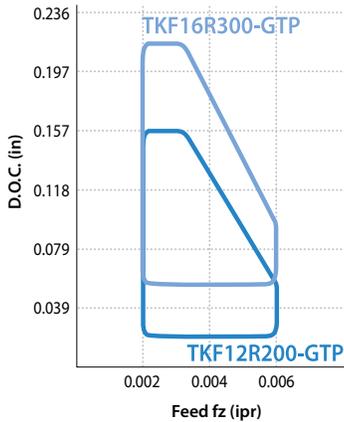
P	Free-Cutting Steel Carbon Steel / Alloy Steel	●	☺
M	Stainless Steel	☺	●
K	Gray Cast Iron Nodular Cast Iron		
N	Non-ferrous Metals		
S	Heat-Resistant Alloys Titanium Alloy		●
H	Hard materials		

TKF Inserts (GTP Chipbreaker) (for KTKF Toolholders)

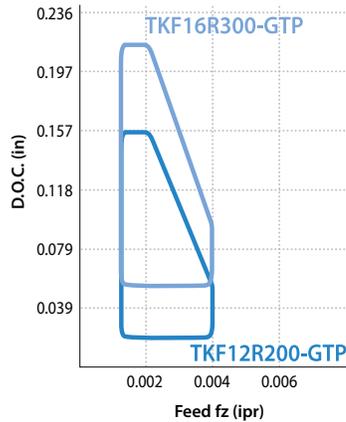
ANSI
Part Number

Image	Dimensions (in)	CW	CUTDIA	RE	W1	S	D1	PSIRR	MEGACOAT NANO		Toolholder Page	
									in	mm		PR1725	PR1535
   • Right-handed insert shown	TKF 12R200-GTP	0.079	2.0	0.181	0.003	0.118	0.343	0.197	0°	●	●	E12 E14
	TKF 16R300-GTP	0.118	3.0	0.236	0.003	0.157	0.374	0.197	0°	●	●	

Chipbreaker Range (Steel)



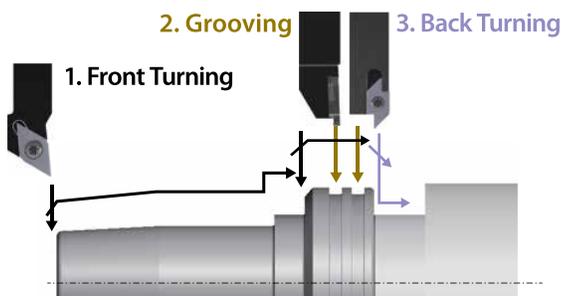
Chipbreaker Range (Stainless Steel)



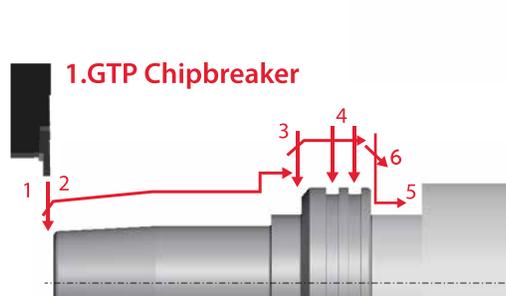
Integrated Tooling Solutions with GTP chipbreaker

The GTP chipbreaker can be used for external turning, grooving, and back turning operations

Conventional Tools



GTP Chipbreaker

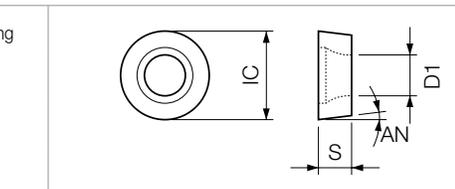
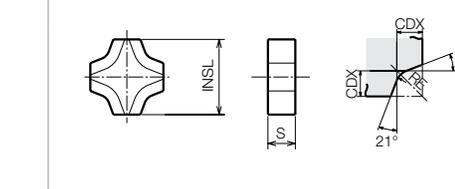


* Max. Grooving Width / Max. D.O.C. = TKF12R200-GTP (2.0mm / 4.0mm), TKF16R300-GTP (3.0mm / 5.5mm)

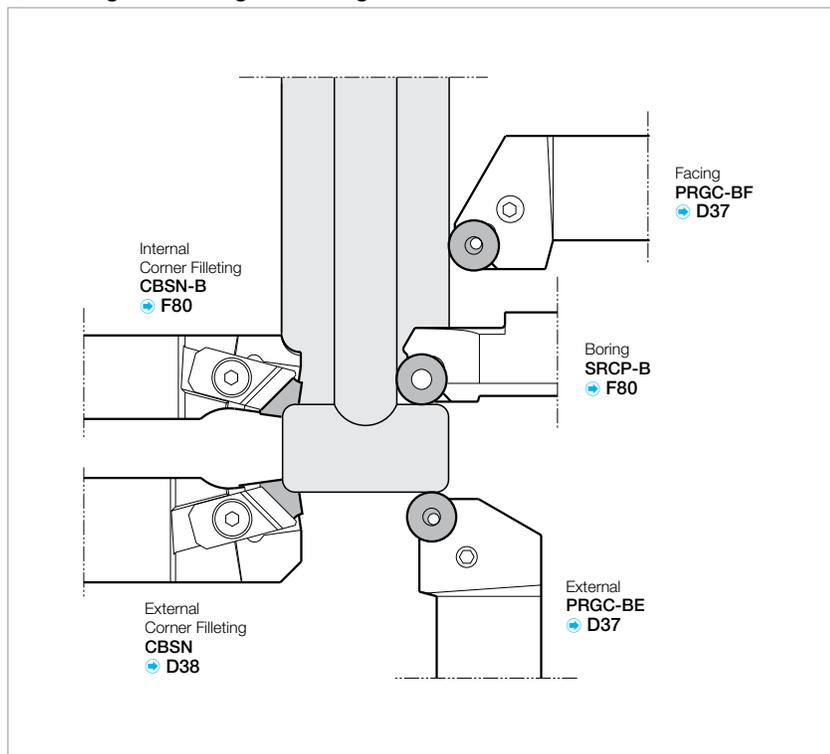
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Bearing Machining

	ISO/ANSI Part Number	Dimension (mm)				Relief Angle	Cermet	Toolholder Page
		IC	S	D1	RE	AN	TN90	
External / Boring / Facing 	RCMT 1204M0-BB	12.0	4.76	4.2	-	7°	●	D37
	1606M0-BB	16.0	6.35	5.5	-	7°	●	
	RPMT 42M0-BB	12.0	3.18	4.4	-	11°	●	F80
	1604M0-BB	16.0	4.76	5.5	-	11°	●	
Corner Filleting 	SNMF 120406-21	INSL	S	CDX	RE		●	D38 F80
	120410-21	12.70	4.76	1.5	0.6		●	
	120416-21	12.70	4.76	3.0	1.0		●	
	120421-21	12.70	4.76	3.1	1.6	-	●	
	120426-21	12.70	4.76	3.2	2.1		●	
		12.70	4.76	3.3	2.6		●	

◆ Tooling for Bearing Machining

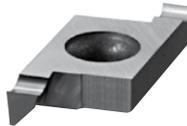


● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Micro Boring

Twin Bars

Micro Boring	Micro Face Grooving
TWB Twin-Bars F42	TWFG Twin-Bars G94
	
TWBT Twin-Bars F41	TWFGT Twin-Bars G95
	

Solid Micro Boring Bars

Micro Boring	
MBS Micro Bars F14	MBE Micro Bars F15
	

EZ Bars / System Tip-Bars / Tip-Bars

Micro Boring		Micro Back Boring
EZB EZ Bars F18	EZVB EZ Bars F24	EZBT EZ Bars F26
		
VNB-S / VNB System Tip-Bars F36	VNBX-S System Tip-Bars F40	VNBT System Tip-Bars F37
		

Solid Tip-Bars (Grooving / Threading)

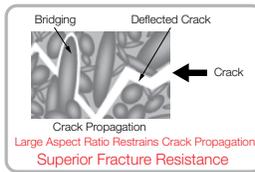
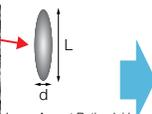
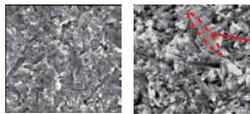
Micro Grooving	Micro Face Grooving	Micro Internal Threading
EZG EZ Bars G59	EZFG EZ Bars G90	EZT EZ Bars J32
		
VNG System Tip-Bars G61	VNFG System Tip-Bars G92	VNT System Tip-Bars J36
		

B TURNING INSERTS
 NEGATIVE
 C
 D
 R
 S
 T
 V
 W
 CERAMIC

KS6015 / KS6050 / CS7050 High Speed Machining of Cast Iron

- Improved fracture resistance by high aspect ratio constituents
- Resists chipping due to scale and interrupted machining
- High speed machining of cast iron by controlling grain boundary phase (good wear resistance)

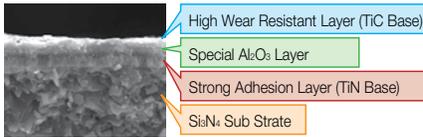
KS6015 NEW
Wear Resistant Machining



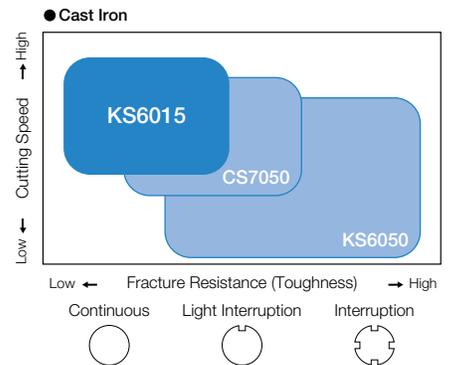
KS6050
General Purpose Interrupted Machining

CS7050 (Coated Si3N4)

Superior wear resistance attained with strong coating adherence
Applicable to high speed machining



Application Map

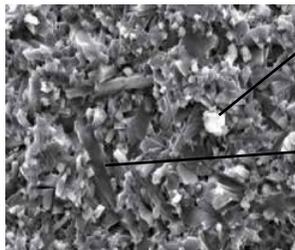


INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS

KS6030/KS6040 SiAlON Ceramic Heat-Resistant Alloy Machining

Improved wear and fracture resistance due to the mixture of the hard and acicular particles

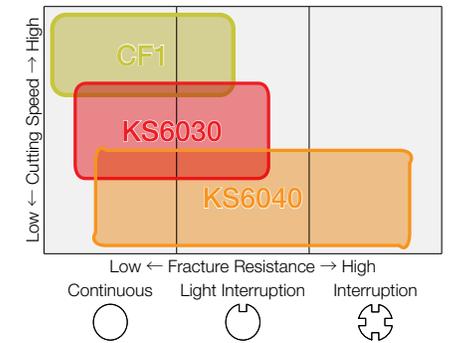
Superior balance in heat resistant alloys machining achieves optimum balance between wear and fracture resistance.



Hard Particle
(Improved Wear Resistance)

Acicular Particle
(Improved Fracture Resistance)

HRSA Application Map

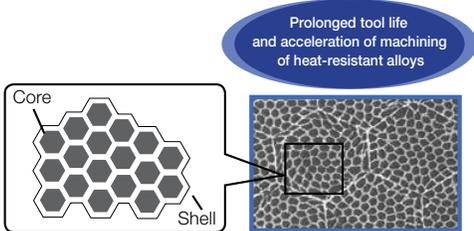


TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING

CF1 Honeycomb Structure Ceramic Heat-Resistant Alloy Machining

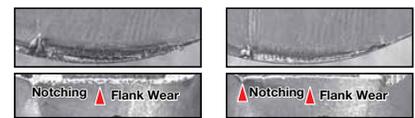
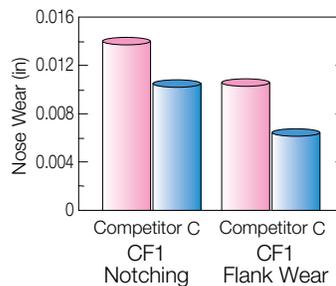
What is Honeycomb structure ceramic?

Honeycomb structure ceramic is a composite material consisting of a core (gray portion) and shell (white portion)



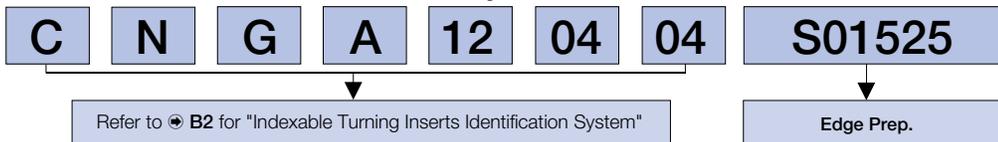
Prolonged tool life and acceleration of machining of heat-resistant alloys

Comparison of Wear Resistance



<Cutting Conditions>
Workpiece Material: Ni-base Heat-Resistant Alloys
Tool Geometry: RNGN120400
Vc = 490sfm, D.O.C. = 0.039"
Feed Rate f = 0.006ipr Wet

Ceramic Insert Identification System



How to Identify Edge Preparation

Edge Prep.	Symbol	Cutting Edge Spec.	Example	Shape
	S	Chamfered and Honed Cutting edge	S00625	0.006" X 25° Chamfered and Honed Cutting edge
	T	Chamfered Cutting edge	T00825	0.008" X 25° Chamfered Cutting edge

Refer to B3 for insert color

DRILLING
MILLING
QUICK CHANGE TOOLING
SPARE PARTS
TECHNICAL
INDEX

80° Diamond Negative Insert

Part Number	IC	S	D1	(in)	Part Number	IC	S	D1	(in)
CN_A 43_	1/2	3/16	0.203		CNG 55_	5/8	5/16	-	
CN_43_	1/2	3/16	-		CNGX 45_	1/2	5/16	-	
CN_45_	1/2	5/16	-						

B
TURNING
INSERTS

NEGATIVE

C

D

R

S

T

V

W

CERAMIC

Edge Prep.			Material										Toolholder						
Symbol	Cutting Edge Spec.	Example	K	S	H	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic	Page					
Insert	ANSI Part Number	Edge Prep (in)	ISO Part Number	Corner Radius (in)	RE	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXXW1	Page	
	CNGA 433T00425AA	S00425	CNGA 120412S01025	3/64		●													
	CNGA 431T00625AA	S00625	CNGA 120404S01525	1/64					●										
	432T00625AA		CNGA 120408S01525	1/32					●										
	433T00625AA		CNGA 120412S01525	3/64					●										
	CNGA 431S00825	S00825	CNGA 120404S02025	1/64						●									
	432S00825		CNGA 120408S02025	1/32						●									
	433S00825		CNGA 120412S02025	3/64						●									
	CNGA 431T01230AA	S01230	CNGA 120404S03030	1/64						●									
	432T01230AA		CNGA 120408S03030	1/32						●									
	433T01230AA		CNGA 120412S03030	3/64						●									
CNGA 431T00625	T00625	CNGA 120404T01525	1/64						●										
432T00625		CNGA 120408T01525	1/32						●										
433T00625		CNGA 120412T01525	3/64						●										
CNGA 431T00825	T00825	CNGA 120404T02025	1/64			●			●										
432T00825		CNGA 120408T02025	1/32			●			●	●	●	●							
433T00825		CNGA 120412T02025	3/64			●			●	●	●	●							
CNMA 432T00625AA	S00625	CNMA 120408S01525	1/32						●										
CNMA 432T01230AA	S01230	CNMA 120408S03030	1/32						●										
433T01230AA		CNMA 120412S03030	3/64						●										
	CNG 432T00425AA	S00425	CNGN 120408S01025	1/32		●													
	433T00425AA		CNGN 120412S01025	3/64			●												
	CNG 432T00420	T00420	CNGN 120408T01020	1/32											●	△			
	433T00420		CNGN 120412T01020	3/64											●	△			
	CNG 432T00825	T00825	CNGN 120408T02025	1/32		●			●	●	△	△			●				
	433T00825		CNGN 120412T02025	3/64		●			●	●	●	△			●				
	434T00825		CNGN 120416T02025	1/16		●			●	●	●				●				
	CNG 452T00625AA	S00625	CNGN 120708S01525	1/32					●										
	453T00625AA		CNGN 120712S01525	3/64					●										
	CNG 452T00420	T00420	CNGN 120708T01020	1/32												△	●		
453T00420	CNGN 120712T01020		3/64												△				
CNG 451T00825	T00825	CNGN 120704T02025	1/64			●						●							
452T00825		CNGN 120708T02025	1/32			●						●							
453T00825		CNGN 120712T02025	3/64			●						●							
454T00825		CNGN 120716T02025	1/16			●						●							
CNG 552T00825	T00825	CNGN 160708T02025	1/32			●													
553T00825		CNGN 160712T02025	3/64			●													
554T00825		CNGN 160716T02025	1/16			●													
CNM 452T00825	T00825	CNMN 120708T02025	1/32			●													
453T00825		CNMN 120712T02025	3/64			●													
	CNGX 453T00420	T00420	CNGX 120712T01020	3/64											△				
	454T00420		CNGX 120716T01020	1/16												△			
	CNGX 452T00825	T00825	CNGX 120708T02025	1/32							△	△			△				
	453T00825		CNGX 120712T02025	3/64							△	△			△				
454T00825	CNGX 120716T02025	1/16								△	△			△					

CERAMIC TURNING INSERTS (NEGATIVE)

How to read this page **B15**

55° / 75° Diamond Negative Insert

Part Number	IC	S	D1	Part Number	IC	S	D1
DNGA 43_	1/2	3/16	0.203	DNGX 35_	0.394	5/16	-
DNGA 44_	1/2	1/4	0.203	DNGX 45_	1/2	5/16	-
DNG 43_	1/2	3/16	-	ENG 45_	1/2	5/16	-
DNG 45_	1/2	5/16	-				

Edge Prep.				K	S	H	Material Compatibility											Toolholder Page							
Symbol	Cutting Edge Spec.	Example	Example				Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	Heat-resistant Alloys	Hard Materials	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic		SiAlON Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic				
				Edge Prep (in)	ISO Part Number	Corner Radius (in)	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1							
	S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	DNGA 432T00425AA	S00425	DNGA 150408S01025	1/32	●											D12 D13 F82 F88 F89					
					DNGA 431T00625AA	S00625	DNGA 150404S01525	1/64																	
					DNGA 432T00625AA	S00625	DNGA 150408S01525	1/32																	
					DNGA 431S00825	S00825	DNGA 150404S02025	1/64																	
					DNGA 432S00825	S00825	DNGA 150408S02025	1/32																	
					DNGA 432T01230AA	S01230	DNGA 150408S03030	1/32																	
					DNGA 431T00825	T00825	DNGA 150404T02025	1/64	●																
					DNGA 432T00825		DNGA 150408T02025	1/32	●	●															
					DNGA 433T00825		DNGA 150412T02025	3/64	●	●															
					DNGA 434T00825		DNGA 150416T02025	1/16	●	●															
					DNGA 442T00625AA	S00625	DNGA 150608S01525	1/32																	D12 D13 F82
					DNGA 443T00625AA		DNGA 150612S01525	3/64																	
DNGA 444T00625AA	DNGA 150616S01525	1/16																							
DNGA 441T00825	T00825	DNGA 150604T02025	1/64	●															D12 D13 F82						
DNGA 442T00825		DNGA 150608T02025	1/32	●	●																				
DNGA 443T00825		DNGA 150612T02025	3/64	●	●																				
	DNG	Chamfered Cutting Edge	S00625	0.003" X 15° Chamfered Cutting Edge	DNG 451T00625AA	S00625	DNGN 150704S01525	1/64											D27						
					DNG 452T00625AA		DNGN 150708S01525	1/32																	
					DNG 453T00625AA		DNGN 150712S01525	3/64																	
					DNG 452S00825	S00825	DNGN 150708S02025	1/32																	
					DNG 451T00825	T00825	DNGN 150704T02025	1/64	●																
DNG 452T00825	DNGN 150708T02025	1/32	●																						
DNG 453T00825	DNGN 150712T02025	3/64	●																						
DNG 454T00825	DNGN 150716T02025	1/16	●																						
	DNGX	Chamfered Cutting Edge	T00825	0.003" X 15° Chamfered Cutting Edge	DNGX 352T00825	T00825	DNGX 120708T02025	1/32											-						
					DNGX 353T00825		DNGX 120712T02025	3/64																	
					DNGX 452T00825	T02025	DNGX 150708T02025	1/32																	
					DNGX 453T00825		DNGX 150712T02025	3/64																	
DNGX 454T00825	DNGX 150716T02025	1/16																							
	ENG	Chamfered Cutting Edge	S00625	0.003" X 15° Chamfered Cutting Edge	ENG 452T00625AA	S00625	ENGN 130708S01525	1/32											D27 F97						
					ENG 453T00625AA		ENGN 130712S01525	3/64																	
					ENG 451T00825	T00825	ENGN 130704T02025	1/64	●																
					ENG 452T00825		ENGN 130708T02025	1/32	●																
					ENG 453T00825		ENGN 130712T02025	3/64	●																
					ENG 454T00825		ENGN 130716T02025	1/16	●																
ENG 455T00825	ENGN 130720T02025	5/64	●																						

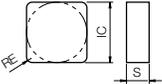
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

Inserts sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

90° Square Negative Insert

Part Number	IC	S	D1
SN_A 43_	1/2	3/16	0.203
SNG 43_	1/2	3/16	-
SNG 45_	1/2	5/16	-

Edge Prep.			K	Material										Toolholder Page			
Symbol	Cutting Edge Spec.	Example		Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	Heat-resistant Alloys	Hard Materials	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic		CVD Coated Silicon Nitride Ceramic	SAION Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic
S	Chamfered and Honed Cutting Edge	S00525	0.005° X 25° Chamfered and Honed Cutting Edge	●	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
T	Chamfered Cutting Edge	T00315	0.003° X 15° Chamfered Cutting Edge	●	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	Corner Radius (in)	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1
 	SNGA 432T00625AA 433T00625AA	S00625	SNGA 120408S01525 120412S01525	1/32 3/64				●									
	SNGA 432S00825 433S00825	S00825	SNGA 120408S02025 120412S02025	1/32 3/64					●								
	SNGA 432T00625 433T00625	T00625	SNGA 120408T01525 120412T01525	1/32 3/64					●								
	SNGA 432T00825 433T00825 434T00825	T00825	SNGA 120408T02025 120412T02025 120416T02025	1/32 3/64 1/16		●	△		●	●	●	△					
	SNMA 432T01230AA	S01230	SNMA 120408S03030	1/32					●								
	 	SNG 432T00425AA 433T00425AA 434T00425AA 435T00425AA	S00425	SNGN 120408S01025 120412S01025 120416S01025 120420S01025	1/32 3/64 1/16 5/64	●											
SNG 432T00625AA 433T00625AA 434T00625AA		S00625	SNGN 120408S01525 120412S01525 120416S01525	1/32 3/64 1/16				●									
SNG 432S00825 433S00825 434S00825		S00825	SNGN 120408S02025 120412S02025 120416S02025	1/32 3/64 1/16					●								
SNG 434T01230AA		S01230	SNGN 120416S03030	1/16				●									
SNG 432T00220		T00220	SNGN 120408T00520	1/32		●											
SNG 432T00420 433T00420 434T00420 435T00420		T00420	SNGN 120408T01020 120412T01020 120416T01020 120420T01020	1/32 3/64 1/16 5/64										●	△	△	△
SNG 431T00825 432T00825 433T00825 434T00825 435T00825		T00825	SNGN 120404T02025 120408T02025 120412T02025 120416T02025 120420T02025	1/64 1/32 3/64 1/16 5/64		●	●		●	●	●	●	●		△		
SNG 452T00425AA 453T00425AA 454T00425AA		S00425	SNGN 120708S01025 120712S01025 120716S01025	1/32 3/64 1/16		●											
SNG 451T00625AA 452T00625AA 453T00625AA 454T00625AA 455T00625AA		S00625	SNGN 120704S01525 120708S01525 120712S01525 120716S01525 120720S01525	1/64 1/32 3/64 1/16 5/64					●								
SNG 452S00825 453S00825 454S00825 455S00825		S00825	SNGN 120708S02025 120712S02025 120716S02025 120720S02025	1/32 3/64 1/16 5/64					●								
SNG 452T00420 453T00420 454T00420 455T00420		T00420	SNGN 120708T01020 120712T01020 120716T01020 120720T01020	1/32 3/64 1/16 5/64												△	△

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

90° Square Negative Insert

Part Number	IC	S	D1
SN_45_	1/2	5/16	-
SN_55_	5/8	5/16	-

B
TURNING
INSERTS

NEGATIVE

C

D

R

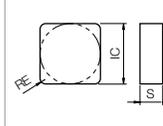
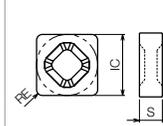
S

T

V

W

CERAMIC

Edge Prep.			K	S	H	Material Compatibility											Toolholder Page		
Symbol	Cutting Edge Spec.	Example				Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic	Honeycomb Structure Ceramic		Whisker Reinforced Ceramic	
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺		
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺		
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	Corner Radius (in)	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1		
 	SNG 451T00825	T00825	SNGN 120704T02025	1/64	●													D29 D34 D35	
	452T00825		120708T02025	1/32	●			●											
	453T00825		120712T02025	3/64	●			●											
	454T00825		120716T02025	1/16	●			●	●	△									
	455T00825		120720T02025	5/64	●			●											
	SNM 454T00825	T00825	SNMN 120716T02025	1/16	●														
 	SNG 553T00825	T00825	SNGN 150712T02025	3/64	●			●										D29	
	554T00825		150716T02025	1/16	●					●									
	SNGX 453T00420	T00420	SNGX 120712T01020	3/64											△				
	454T00420		120716T01020	1/16											△				
	SNGX 453T00825	T00825	SNGX 120712T02025	3/64							△	△			△				
	454T00825		120716T02025	1/16							△	△			△				
	SNGX 552T00825	T00825	SNGX 150708T02025	1/32							●								
	553T00825		150712T02025	3/64							●								
554T00825		150716T02025	1/16							△									

35° Diamond / 80°Trigon

Negative Insert

Part Number	IC	S	D1
VN_A 33_	3/8	3/16	0.150
WNGA 43_	1/2	3/16	0.203

B TURNING INSERTS

NEGATIVE POSITIVE

C

D

R

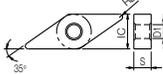
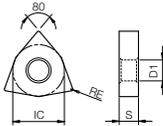
S

T

V

W

CERAMIC

Symbol	Cutting Edge Spec.	Edge Prep.		Material	Phaseout	Standard	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic	SiAlON Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic	Toolholder										
		Example	Edge Prep (in)												ISO Part Number	Corner Radius (in)								
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	Gray Cast Iron (With Scale) Gray Cast Iron (Without Scale) Nodular Cast Iron (With Scale) Nodular Cast Iron (Without Scale)																				
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge	Heat-resistant Alloys Hard Materials																				
Insert		ANSI Part Number		Edge Prep (in)	ISO Part Number		Corner Radius (in)	RE	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1	Toolholder	Page		
 	VNGA 331T00625AA	S00625	VNGA 160404S01525	1/64																				
	332T00625AA		160408S01525	1/32																				
	VNGA 331S00825	S00825	VNGA 160404S02025	1/64																				
	332S00825		160408S02025	1/32																				
	VNGA 331T00825	T00825	VNGA 160404T02025	1/64																				
	332T00825		160408T02025	1/32																				
333T00825		160412T02025	3/64																					
 	VNMA 332T00625AA	S00625	VNMA 160408S01525	1/32																				
	WNGA 432T00625AA	S00625	WNGA 080408S01525	1/32																				
	WNGA 431T00625	T00625	WNGA 080404T01525	1/64																				
	432T00625		080408T01525	1/32																				
433T00625		080412T01525	3/64																					

Inserts for Roll Machining

B TURNING INSERTS

NEGATIVE POSITIVE

C

D

R

S

T

W

CERAMIC

Edge Prep.				K	Material											Toolholder	Page											
Symbol	Cutting Edge Spec.	Example			Gray Cast Iron (With Scale)	Gray Cast Iron (Without Scale)	Nodular Cast Iron (With Scale)	Nodular Cast Iron (Without Scale)	S	H	Aluminum Oxide Ceramic	PVD Coated Ceramic	MEGACOAT Ceramic	Silicon Nitride Ceramic	CVD Coated Silicon Nitride Ceramic			SiAlON Ceramic	Honeycomb Structure Ceramic	Whisker Reinforced Ceramic								
				S																								
				H																								
				Dimensions (in)																								
Insert				ANSI Part Number	*Edge Prep (in)	ISO Part Number	IC	D1	S	S2	CHW	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1					
		RBG 12K20003	K20003	RBG 12K20003	12mm	6mm	6mm	3mm	0.2mm							△												
		16K20003	K20003	16K20003	16mm	8mm	8mm	5mm	0.2mm								●											
		20K20003	K20003	20K20003	20mm	10mm	10mm	5mm	0.3mm								△											
		RCGX 24E001	E001	RCGX 060600E003	1/4	-	1/4	-	-																			
		24E002	E002	060600E005	1/4	-	1/4	-	-																			
		24T00420	T00420	060600T01020	1/4	-	1/4	-	-																			
		102T04015 *1	T04015	060400 *1	1/4	-	0.180	-	-																			
		102H315T04015		060700	1/4	-	0.315	-	-																			
		35E001	E001	090700E003	3/8	-	0.315	-	-																			
		35E002	E002	090700E005	3/8	-	0.315	-	-																			
		103T08015625AA	P08015	090700P20015	3/8	-	0.315	-	-																			
		103S00420	S00420	090700S01020	3/8	-	0.315	-	-																			
		35T00420	T00420	090700T01020	3/8	-	0.315	-	-																			
		45E001	E001	120700E003	1/2	-	0.315	-	-																			
		45E002	E002	120700E005	1/2	-	0.315	-	-																			
		104T08015625AA	P08015	120700P20015	1/2	-	0.315	-	-																			
104S00420	S00420	120700S01020	1/2	-	0.315	-	-																					
45T00420	T00420	120700T01020	1/2	-	0.315	-	-																					
106T08015625AA	P08015	191000P20015	3/4	-	0.394	-	-																					
		RPGX 24E001	E001	RPGX 060600E003	1/4	-	1/4	-	-																			
		24T00420	T00420	060600T01020	1/4	-	1/4	-	-																			
		35E001	E001	090700E003	3/8	-	0.315	-	-																			
		35T00420	T00420	090700T01020	3/8	-	0.315	-	-																			
		45E001	E001	120700E003	1/2	-	0.315	-	-																			
45E002	E002	120700E005	1/2	-	0.315	-	-																					
45T00420	T00420	120700T01020	1/2	-	0.315	-	-																					
		RCMA 66T08015625AA	P08015	RCMA 190900P20015	3/4	0.250	3/8	-	-																			
		88T08015625AA		251200P20015	1	0.266	1/2	-	-																			
		106T08015625AA		310900P20015	1 1/4	0.390	3/8	-	-																			
		1012T08015625AA		311800P20015	1 1/4	0.390	3/4	-	-																			
		LNU 6688T08015625A	P08015	LNUN 381232P20015	CW	S	INSL	RE	-	KA30	A65	KT66	A66N	PT600M	KS6015	KS6050	CS7050	KS6030	KS6040	CF1	KXW1							
						3/4	1/2	1 1/2	1/8	-																		

*1 IC may differ based on edge prep.
For cutting edge "E", "K" and "P" please refer to the table below.

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	
E	R-honed Cutting Edge	E002	R0.002" Honed
K	Double Chamfered Cutting Edges	K20003	2.00mm X 3° Chamfered Cutting Edge
P	Double Chamfered + Honed Cutting Edge	P20015	2.00mm X 15° Chamfered + Honed Cutting Edge

- Note: Symbol "K" and "P" describe only the largest chamfer width and its angle.

RBG Inserts are sold in 1 piece boxes

Inserts sold in 10 piece boxes.

CBN & PCD INSERTS



C1 - C34

CBN INSERTS & BARS		C2 - C21
IDENTIFICATION SYSTEM		C2
HOW TO IDENTIFY EDGE PREPARATION		C2
MEGACOAT CBN		C3
APPLICATION MAPS		C4
RECOMMENDED CUTTING CONDITIONS		C4
CASE STUDIES		C5
NEGATIVE TURNING INSERTS		C6
POSITIVE TURNING INSERTS		C14
NEGATIVE TURNING INSERTS (WITHOUT HOLE)		C19
EXTERNAL GROOVING INSERTS		C20
SOLID TIP-BARS FOR MICRO BORING	EZ Bars / Tip-Bars	C21
PCD INSERTS & BARS		C22 - C34
PCD GRADES AND FEATURES		C22
IDENTIFICATION SYSTEM		C22
RECOMMENDED CUTTING CONDITIONS		C22
NEGATIVE TURNING INSERTS		C23
POSITIVE TURNING INSERTS		C24
EXTERNAL GROOVING		C30
FOR ALUMINUM WHEEL		C31
TURNING / GROOVING		C32
SOLID TIP-BARS FOR MICRO BORING	EZ Bars	C33
	System Tip-Bars / Tip-Bars	C34

MEGACOAT CBN



Innovative CBN Tools

Extended Tool Life

Improved Stability

High Speed Cutting

For CBN Variation and Features See Page [A16](#)

Various Insert Edge Preparations Available in High Performance MEGACOAT CBN

Turning Insert Identification System

C N G A 12 04 04 S01225 ME

Refer to [B2](#) for "Turning Indexable Inserts Identification System"

Insert Type	Part Number	Edge Prep.	Manufacturer's Option	Cutting Edge Length	No. of Edges	Re-Grinding
Negative	CNGA431MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CNGA431ME4	S00525	ME4		4 (Double-sided)	
	CNGA431S00525ME		ME		2	
	CNGA431S00245MEP	S00245	MEP		2	
	CNGA431S00525SE	S00525	SE		1	
	CNMN431S00820	S00820	No Indication (Only KBN900)		Long		Multiple Edge	Possible
Positive	CCMW3251MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CCMW3251T00315ME	T00315	ME		2	
	CCMW3251S00525MES	S00525	MES		2	
	CCMW3251T00315SE	T00315	SE		1	

• Re-Grinding

- 1) Re-grinding is possible for inserts without any indication in manufacturer's option. Re-grinding may not be available depending on the edge condition.
- 2) Re-grinding is not recommended for inserts with manufacturer's symbol like "ME" or "SE".

Refer to [Page B3](#) for insert color.

• How To Identify Edge Preparation

Edge Prep.			
Symbol	Cutting Edge Spec.	Example	Shape
F	Sharp Edge	F Sharp Edge	
E	Honed Cutting Edge	E003 R0.003" Honed Cutting Edge	
T	Chamfered Cutting Edge	T00515 0.005" X 15° Chamfered Cutting Edge	
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered + Honed Cutting Edge	

• Features of Chamfer Width $\frac{r}{L}$ Angle

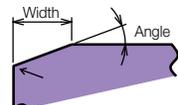


Cutting Force: Good ←→ Poor

Wear Resistance: Good ←→ Poor

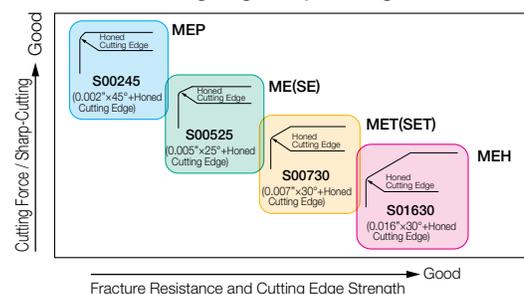
Fracture Resistance: Poor ←→ Good

Application: Continuous ←→ Interruption

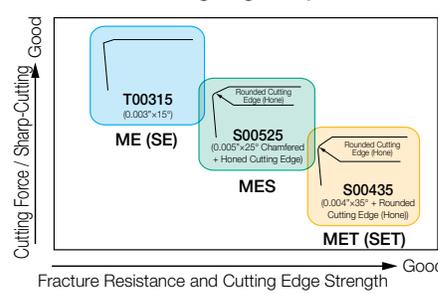


Chamfered Cutting Edge Prep.
(Chamfered Cutting Edge, Chamfered and Honed Cutting Edge)

① Standard Cutting Edge Prep. of Negative inserts



② Standard Cutting Edge Prep. of Positive Inserts



Manufacturer's Option	Cutting Edge Prep.	Application & Features
MEP	S00245 0.002" X 45° + Honed Cutting Edge	High speed, continuous machining Excellent crater wear resistance
ME	S00525 0.005" X 25° + Honed Cutting Edge	General Purpose
MET	S00730 0.007" X 30° + Honed Cutting Edge	Superior fracture resistance
MEH	S01630 0.016" X 30° + Honed Cutting Edge	Interrupted high feed machining Prevention of flaking

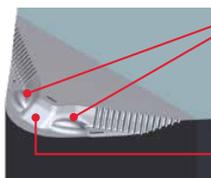
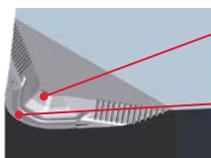
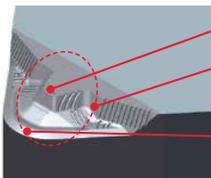
Manufacturer's Option	Cutting Edge Prep.	Application & Features
ME	T00315 0.003" X 15°	Chamfered Sharp cutting oriented, less burring
MES	S00525 0.005" X 25° + Rounded Cutting Edge (Hone)	General Purpose
MET	S00435 0.004" X 35° + Rounded Cutting Edge (Hone)	Interrupted Cutting Stable cutting oriented

H Chipbreaker Series

CBN Inserts for Machining Hardened Material

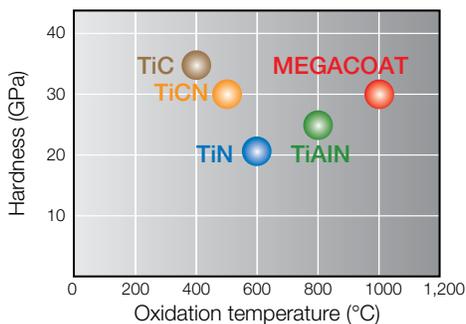
Unique Molded Chipbreaker Provides Excellent Chip Control when Machining Hardened Material

3 Chipbreaker Styles Available for a Wide Range of Machining Applications

Chipbreaker	Application	Recommended Cutting Range
<p>HH</p> <p>1st Recommendation</p>  <p>Twin Dots Breaks chips into small pieces</p> <p>Wide Bump Provides stable chip curls</p>	<p>Hardened Steel Finishing</p> <p>55HRC or more</p>	<p>Small D.O.C. (D.O.C. = 0.004" ~ 0.012")</p>
<p>HL</p>  <p>Wide Bump</p> <p>Rake Surface Stable chip control for softer interior of hardened materials</p>	<p>Hardened Steel Finishing</p> <p>55HRC or less</p>	
<p>HD</p>  <p>Wide Bump</p> <p>Multi-step Structure Good for a wide range of conditions</p> <p>Rake Surface Stable chip control for softer interior of hardened materials</p>	<p>Removing the Carburized Layer (From Carburized Layer to Unhardened Layer)</p>		Large D.O.C. (ap = 0.012" ~ 0.028")

MEGACOAT CBN

PVD Layer Coating Properties

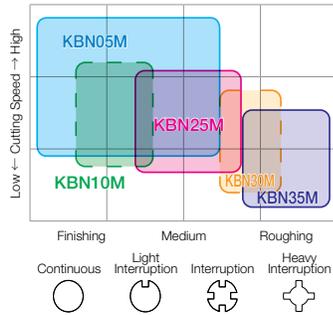


Advantages of MEGACOAT

- Long tool life and stable machining due to superior heat-resistance and hardness
- Stability improvement through prevention of crater wear (oxidation, diffusional wear)
- High thermal stability and surface smoothness provide excellent surface finish

Application Maps

Hardened Materials

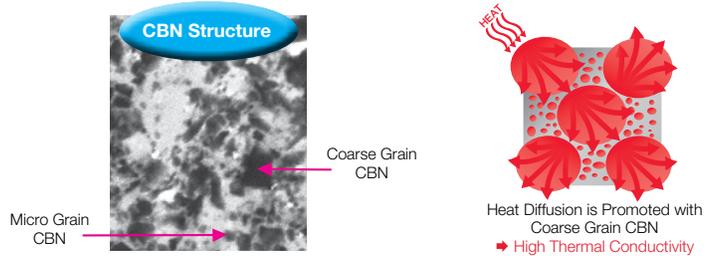


KBN05M

1st recommended grade for a wide range of applications from continuous (high speed finishing) to interrupted cutting.

Hybrid Grain Structure (KBN05M)

Mixed structure of micro grain CBN and coarse grain CBN
 → CBN possesses high hardness, toughness, and thermal resistance characteristics.

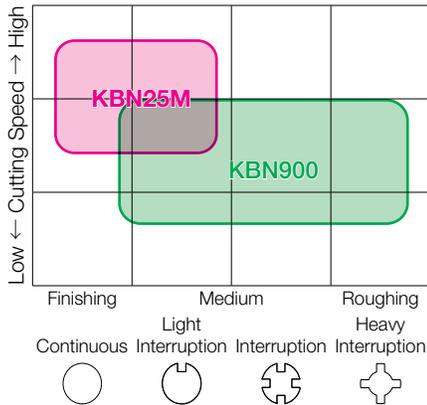


KBN25M: High Stability for General Cutting

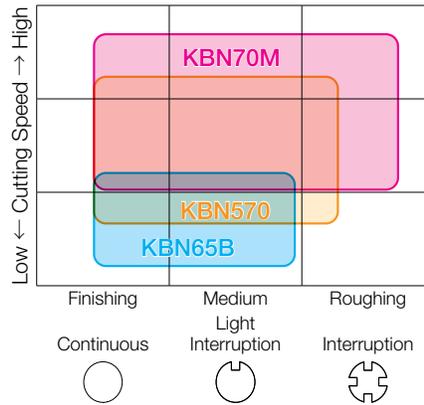
KBN30M: High Stability During Interrupted Cutting

KBN35M: Honeycomb Structure CBN with Superior Fracture Resistance in Heavy Interrupted Cutting

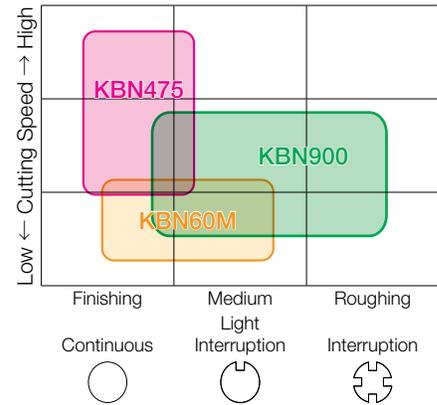
Roll Materials (Chilled Cast Iron)



Powdered Steel



Cast Iron



Recommended Cutting Conditions

Workpiece Material	Hardness	Applications		Recommended Insert Grade	Cutting Conditions		
					Vc (sfm)	D.O.C. (in)	f (ipr)
Heat Treated Steel	Over 55HRC	General Finishing	Continuous-Interruption	KBN05M	330 ~ 490 ~ 660	0.002 ~ 0.012 ~ 0.020	0.002 ~ 0.003 ~ 0.004
		Finishing (HH Chipbreaker)	Continuous-Interruption	KBN05M	330 ~ 490 ~ 660	0.004 ~ 0.008 ~ 0.012	0.004 ~ 0.006 ~ 0.010
		High Efficiency Stable Machining	Light Interruption-Interruption	KBN25M	260 ~ 390 ~ 520	0.002 ~ 0.012 ~ 0.020	0.002 ~ 0.003 ~ 0.004
		Interruption (Small D.O.C.)	Interruption-Heavy interruption	KBN35M	200 ~ 330 ~ 490	0.002 ~ 0.008 ~ 0.016	0.002 ~ 0.003 ~ 0.004
	Under 55HRC	Heavy Machining	Continuous-Interruption	KBN900	230 ~ 300 ~ 360	0.020 ~ 0.039 ~ 0.079	0.002 ~ 0.004 ~ 0.008
		Finishing (HL Chipbreaker)	Continuous-Interruption	KBN05M	330 ~ 490 ~ 660	0.004 ~ 0.008 ~ 0.012	0.004 ~ 0.006 ~ 0.010
Gray Cast Iron	Under 250HB	Finishing	Continuous	*PT600M	200 ~ 260 ~ 390	0.008 ~ 0.020 ~ 0.028	0.002 ~ 0.004 ~ 0.006
		Remove Carburized Layer (HD Chipbreaker)	Continuous-Interruption	KBN05M	330 ~ 490 ~ 660	0.012 ~ 0.020 ~ 0.028	0.004 ~ 0.006 ~ 0.010
		Finishing	Continuous-Light interruption	KBN475	1310 ~ 2620 ~ 3940	0.002 ~ 0.008 ~ 0.020	0.004 ~ 0.008 ~ 0.012
		Finishing	Continuous-Light interruption	KBN60M	980 ~ 1640 ~ 2300	0.002 ~ 0.008 ~ 0.020	0.004 ~ 0.008 ~ 0.012
Roll Materials (Chilled Cast Iron)	Over 55HRC	High Efficiency Finishing	Continuous-Light interruption	KBN900	1640 ~ 2950 ~ 3940	0.004 ~ 0.020 ~ 0.039	0.002 ~ 0.004 ~ 0.008
		Heavy Machining	Continuous-Interruption	KBN900	1640 ~ 2300 ~ 2950	0.020 ~ 0.059 ~ 0.118	0.004 ~ 0.012 ~ 0.020
		Finishing	Continuous-Interruption	KBN25M	260 ~ 390 ~ 520	0.002 ~ 0.012 ~ 0.020	0.002 ~ 0.003 ~ 0.004
Sintered Steel	-	Heavy Machining	Continuous-Interruption	KBN900	230 ~ 300 ~ 360	0.012 ~ 0.028 ~ 0.039	0.002 ~ 0.004 ~ 0.006
		Finishing	Continuous-Light interruption	KBN570	160 ~ 490 ~ 820	0.002 ~ 0.006 ~ 0.010	0.001 ~ 0.004 ~ 0.008
		Finishing	Continuous-Interruption	KBN70M	330 ~ 660 ~ 820	0.002 ~ 0.008 ~ 0.012	0.002 ~ 0.006 ~ 0.010

*PT600M : MEGACOAT on Al₂O₃+TiC Ceramic

Case Studies

5120H (58HRC)	
Gear <ul style="list-style-type: none"> External and Face machining and Chamfering Vc=427 sfm D.O.C.=0.024" f=0.005 ipr WET CNGA432S00525ME (KBN05M) 	
KBN05M	300 pcs/edge
Competitor C	200 pcs/edge
KBN05M achieved 1.5 times longer tool life than competitor C. ▶ Its longer tool life contributes to cost-cutting.	
User Evaluation	

5120H (58HRC)	
Pulley <ul style="list-style-type: none"> Face machining (Continuous) Vc=394 sfm D.O.C.=0.006"~0.008" f=0.009 ipr WET DNGA432S00245MEP (KBN05M) 	
KBN05M-MEP (Edge Preparation : 0.002"x45°)	150 pcs/edge
KBN05M-ME (Edge Preparation : 0.005"x25°)	100 pcs/edge
Competitor E	100 pcs/edge
Tool life of KBN05M-ME type (Edge prep.: 0.005"x25° Chamfered + R honed) is same as competitor E.'s. KBN05M-MEP (Edge prep.: 0.002"x45° Chamfered + R honed) type achieved 1.5 times longer tool life, preventing crater wear.	
User Evaluation	

4131 (60HRC)	
Gear Parts <ul style="list-style-type: none"> Face machining (Interrupted) Vc=295 sfm D.O.C.=0.020" f=0.005 ipr WET_DRY CNGA432S00525ME (KBN25M) 	
KBN25M	70 pcs/edge
Competitor G	30 pcs/edge (Unstable)
KBN25M improved tool life up to 70 pieces/edge (two times more than competitor's G CBN tool). Also, KBN25M had increased tool life up to 250 pieces/edge by changing from wet machining to dry machining.	
User Evaluation	

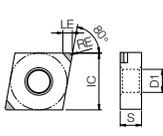
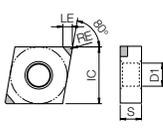
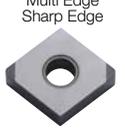
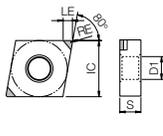
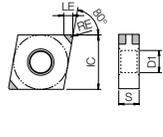
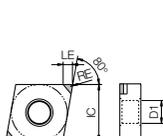
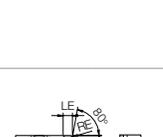
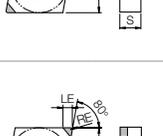
4131 (55HRC)	
Stator <ul style="list-style-type: none"> Boring Vc=558 sfm D.O.C.=0.016" f=0.004 ipr WET CNGA432S00525ME (KBN05M) 	
KBN05M	600 pcs/edge
Competitor D	300 pcs/edge
KBN05M achieved twice longer tool life than competitor D. ▶ Its longer tool life contributes to cost-cutting.	
User Evaluation	

5120 (61~65HRC)	
Gear <ul style="list-style-type: none"> External and Face machining (Interrupted) Vc=394 sfm D.O.C.=0.006" f=0.004~0.006 ipr (External) WET CNGA432S01630MEH (KBN05M) 	
KBN05M-MEH (Edge Preparation : 0.016"x30°)	150 pcs/edge
Competitor F	100 pcs/edge
Compared to competitor. F, KBN05M-MEH type (Edge prep.: 0.016"x30° Chamfered + R-honed) achieved 1.5 times longer tool life. No chipping in interrupted machining, and improved productivity. (Comp. F's cutting edge had multiple chips.) Feed rate could be increased from 0.006 to 0.010 ipr in facing. ▶ Achieved cycle time and cost reduction.	
User Evaluation	

4131 (58HRC)	
Sleeve <ul style="list-style-type: none"> Internal machining (Heavy interruption) Vc=328sfm D.O.C.=0.020" f=0.004 ipr WET TPGB222S00435MET (KBN35M) 	
KBN35M	115 pcs/edge
Competitor H	100 pcs/edge
KBN35M achieved 15% Longer tool life in heavy interrupted machining compared with competitor H. Furthermore it still keeps the insert in a good condition and so provides stable machining result. ▶ Its longer tool life and capability of providing stable result can contribute to cost-cutting and improved efficiency in machining.	
User Evaluation	

80° Diamond Negative Insert with Hole

Part Number	IC	S	D1
CNGA 43_	1/2	3/16	0.203
CNGM 43_	1/2	3/16	0.203

Edge Prep.			K	Gray Cast Iron (with Scale) Nodular Cast Iron (without Scale) Nodular Cast Iron (with Scale)	H	Hard Materials (Roughing) Hard Materials (Finishing) Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN										Toolholder Page		
Symbol	Cutting Edge Spec.	Example						RE	LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510		KBN525	KBN475	KBN570
F	Sharp Edge																			
E	Rounded Cutting Edge (Hone)	E003	R0.003" Honed																	
T	Chamfered Cutting Edge	T00515	0.005" X 15° Chamfered Cutting Edge																	
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																	
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	RE	LE	No. of Edges	MEGACOAT CBN					CBN					Toolholder Page		
								KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570			
		CNGA 431S00515MEW	S00515	CNGA 120404S01215MEW	1/64	0.102	2	●	●					●	●					
		432S00515MEW		120408S01215MEW	1/32	0.098		●	●	●	●					●	●			
		433S00515MEW		120412S01215MEW	3/64	0.098		●	●	●								△		
		CNGA 431S00245MEP	S00245	CNGA 120404S00545MEP	1/64	0.102	2	●												
		432S00245MEP		120408S00545MEP	1/32	0.102		●												
		433S00245MEP		120412S00545MEP	3/64	0.098		●												
		434S00245MEP		120416S00545MEP	1/16	0.134		●												
		435S00245MEP		120420S00545MEP	5/64	0.134		●												
436S00245MEP	120424S00545MEP	3/32	0.130	●																
		CNGA 431MEF	F	CNGA 120404MEF	1/64	0.102	2										●	●		
		432MEF		120408MEF	1/32	0.102													●	●
		433MEF		120412MEF	3/64	0.098														●
		CNGA 431ME4	S00525	CNGA 120404ME4	1/64	0.102	4	●												
		432ME4		120408ME4	1/32	0.102		●												
		433ME4		120412ME4	3/64	0.098		●												
		CNGA 430S00525ME	S00525	CNGA 120402S01225ME	0.008	0.102	2	●	△	●	△	●			●	●				
		431S00525ME		120404S01225ME	1/64	0.102		●	●	●	●	●			●	●	●			
		432S00525ME		120408S01225ME	1/32	0.102		●	●	●	●	●			●	●	●			
		433S00525ME		120412S01225ME	3/64	0.098		●	●	●	●	●			●	●	●			
		434S00525ME		120416S01225ME	1/16	0.134		●												
		435S00525ME		120420S01225ME	5/64	0.134		●												
		436S00525ME	120424S01225ME	3/32	0.130	●														
		431T00515ME	CNGA 120404T01215ME	1/64	0.102									●		●				
		432T00515ME	120408T01215ME	1/32	0.102									●		●				
		433T00515ME	120412T01215ME	3/64	0.098									●		●				
		CNGA 431S00730MET	S00730	CNGA 120404S01730MET	1/64	0.102	2	●		●	●				●					
		432S00730MET		120408S01730MET	1/32	0.102		●	●	●	●									
		433S00730MET		120412S01730MET	3/64	0.098		●			●	●						△		
		434S00730MET		120416S01730MET	1/16	0.134		●												
		435S00730MET		120420S01730MET	5/64	0.134		●												
436S00730MET	120424S01730MET	3/32	0.130	●																
		CNGA 431S01630MEH	S01630	CNGA 120404S04030MEH	1/64	0.102	2	●												
		432S01630MEH		120408S04030MEH	1/32	0.102		●												
		433S01630MEH		120412S04030MEH	3/64	0.098		●												
		434S01630MEH		120416S04030MEH	1/16	0.134		●												
		435S01630MEH		120420S04030MEH	5/64	0.134		●												
436S01630MEH	120424S04030MEH	3/32	0.130	●																

D8
D9
F81
F85
F86

80° Diamond

Negative Insert with Hole

Part Number	IC	S	D1
CNGA 43_	1/2	3/16	0.203
CNGM 43_	1/2	3/16	0.203

Edge Prep.		Example		K											Toolholder Page			
Symbol	Cutting Edge Spec.				Gray Cast Iron (with Scale)													
F	Sharp Edge				Nodular Cast Iron (without Scale)													
E	Rounded Cutting Edge (Hone)	E003	R0.003* Honed		Nodular Cast Iron (with Scale)													
T	Chamfered Cutting Edge	T00515	0.005° X 15° Chamfered Cutting Edge	H	Hard Materials (Roughing)													
S	Chamfered and Honed Cutting Edge	S00525	0.005° X 25° Chamfered and Honed Cutting Edge	H	Hard Materials (Finishing)													
					Hard Materials (Chip Control)													
					Powdered Steel													
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		No. of Edges	MEGACOAT CBN					CBN		Toolholder Page			
					RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510		KBN525	KBN475	KBN570
		CNGA 4305S00525SE	S00525	CNGA 120402S01225SE	0.008	0.102												
		431S00525SE																
		432S00525SE																
		433S00525SE																
		CNGA 431S00730SET	S00730	CNGA 120404S01730SET	1/64	0.102												
		432S00730SET																
		CNGM 431S00325BB1	S00325	CNGM 120404S00825BB1	1/64	0.071												
		432S00325BB1																
		433S00325BB1																
		CNGM 431S00525BB2	S00525	CNGM 120404S01225BB2	1/64	0.087												
		432S00525BB2																
		433S00525BB2																
		CNGM 431S00625BB3	S00625	CNGM 120404S01625BB3	1/64	0.102												
		432S00625BB3																
		433S00625BB3																
		CNGM 431ME-HH	E	CNGM 120404ME-HH	1/64	0.102												
		432ME-HH																
		433ME-HH																
		CNGM 431ME-HL	E	CNGM 120404ME-HL	1/64	0.102												
		432ME-HL																
		433ME-HL																
		CNGM 431ME-HD	S00535	CNGM 120404ME-HD	1/64	0.102												
		432ME-HD																
		433ME-HD																

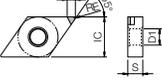
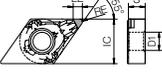
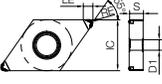
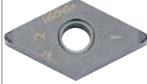
INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

55° Diamond

Negative Insert with Hole

Part Number	IC	S	D1
DNGA 43_	1/2	3/16	0.203
DNGA 44_	1/2	1/4	0.203
DNGM 43_	1/2	3/16	0.203

Edge Prep.				K	Gray Cast Iron (with Scale)																					
Symbol	Cutting Edge Spec.	Example																			H	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	
F	Sharp Edge																									
E	Rounded Cutting Edge (Hone)	E003	R0.003* Honed																							
T	Chamfered Cutting Edge	T00515	0.005° X 15° Chamfered Cutting Edge																							
S	Chamfered and Honed Cutting Edge	S00525	0.005° X 25° Chamfered and Honed Cutting Edge																							
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		No. of Edges	MEGACOAT CBN					CBN			Toolholder Page										
					RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525		KBN475	KBN570								
		DNGA 4302S00525SE	S00525	DNGA 150401S01225SE	0.004	0.087																				
		4305S00525SE		DNGA 150402S01225SE	0.008	0.098																				
		431S00525SE		DNGA 150404S01225SE	1/64	0.091																				
		432S00525SE		DNGA 150408S01225SE	1/32	0.075																				
		DNGM 431S00325BB1	S00325	DNGM 150404S00825BB1	1/64	0.062																				
		432S00325BB1		DNGM 150408S00825BB1	1/32	0.062																				
		433S00325BB1		DNGM 150412S00825BB1	3/64	0.071																				
		DNGM 431S00525BB2	S00525	DNGM 150404S01225BB2	1/64	0.071																				
		432S00525BB2		DNGM 150408S01225BB2	1/32	0.079																				
		433S00525BB2		DNGM 150412S01225BB2	3/64	0.083																				
		DNGM 431ME-HH	E	DNGM 150404ME-HH	1/64	0.102																				
		432ME-HH		DNGM 150408ME-HH	1/32	0.087																				
		433ME-HH		DNGM 150412ME-HH	3/64	0.075																				
		DNGM 431ME-HL	E	DNGM 150404ME-HL	1/64	0.102																				
		432ME-HL		DNGM 150408ME-HL	1/32	0.087																				
		433ME-HL		DNGM 150412ME-HL	3/64	0.075																				
		DNGM 431ME-HD	S00535	DNGM 150404ME-HD	1/64	0.102																				
		432ME-HD		DNGM 150408ME-HD	1/32	0.087																				
		433ME-HD		DNGM 150412ME-HD	3/64	0.075																				

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

35° Diamond Negative Insert with Hole

Part Number	IC	S	D1
VNGA 33_	3/8	3/16	0.150

Edge Prep.			K	Gray Cast Iron (with Scale)	Nodular Cast Iron (without Scale)	Nodular Cast Iron (with Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN										Toolholder Page		
Symbol	Cutting Edge Spec.	Example									Dimensions (in)		No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510		KBN525	KBN475	KBN570
			Edge Prep (in)	ISO Part Number	RE	LE																	
F	Sharp Edge			VNGA 160404S00545MEP	1/64	0.079	●																
E	Rounded Cutting Edge (Hone)	E003	R0.003" Honed	VNGA 160408S00545MEP	1/32	0.071	●																
T	Chamfered Cutting Edge	T00515	0.005" X 15° Chamfered Cutting Edge	VNGA 160404MEF	1/64	0.079																●	●
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	VNGA 160408MEF	1/32	0.071																●	△
				VNGA 160404ME4	1/64	0.079	●																
				VNGA 160408ME4	1/32	0.071	●																
				VNGA 160401S01225ME	0.004	0.102	●	●	●														
				VNGA 160402S01225ME	0.008	0.091	●	●	●	●													
				VNGA 160404S01225ME	1/64	0.079	●	●	●	●													
				VNGA 160408S01225ME	1/32	0.071	●	●	●	●													
				VNGA 160404T01215ME	1/64	0.079																	
				VNGA 160408T01215ME	1/32	0.071																	
				VNGA 160404S01730MET	1/64	0.079	●	●	●														
				VNGA 160408S01730MET	1/32	0.071	●	●	●														
				VNGA 160404S04030MEH	1/64	0.079	●																
				VNGA 160408S04030MEH	1/32	0.071	●																
				VNGA 160401S01225SE	0.004	0.102																	
				VNGA 160402S01225SE	0.008	0.091																	
				VNGA 160404S01225SE	1/64	0.075																	
				VNGA 160408S01225SE	1/32	0.106																	
				VNGA 160404S01730SET	1/64	0.075																	

CBN/PCD INSERTS

CBN

PCD

NEGATIVE

C

D

S

T

V

W

SOLID

GROOVING

D20
D21
D22

80° Diamond Positive Insert with Hole

Part Number	IC	S	D1
CCMW 1109_	0.138	0.055	0.075
1411_	0.169	0.071	0.091
215_	1/4	3/32	0.110
325_	3/8	5/32	0.173

Part Number	IC	S	D1
CPGB 2515_	5/16	3/32	0.138
32_	3/8	1/8	0.177

Edge Prep.																						
Symbol	Cutting Edge Spec.	Example	K																			
F	Sharp Edge																					
E	Rounded Cutting Edge (Hone)	E003 R0.003" Honed																				
T	Chamfered Cutting Edge	T00515 0.005" X 15° Chamfered Cutting Edge	H																			
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered and Honed Cutting Edge																				
			Powdered Steel																			
Insert			ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		MEGACOAT CBN							Toolholder Page							
						RE	LE	No. of Edges	KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570				
Multi-Edge Sharp Edge			CCMW 3251MEF	F	CCMW 09T304MEF	1/64	0.075	2												C15 Reference Table Below		
			3252MEF		09T308MEF	1/32	0.071															
Multi-Edge			CCMW 21505T00315ME	T00315	CCMW 060202T00815ME	0.008	0.079	2	●	●	●	●			●	●	●			C15 Reference Table Below		
			2151T00315ME		060204T00815ME	1/64	0.075		●	●	●	●	●	●	●	●	●	●	●		●	
			2152T00315ME	060208T00815ME	1/32	0.071	●		●	●	●	●	●	●	●	●	●	●	●		●	●
			CCMW 32505T00315ME	T00315	CCMW 09T302T00815ME	0.008	0.079		●	●	●	●	●	●	●	●	●	●	●		●	●
3251T00315ME	09T304T00815ME	1/64	0.075		●	●	●	●	●	●	●	●	●	●	●	●	●					
3252T00315ME		09T308T00815ME	1/32	0.071	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Multi-Edge General Purpose			CCMW 2151S00525MES	S00525	CCMW 060204S01225MES	1/64	0.075	2	●											C15 Reference Table Below		
			2152S00525MES		060208S01225MES	1/32	0.071		●													
			CCMW 3251S00525MES	S00525	CCMW 09T304S01225MES	1/64	0.075		●										●			
			3252S00525MES		09T308S01225MES	1/32	0.071		●										●			
Multi-Edge / Tough			CCMW 3251S00435MET	S00435	CCMW 09T304S01035MET	1/64	0.075	2	●	●	●	●						●		C15 Reference Table Below		
			3252S00435MET		09T308S01035MET	1/32	0.071		●	●	●	●										
Small Edge			CCMW 110905T00315SE	T00315	CCMW 030102T00815SE	0.008	0.055	1		●	●				●	●				C15 Reference Table Below		
			11091T00315SE		030104T00815SE	1/64	0.055			●	●				●	●						
			CCMW 141105T00315SE	T00315	CCMW 040102T00815SE	0.008	0.055			●	●				●	●						
			14111T00315SE		040104T00815SE	1/64	0.055			●	●				●	●						
CCMW 21505T00315SE	T00315	CCMW 060202T00815SE	0.008	0.079		●		●						●	●	●						
2151T00315SE		060204T00815SE	1/64	0.075		●		●						●	●	●						
CCMW 32505T00315SE	T00315	CCMW 09T302T00815SE	0.008	0.079		●		●						●	●	●						
3251T00315SE		09T304T00815SE	1/64	0.075		●		●						●	●	●						
Small Edge / Tough			CCMW 110905S00435SET	S00435	CCMW 030102S01035SET	0.008	0.055	1		●	●				●	●				C15 Reference Table Below		
			11091S00435SET		030104S01035SET	1/64	0.055			●	●				●	●						
			CCMW 141105S00435SET	S00435	CCMW 040102S01035SET	0.008	0.055			●	●				●	●						
			14111S00435SET		040104S01035SET	1/64	0.055			●	●				●	●						
CCMW 2151S00435SET	S00435	CCMW 060204S01035SET	1/64	0.075		●		●						●	●							
3251S00435SET		09T304S01035SET	1/64	0.075		●		●						●	●							
Multi-Edge			CPGB 25151T00315ME	T00315	CPGB 080204T00815ME	1/64	0.075	2	●		●	△			●	●	●			C15 Reference Table Below		
			3205T00315ME		090302T00815ME	0.008	0.075		●		●	●			●	△	●	●				
			321T00315ME	T00315	090304T00815ME	1/64	0.075		●		●	●	●			●	●	●				
			322T00315ME		090308T00815ME	1/32	0.098		●		●	●	●			●	●	●				
Multi-Edge General Purpose			CPGB 321S00525MES	S00525	CPGB 090304S01225MES	1/64	0.075	2	●											C15 Reference Table Below		
			322S00525MES		090308S01225MES	1/32	0.098		●													
Multi-Edge / Tough			CPGB 25151S00435MET	S00435	CPGB 080204S01035MET	1/64	0.075	2			●	△					●			C15 Reference Table Below		
			25152S00435MET		080208S01035MET	1/32	0.087				●	●							●			
			CPGB 321S00435MET	S00435	CPGB 090304S01035MET	1/64	0.075		●		●	●							●			
			322S00435MET		090308S01035MET	1/32	0.098		●		●	●	●								●	
Small Edge			CPGB 251505T00315SE	T00315	CPGB 080202T00815SE	0.008	0.075	1							●	●				C15 Reference Table Below		
			25151T00315SE		080204T00815SE	1/64	0.075								●	●						
			CPGB 3205T00315SE	T00315	CPGB 090302T00815SE	0.008	0.075										●	●				
			321T00315SE		090304T00815SE	1/64	0.075										●	●				
Small Edge / Tough			CPGB 321S00435SET	S00435	CPGB 090304S01035SET	1/64	0.075	1							●							

55° Diamond

Positive Insert with Hole

Part Number	IC	S	D1 (in)
DCMW 215_	1/4	3/32	0.110
325_	3/8	5/32	0.177

Edge Prep.				K	Gray Cast Iron (with Scale)	Nodular Cast Iron (without Scale)	Nodular Cast Iron (with Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN	CBN	Toolholder Page
Symbol	Cutting Edge Spec.	Example	H											
F	Sharp Edge													
E	Rounded Cutting Edge (Hone)	E003	R0.003" Honed											
T	Chamfered Cutting Edge	T00515	0.005" X 15° Chamfered Cutting Edge											
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge											

Insert	ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		No. of Edges	MEGACOAT CBN						CBN			Toolholder Page		
				RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475		KBN570	
	DCMW 3251MEF	F	DCMW 11T304MEF	1/64	0.067	2												
	3252MEF		11T308MEF	1/32	0.075													
	DCMW 21505T00315ME	T00315	DCMW 070202T00815ME	0.008	0.075	2	●	●	●	●	●			●	●	●		
	2151T00315ME		070204T00815ME	1/64	0.067		●	●	●	●	●			●	●	●		
	2152T00315ME		070208T00815ME	1/32	0.075		●		●	●					●			
	DCMW 32505T00315ME	T00315	DCMW 11T302T00815ME	0.008	0.075	2	●	●	●	●	●			●	●	●		
	3251T00315ME		11T304T00815ME	1/64	0.067		●	●	●	●	●			●	●	●		
	3252T00315ME		11T308T00815ME	1/32	0.075		●	●	●	●	●			●	●	●		
3253T00315ME	11T312T00815ME	3/64	0.075	●		●	△											
	DCMW 32505S00525MES	S00525	DCMW 11T302S01225MES	0.008	0.075	2	●											
	3251S00525MES		11T304S01225MES	1/64	0.067		●									●		
	3252S00525MES		11T308S01225MES	1/32	0.075		●									●		
	DCMW 21505S00435MET	S00435	DCMW 070202S01035MET	0.008	0.075	2			●	●								
	2151S00435MET		070204S01035MET	1/64	0.067				●	●								
	2152S00435MET		070208S01035MET	1/32	0.075				●	△								
	DCMW 32505S00435MET	S00435	DCMW 11T302S01035MET	0.008	0.075	2	●		●	●					●			
	3251S00435MET		11T304S01035MET	1/64	0.067		●		●	●					●			
	3252S00435MET		11T308S01035MET	1/32	0.075				●	●	●					●		
3253S00435MET	11T312S01035MET	3/64	0.075			●	●											
	DCMW 21505T00315SE	T00315	DCMW 070202T00815SE	0.008	0.075	1			●					●	●			
	2151T00315SE		070204T00815SE	1/64	0.067				●						●	●		
	DCMW 32505T00315SE	T00315	DCMW 11T302T00815SE	0.008	0.075	1								●	●			
	3251T00315SE		11T304T00815SE	1/64	0.067										●	●		
3252T00315SE	11T308T00815SE	1/32	0.075			●							●	●				
	DCMW 2151S00435SET	S00435	DCMW 070204S01035SET	1/64	0.067	1									●			
	DCMW 32505S00435SET	S00435	DCMW 11T302S01035SET	0.008	0.075	1									●			
	3251S00435SET		11T304S01035SET	1/64	0.067										●	●		
3252S00435SET	11T308S01035SET	1/32	0.075											●	●			

● CC

Part Number	Applicable Toolholder Page
CC..215_	E24-E25, E41, E48, F27, F45, F47
CC..325_	E24-E25, E41, E48, F45, F83

● DC

Part Number	Applicable Toolholder Page
DC..215_	E26-E27, E30-E31, E42, E48, F53-F57
DC..325_	E22, E26-E31, E42, E48, F53-F57, F83

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

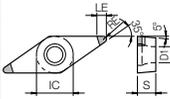
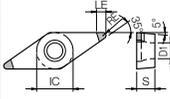
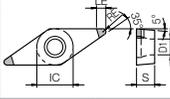
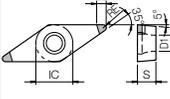
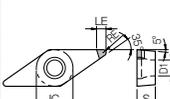
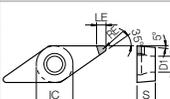
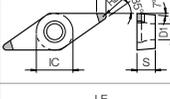
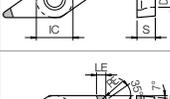
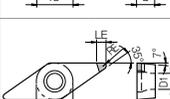
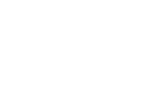
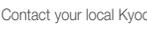
CBN & PCD Inserts sold in 1 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

35° Diamond Positive Insert with Hole

Part Number	Applicable Toolholder Page
VB..22_	E34-E36, E43, E48, F66-F73
VB..33_	E34-E36, F66-F73

Part Number	IC	S	D1
VBGW 22_	1/4	1/8	0.110
33_	3/8	3/16	0.173
VCGW 1515_	3/16	3/32	0.091

Edge Prep.			K	Gray Cast Iron (with Scale)	Nodular Cast Iron (without Scale)	Nodular Cast Iron (with Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN										Toolholder Page
Symbol	Cutting Edge Spec.	Example									H	+	+	+	+	+	+	+	+	+	
Insert	ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		No. of Edges	CBN										Reference Table Above				
				RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570					
		F	VBGW 221MEF	VBGW 110304MEF	1/64	0.079	2														
			VBGW 222MEF	VBGW 110308MEF	1/32	0.067	2														
		T00315	VBGW 331MEF	VBGW 160404MEF	1/64	0.079	2														
			VBGW 332MEF	VBGW 160408MEF	1/32	0.067	2														
		S00525	VBGW 2205T00315ME	VBGW 110302T00815ME	0.008	0.094	2	●	●	●	●	●									
			VBGW 221T00315ME	VBGW 110304T00815ME	1/64	0.079	2	●	●	●	●	●									
		S00435	VBGW 222T00315ME	VBGW 110308T00815ME	1/32	0.067	2	●	●	●	●	●									
			VBGW 3305S00315ME	VBGW 160402T00815ME	0.008	0.094	2	●	●	●	●	●									
		S00435	VBGW 331T00315ME	VBGW 160404T00815ME	1/64	0.079	2	●	●	●	●	●									
			VBGW 332T00315ME	VBGW 160408T00815ME	1/32	0.067	2	●	●	●	●	●									
		T00315	VBGW 221S00525MES	VBGW 110304S01225MES	1/64	0.079	2	●													
			VBGW 222S00525MES	VBGW 110308S01225MES	1/32	0.067	2	●													
		S00435	VBGW 331S00525MES	VBGW 160404S01225MES	1/64	0.079	2	●													
			VBGW 332S00525MES	VBGW 160408S01225MES	1/32	0.067	2	●													
		S00435	VBGW 2205S00435MET	VBGW 110302S01035MET	0.008	0.094	2	●	●	●	●										
			VBGW 221S00435MET	VBGW 110304S01035MET	1/64	0.079	2	●	●	●	●	●									
		S00435	VBGW 222S00435MET	VBGW 110308S01035MET	1/32	0.067	2	●	●	●	●	●									
			VBGW 331S00435MET	VBGW 160404S01035MET	1/64	0.079	2	●	●	●	●	●									
		S00435	VBGW 332S00435MET	VBGW 160408S01035MET	1/32	0.067	2	●	●	●	●	●									
			VBGW 333S00435MET	VBGW 160408S01225MES	1/32	0.067	2	●													
		T00315	VCGW 151505T00315ME	VCGW 080202T00815ME	0.008	0.079	2	●	●	●											
			VCGW 15151T00315ME	VCGW 080204T00815ME	1/64	0.079	2	●	●	●	●										
		S00435	VCGW 15152T00315ME	VCGW 080208T00815ME	1/32	0.067	2	●													
			VCGW 151505S00435MET	VCGW 080202S01035MET	0.008	0.079	2		●												
		S00435	VCGW 15151S00435MET	VCGW 080204S01035MET	1/64	0.079	2		●												
			VCGW 15152S00435MET	VCGW 080208S01035MET	1/32	0.067	2		●												
		T00315	VCGW 151505T00315SE	VCGW 080202T00815SE	0.008	0.094	1		●	●											
			VCGW 15151T00315SE	VCGW 080204T00815SE	1/64	0.079	1		●												
		S00435	VCGW 151505S00435SET	VCGW 080202S01035SET	0.008	0.079	1														
			VCGW 15151S00435SET	VCGW 080204S01035SET	1/64	0.079	1														
		S00435	VCGW 15152S00435SET	VCGW 080208S01035SET	1/32	0.071	1														
			VCGW 151505S00435SET	VCGW 080202S01035SET	0.008	0.071	1														

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

80° Trigon

Positive Insert with Hole

Part Number	IC	S	D1
WBGW 121_	5/32	1/16	0.091
1515_	3/16	3/32	0.091

Edge Prep.			K	H											Toolholder Page						
Symbol	Cutting Edge Spec.	Example			Gray Cast Iron (with Scale)	Nodular Cast Iron (without Scale)	Nodular Cast Iron (with Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN					CBN				
			ANSI Part Number		Edge Prep (in)	ISO Part Number		Dimensions (in)		No. of Edges	MEGACOAT CBN					CBN					
Insert								RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	
F	Sharp Edge																				
E	Rounded Cutting Edge (Hone)	E003	R0.003" Honed																		
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge																		
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																		

		WBGW 12105T00315L-SE	T00315	WBGW 060102T00815L-SE	0.008	0.075	1		●	●						●	●				
		1211T00315L-SE		060104T00815L-SE	1/64	0.075			●	●								●	●		
		WBGW 12105S00435L-SET	S00435	WBGW 060102S01035LSET	0.008	0.075	1			●								●			
		1211S00435L-SET		060104S01035LSET	1/64	0.075				●											
		WBGW 151505T00315L-SE	T00315	WBGW 080202T00815L-SE	0.008	0.091	1		●	●						●	●				
		15151T00315L-SE		080204T00815L-SE	1/64	0.091			●	●								●	●		
		WBGW 151505S00435L-SET	S00435	WBGW 080202S01035LSET	0.008	0.091	1			●									●		
		15151S00435L-SET		080204S01035LSET	1/64	0.091			●	●											

60° Triangle

Positive Insert without Hole

Part Number	IC	S	D1
TBG 121_	5/32	1/16	-
TPG 22_	1/4	1/8	-
TPG 32_	3/8	1/8	-

Edge Prep.			K	H											Toolholder Page						
Symbol	Cutting Edge Spec.	Example			Gray Cast Iron (with Scale)	Nodular Cast Iron (without Scale)	Nodular Cast Iron (with Scale)	Hard Materials (Roughing)	Hard Materials (Finishing)	Hard Materials (Chip Control)	Powdered Steel	MEGACOAT CBN					CBN				
			ANSI Part Number		Edge Prep (in)	ISO Part Number		Dimensions (in)		No. of Edges	MEGACOAT CBN					CBN					
Insert								RE	LE		KBN05M	KBN10M	KBN25M	KBN35M	KBN60M	KBN70M	KBN510	KBN525	KBN475	KBN570	
F	Sharp Edge																				
E	Rounded Cutting Edge (Hone)	E003	R0.003" Honed																		
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge																		
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge																		

		TBG 1211F	F	TBGN 060104F	1/64	-	3										●	●			△
		TBG 12105T00315	T00315	TBGN 060102T00815	0.008	-	3											●	●		
		1211T00315		060104T00815	1/64	-			●												
1212T00315	060108T00815	1/32	-			●												●			
		TPG 2205T00315ME	T00315	TPGN 110302T00815ME	0.008	0.102	3												●		
		221T00315ME		110304T00815ME	1/64	0.098															
		TPG 221T00315SE	T00315	TPGN 110304T00815SE	1/64	0.098	1												△	●	
		222T00315SE		110308T00815SE	1/32	0.094															
		TPG 3205T00315SE	T00315	TPGN 160302T00815SE	0.008	0.102	1												●	●	
		321T00315SE		160304T00815SE	1/64	0.094															
322T00315SE	160308T00815SE	1/32	0.083																●	●	
		TPG 221S00435SET	S00435	TPGN 110304S01035SET	1/64	0.098	1													●	
		222S00435SET		110308S01035SET	1/32	0.094															
TPG 321S00435SET	S00435	TPGN 160304S01035SET	1/64	0.094	1															●	

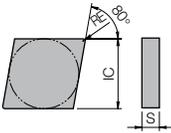
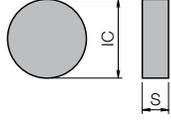
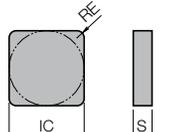
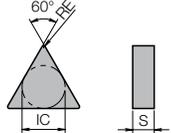
Negative

Negative Insert without Hole

(in) How to read this page **B15**
(in)

Part Number	IC	S
CNM 32_	3/8	1/8
43_	1/2	3/16
RNM 22	1/4	1/8
32	3/8	1/8
42	1/2	1/8
43	1/2	3/16

Part Number	IC	S
SNM 32_	3/8	1/8
42_	1/2	1/8
43_	1/2	3/16
TNM 22_	1/4	1/8
33_	3/8	3/16

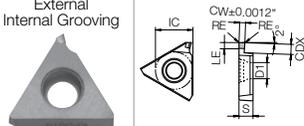
Edge Prep.									
Symbol	Cutting Edge Spec.	Example	K	H					
F	Sharp Edge		Gray Cast Iron (with Scale)						
E	Rounded Cutting Edge (Hone)	E003 R0.003" Honed	Nodular Cast Iron (without Scale)						
T	Chamfered Cutting Edge	T00315 0.003" X 15° Chamfered Cutting Edge	Nodular Cast Iron (with Scale)						
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered and Honed Cutting Edge	Hard Materials (Roughing)						
			Hard Materials (Finishing)						
			Hard Materials (Chip Control)						
			Powdered Steel						
Insert		ANSI Part Number	Edge Prep (in)	ISO Part Number	RE	Dimensions (in)	No. of Edges	PVD Coated CBN KEN900	Toolholder Page
		CNM 322	S00820	CNMN 090308S02020	1/32	-	4	●	D32
		323		CNMN 090312S02020	3/64			●	
		CNM 432	S00820	CNMN 120408S02020	1/32	-	4	△	D26
		433		120412S02020	3/64			●	
434	120416S02020	1/16	●						
		RNM 22	S00820	RNMN 060300S02020	-	Depends on D.O.C.	-	●	-
		RNM 32	S00820	RNMN 090300S02020	-			●	
		RNM 42	S00820	RNMN 120300S02020	-			●	
		43	S00820	RNMN 120400S02020	-			●	
		SNM 322	S00820	SNMN 090308S02020	1/32	-	8	●	D34 D35
		323		090312S02020	3/64			●	
		SNM 422	S00820	SNMN 120308S02020	1/32	-	8	●	D29 D34 D35
		423		120312S02020	3/64			●	
		SNM 432	S00820	SNMN 120408S02020	1/32	-	8	●	D29 D34 D35
		433		120412S02020	3/64			●	
		434		120416S02020	1/16			●	
435	120420S02020	5/64		●					
		TNM 222	S00820	TNMN 110308S02020	1/32	-	6	●	D36 F98
		TNM 332	S00820	TNMN 160408S02020	1/32			●	D30
		333		160412S02020	3/64			●	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

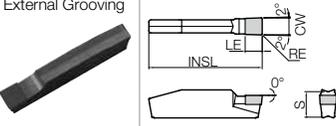
INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

External Grooving Inserts

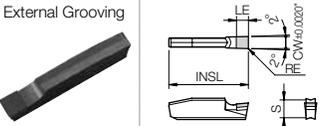
Grooving Inserts (1-edge)

Edge Prep.				Material		CBN		Toolholder Page								
Symbol	Cutting Edge Spec.	Example														
E	Rounded Cutting Edge (Hone)	E003 R0.003" Honed	K		Gray Cast Iron (with Scale)											
T	Chamfered Cutting Edge	T00315 0.003" X 15° Chamfered Cutting Edge	H		Nodular Cast Iron (without Scale)											
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered and Honed Cutting Edge	H		Nodular Cast Iron (with Scale)											
				Powdered Steel												
Insert		ANSI Part Number	ANSI Old Part Number	Edge Prep (in)	CW ^{±0.0012} (in)	Dimensions (mm)				No. of Edges	CBN					
Handed Insert shows Right-hand						CW ^{±0.003}	CDX	RE	IC	S	D1	LE	R	L	R	L
		GBA43% 125-020	GBA43% 125	E003	0.049	1.25	2.0	0.2	12.7	4.76	5.5	1.9	●		●	●
		150-020	150		0.059	1.50	3.5	0.2	12.7	4.76	5.5	1.9	●	●	●	●
		200-020	200		0.079	2.00	3.5	0.2	12.7	4.76	5.5	1.9	●	●	●	●
		300-020	300		0.118	3.00	4.0	0.2	12.7	4.76	5.5	1.9			●	

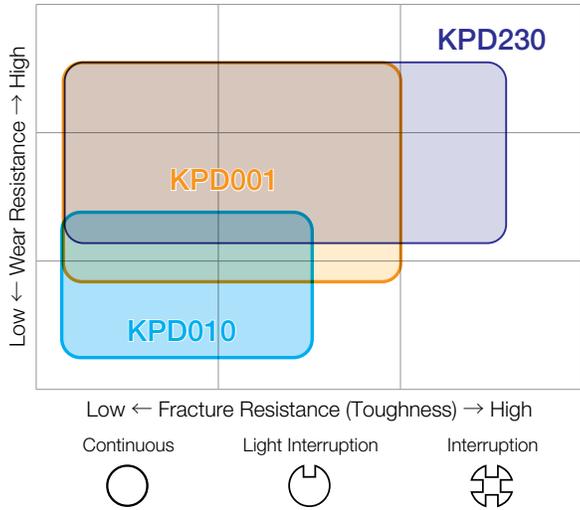
Deep Grooving Inserts (1-edge)

Edge Prep.				Material		MEGA CBN		Toolholder Page				
Symbol	Cutting Edge Spec.	Example										
E	Rounded Cutting Edge (Hone)	E003 R0.003" Honed	K		Gray Cast Iron (with Scale)							
T	Chamfered Cutting Edge	T00315 0.003" X 15° Chamfered Cutting Edge	H		Nodular Cast Iron (without Scale)							
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered and Honed Cutting Edge	H		Nodular Cast Iron (with Scale)							
				Powdered Steel			●					
Insert		ANSI Part Number	Edge Prep (in)	CW ^{±0.0012} (in)	CW ^{±0.003}	RE	INSL	S	LE	No. of Edges	MEGA CBN	
											KBN05M	KBN570
External Grooving		GDGS 2020N-020NB	E003	0.079	2.0	0.2	20	4.3	2.9	1	●	
			E0008	0.079	2.0	0.2	20	4.3	2.9	1		●
		3020N-040NB	E003	0.118	3.0	0.4	20	4.3	2.9	1	●	
			E0008	0.118	3.0	0.4	20	4.3	2.9	1		●
		4020N-040NB	E003	0.157	4.0	0.4	20	4.3	2.9	1	●	
			E0008	0.157	4.0	0.4	20	4.3	2.9	1		●
		5020N-040NB	E003	0.197	5.0	0.4	20	4.3	2.9	1	●	
			E0008	0.197	5.0	0.4	20	4.3	2.9	1		●
		6020N-040NB	E003	0.236	6.0	0.4	20	4.3	2.9	1	●	
			E0008	0.236	6.0	0.4	20	4.3	2.9	1		△

Deep Grooving Inserts (1-edge)

Edge Prep.				Material		CBN		Toolholder Page				
Symbol	Cutting Edge Spec.	Example										
E	Rounded Cutting Edge (Hone)	E003 R0.003" Honed	K		Gray Cast Iron (with Scale)							
T	Chamfered Cutting Edge	T00315 0.003" X 15° Chamfered Cutting Edge	H		Nodular Cast Iron (without Scale)							
S	Chamfered and Honed Cutting Edge	S00525 0.005" X 25° Chamfered and Honed Cutting Edge	H		Nodular Cast Iron (with Scale)							
				Powdered Steel								
Insert		ANSI Part Number	Edge Prep (in)	CW ^{±0.0020} (in)	CW ^{±0.005}	RE	INSL	S	LE	No. of Edges	CBN	
											KBN510	KBN525
External Grooving		GMN 2	E003	0.079	2	0.2	20	4.3	2.9	1	●	●
		3		0.118	3						●	●
		4		0.157	4	0.4					●	●
		5		0.197	5						●	●
		6		0.236	6						●	●
												●

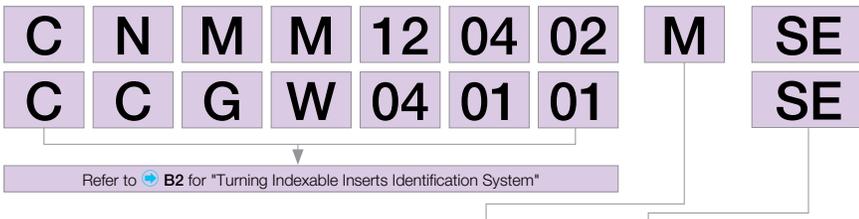
Application Map



About Insert Grades

Grades	Applications	Advantages
KPD001 (Average grain size under 1µm)	<ul style="list-style-type: none"> High speed machining of non-ferrous metals and brass High speed machining of glass fiber and plastics Machining of carbide and ceramics 	<ul style="list-style-type: none"> Smallest micro-grain possible in PCD High edge strength with superior wear resistance, fracture resistance, and edge sharpening performance
KPD010 (Average grain size 10µm)	<ul style="list-style-type: none"> High speed machining of non-ferrous metals and brass High speed machining of glass fiber and plastics Machining of carbide and ceramics 	<ul style="list-style-type: none"> Well balanced wear resistance and flexural strength General Purpose
KPD230 (Mixture of fine grain with average grain size 2-30µm and rough)	<ul style="list-style-type: none"> High speed milling of aluminum alloy and non-ferrous metals such as brass High speed milling of glass fiber and plastics 	<ul style="list-style-type: none"> High density PCD with mixture of both rough and fine grains with excellent abrasive wear and chipping resistance
KPD250 (Average grain size 25µm (Made to order))	<ul style="list-style-type: none"> High speed machining of high silicon aluminium alloy Machining of carbide 	<ul style="list-style-type: none"> Rough grain PCD (Average grain size 25µm) Superior to wear resistance

Turning Insert Identification System



Insert Type	Part Number	Manufacture's Option 1	Manufacture's Option 2	Series Name	Cutting Edge Length	No. of Edges	Regrinding
Negative	CNMM120402M-SE	M (Indicates the insert is for negative toolholders)	SE	Small Edge	Short (Small Edge)	1	Not Recommended
	CNMM120402M-NE		NE	New Value Edge	Long (85% length compared to no indication's cutting edge)	1	Possible
	CNMM120402M		No Indication	-	Long	1	
Positive	CCGW040101SE	-	SE	Small Edge	Short (Small Edge)	1	Not Recommended
	CCGW040101NE		NE	New Value Edge	Long (85% length compared to no indication's cutting edge)	1	Possible
	CCGW040101		No Indication	-	Long	1	

- Note) 1. No edge preparation symbols for PCD inserts. Most of the PCD inserts' edge preparations are sharp edge.
 2. "M" in manufacturer's option 1 indicates the inserts are applicable to negative toolholders.
 3. Refer to **Page B2** for "Turning Indexable Inserts Identification System".

About Regrinding

- 1) Regrinding is possible with the inserts with "NE" and no symbol in manufacturer's option 2. Regrinding may not be possible depending on the condition of the used edge.
- 2) Regrinding is not recommended for inserts with "SE" in manufacturer's option 2.

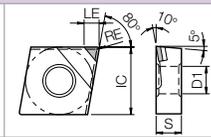
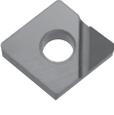
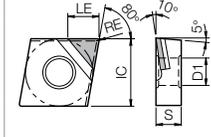
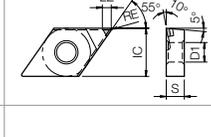
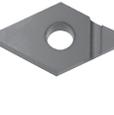
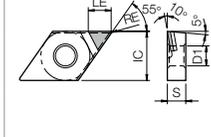
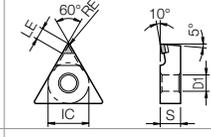
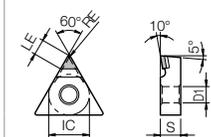
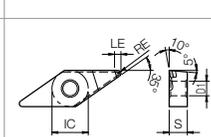
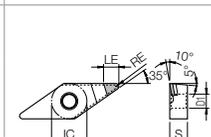
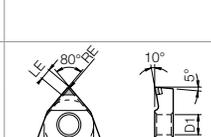
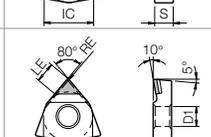
Recommended Cutting Conditions (Turning)

Workpiece Material	Insert Grades		Cutting Conditions				Remarks
	KPD001	KPD010	Cutting Speed (sfm)	D.O.C. (in)		Feed Rate (ipr)	
				Small Edge and Positive Inserts	Negative Inserts		
Aluminum Alloys Zinc Alloys	★	☆	975 - 4925	~0.039	~0.079	0.001 ~ 0.020	Both Dry and Wet Cutting Available
Copper, Brass, Bronze	★	☆	975 - 3275	~0.039	~0.079	0.001 ~ 0.020	
Magnesium Alloys	★	☆	1300 - 3925	~0.039	~0.079	0.001 ~ 0.020	
Carbide	★	☆	25 - 100	~0.012	~0.012	0.001 ~ 0.004	
Titanium Alloys	★	☆	325 - 650	~0.039	~0.079	0.002 ~ 0.008	Wet
Glass Fiber Reinforced Plastics Carbon Fiber	★	☆	325 - 1975	~0.039	~0.079	0.002 ~ 0.020	Dry
Silica Filled Plastic Particle Board	★	☆	1300 - 2625	~0.039	~0.079	0.002 ~ 0.020	

★: 1st Recommendation ☆: 2nd Recommendation

Negative

Negative Insert with Hole

All PCD Items		Sharp Edge		Dimensions (in)					PCD		Toolholder Page	
Insert		ANSI Part Number	ISO Part Number	IC	S	D1	RE	LE	No. of Edges	KPD001		KPD010
		CNMM 4305M-SE	CNMM 120402M-SE	1/2	3/16	0.203	0.008	0.110	●	●	D8 D9 F81 F85 F86	
		431M-SE	120404M-SE	1/2	3/16	0.203	1/64	0.110	1	●		●
		432M-SE	120408M-SE	1/2	3/16	0.203	1/32	0.106	●	●		
		CNMM 4305M-NE	CNMM 120402M-NE	1/2	3/16	0.203	0.008	0.201	●	●	D12 D13 F82 F88 F89	
		431M-NE	120404M-NE	1/2	3/16	0.203	1/64	0.197	1	●		●
		432M-NE	120408M-NE	1/2	3/16	0.203	1/32	0.193	●	●		
		CNMM 4305M	CNMM 120402M	1/2	3/16	0.203	0.008	0.228	●	●		
		431M	120404M	1/2	3/16	0.203	1/64	0.228	1	●		●
		432M	120408M	1/2	3/16	0.203	1/32	0.224	●	●		
		DNMM 4305M-SE	DNMM 150402M-SE	1/2	3/16	0.203	0.008	0.110	●	●	D16 D17 D18 F82 F92 F93	
		431M-SE	150404M-SE	1/2	3/16	0.203	1/64	0.102	1	●		●
		432M-SE	150408M-SE	1/2	3/16	0.203	1/32	0.087	●	●		
		DNMM 4305M-NE	DNMM 150402M-NE	1/2	3/16	0.203	0.008	0.205	●	●	D20 D21 D22	
		431M-NE	150404M-NE	1/2	3/16	0.203	1/64	0.197	1	●		●
		432M-NE	150408M-NE	1/2	3/16	0.203	1/32	0.181	●	●		
		DNMM 4305M	DNMM 150402M	1/2	3/16	0.203	0.008	0.232	●	●		
		431M	150404M	1/2	3/16	0.203	1/64	0.228	1	●		●
		432M	150408M	1/2	3/16	0.203	1/32	0.213	●	●		
		TNMM 3305M-SE	TNMM 160402M-SE	3/8	3/16	0.150	0.008	0.106	●	●	D24 D25 F95 F96	
		331M-SE	160404M-SE	3/8	3/16	0.150	1/64	0.102	1	●		●
		332M-SE	160408M-SE	3/8	3/16	0.150	1/32	0.091	●	●		
		TNMM 3305M-NE	TNMM 160402M-NE	3/8	3/16	0.150	0.008	0.126	●	●	D20 D21 D22	
		331M-NE	160404M-NE	3/8	3/16	0.150	1/64	0.122	1	●		●
		332M-NE	160408M-NE	3/8	3/16	0.150	1/32	0.110	●	●		
		TNMM 3305M	TNMM 160402M	3/8	3/16	0.150	0.008	0.150	●	●		
		331M	160404M	3/8	3/16	0.150	1/64	0.142	1	●		●
		332M	160408M	3/8	3/16	0.150	1/32	0.130	●	●		
		VNMM 3305M-SE	VNMM 160402M-SE	3/8	3/16	0.150	0.008	0.114	●	●	D20 D21 D22	
		331M-SE	160404M-SE	3/8	3/16	0.150	1/64	0.098	1	●		●
		332M-SE	160408M-SE	3/8	3/16	0.150	1/32	0.062	●	●		
		VNMM 3305M-NE	VNMM 160402M-NE	3/8	3/16	0.150	0.008	0.185	●	●	D24 D25 F95 F96	
		331M-NE	160404M-NE	3/8	3/16	0.150	1/64	0.165	1	●		●
		332M-NE	160408M-NE	3/8	3/16	0.150	1/32	0.134	●	●		
		VNMM 3305M	VNMM 160402M	3/8	3/16	0.150	0.008	0.209	●	●		
		331M	160404M	3/8	3/16	0.150	1/64	0.189	1	●		●
		332M	160408M	3/8	3/16	0.150	1/32	0.157	●	●		
		WNMM 4305M-SE	WNMM 080402M-SE	1/2	3/16	0.203	0.008	0.110	●	●	D24 D25 F95 F96	
		431M-SE	080404M-SE	1/2	3/16	0.203	1/64	0.110	1	●		●
		432M-SE	080408M-SE	1/2	3/16	0.203	1/32	0.106	●	●		
		WNMM 4305M-NE	WNMM 080402M-NE	1/2	3/16	0.203	0.008	0.197	●	●	D24 D25 F95 F96	
		431M-NE	080404M-NE	1/2	3/16	0.203	1/64	0.197	1	●		●
		WNMM 431M	WNMM 080404M	1/2	3/16	0.203	0.008	0.228	1	●		●

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN & PCD Inserts
 sold in 1 piece boxes.



INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

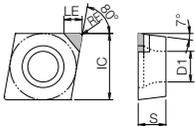
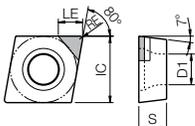
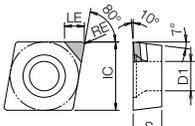
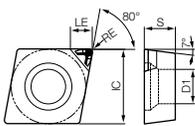
Positive

Positive Insert with Hole

How to read this page **B15**

Part Number	Applicable Toolholder Page
CC..215_	E24-E25, E41, E48, F27, F45, F47
CC..325_	E24-E25, E41, E48, F45, F83

- C CBN/PCD INSERTS
- CBN
- PCD
- POSITIVE
- C
- D
- S
- T
- V
- W
- SOLID
- GROOVING

Edge Prep.				N		Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)		S		Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)	
All PCD Items		Sharp Edge													
Insert	ANSI Part Number	ISO Part Number	Dimensions (in)					No. of Edges	PCD		Toolholder Page				
			IC	S	D1	RE	LE		KPD001	KPD010					
	CCGW 141102SE	CCGW 040101SE	0.169	0.071	0.091	0.004	0.051	1	●	●	F27 F45				
	141105SE	040102SE							●	●					
	14111SE	040104SE							●	●					
	CCGW 21502SE	CCGW 060201SE	1/4	3/32	0.110	0.004	0.091	1	●	●	Reference Table Above				
	21505SE	060202SE							●	●					
	2151SE	060204SE							●	●					
	CCGW 32505SE	CCGW 09T302SE	3/8	5/32	0.173	0.008	0.106	1	●	●	Reference Table Above				
	3251SE	09T304SE							●	●					
	3252SE	09T308SE							●	●					
		CCGW 141102NE	CCGW 040101NE	0.169	0.071	0.091	0.004	0.067	1	●	●	F27 F45			
		141105NE	040102NE							●	●				
		14111NE	040104NE							●	●				
CCGW 21502NE		CCGW 060201NE	1/4	3/32	0.110	0.004	0.122	1	●	●	Reference Table Above				
21505NE		060202NE							●	●					
2151NE		060204NE							●	●					
CCGW 32502NE		CCGW 09T301NE	3/8	5/32	0.173	0.004	0.134	1	●	●	Reference Table Above				
32505NE		09T302NE							●	●					
3251NE		09T304NE							●	●					
3252NE		09T308NE	●	●	●	●									
CCGW 141102		CCGW 040101	0.169	0.071	0.091	0.004	0.075	1	●	●	F27 F45				
141105		040102							●	●					
14111	040104	●							●						
CCGW 21502	CCGW 060201	1/4	3/32	0.110	0.004	0.138	1	●	●	Reference Table Above					
21505	060202							●	●						
2151	060204							●	●						
CCGW 32502	CCGW 09T301	3/8	5/32	0.173	0.004	0.150	1	●	△	Reference Table Above					
32505	09T302							●	●						
3251	09T304							●	●						
3252	09T308	●	●	●	●										
	CCMT 21505SE	CCMT 060202SE	1/4	3/32	0.110	0.008	0.087	1	●	●	Reference Table Above				
	2151SE	060204SE							●	●					
	CCMT 32502SE	CCMT 09T301SE	3/8	5/32	0.173	0.004	0.106	1	●	●					
	32505SE	09T302SE							●	●					
	3251SE	09T304SE							●	●					
	3252SE	09T308SE	●	●	●	●									
	CCMT 21502NE	CCMT 060201NE	1/4	3/32	0.110	0.004	0.110	1	●	●					
	21505NE	060202NE							●	●					
	2151NE	060204NE							●	●					
	CCMT 32502NE	CCMT 09T301NE	3/8	5/32	0.173	0.004	0.134	1	●	●					
	32505NE	09T302NE							●	●					
	3251NE	09T304NE							●	●					
CCMT 21502	CCMT 060201	1/4	3/32	0.110	0.004	0.130	1	●	●						
21505	060202							●	●						
2151	060204							●	●						
CCMT 32502	CCMT 09T301	3/8	5/32	0.173	0.004	0.154	1	●	●						
32505	09T302							●	●						
3251	09T304							●	●						
3252	09T308	●	●	●	●										
	CCMT 32505APD	CCMT 09T302APD	3/8	5/32	0.173	0.008	0.106	1	●	●					
	3251APD	09T304APD							●	●					
	3252APD	09T308APD							●	●					

Positive

Positive Insert with Hole

How to read this page **B15**

Part Number	Applicable Toolholder Page
DC..215_	E26-E27, E30-E31, E42, E48, F53-F57
DC..325_	E22, E26-E31, E42, E48, F53-F57, F83

Edge Prep.															
All PCD Items		Sharp Edge		N		Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)		S		Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)	
Insert	ANSI Part Number	ISO Part Number	Dimensions (in)					No. of Edges	PCD		Toolholder Page				
			IC	S	D1	RE	LE		KPD001	KPD010					
	CPMH 3205SE	CPMH 090302SE	3/8	1/8	0.177	0.008	0.106	1	●	●	F49 F51				
	321SE	090304SE							1/64	0.106		●	●		
	CPMH 251505NE	CPMH 080202NE	5/16	3/32	0.138	0.008	0.126	1	●	●					
	25151NE	080204NE							1/64	0.126		●	●		
	CPMH 3202NE	CPMH 090301NE	3/8	1/8	0.177	0.004	0.134	1	●	●					
	3205NE	090302NE							0.008	0.134		●	●		
	321NE	090304NE							1/64	0.134		●	●		
	322NE	090308NE							1/32	0.130		●	●		
	CPMH 251502	CPMH 080201	5/16	3/32	0.138	0.004	0.146	1	●	○					
	251505	080202							0.008	0.146		●	●		
25151	080204	1/64							0.146	●	●				
CPMH 3202	CPMH 090301	3/8	1/8	0.177	0.004	0.157	1	●	●						
3205	090302							0.008	0.154	●	●				
321	090304							1/64	0.154	●	●				
322	090308							1/32	0.150	●	●				
	DCMT 21502SE	DCMT 070201SE	1/4	3/32	0.110	0.004	0.106	1	●	●					
	21505SE	070202SE							0.008	0.106	●	●			
	2151SE	070204SE							1/64	0.106	●	●			
	DCMT 32502SE	DCMT 11T301SE	3/8	5/32	0.173	0.004	0.106	1	●	●					
	32505SE	11T302SE							0.008	0.106	●	●			
	3251SE	11T304SE							1/64	0.106	●	●			
	3252SE	11T308SE							1/32	0.106	●	●			
	DCMT 21502NE	DCMT 070201NE	1/4	3/32	0.110	0.004	0.134	1	●	●					
	21505NE	070202NE							0.008	0.134	●	●			
	2151NE	070204NE							1/64	0.126	●	●			
	DCMT 32502NE	DCMT 11T301NE	3/8	5/32	0.173	0.004	0.130	1	●	●					
	32505NE	11T302NE							0.008	0.130	●	●			
	3251NE	11T304NE							1/64	0.126	●	●			
	3252NE	11T308NE							1/32	0.110	●	●			
DCMT 21502	DCMT 070201	1/4	3/32	0.110	0.004	0.157	1	●	●						
21505	070202							0.008	0.154	●	●				
2151	070204							1/64	0.146	●	●				
DCMT 32502	DCMT 11T301	3/8	5/32	0.173	0.004	0.157	1	●	●						
32505	11T302							0.008	0.154	●	●				
3251	11T304							1/64	0.146	●	●				
3252	11T308							1/32	0.130	●	●				
	DCMT 32505R-NE	DCMT 11T302R-NE	3/8	5/32	0.173	0.008	0.130	1	●	●					
	3251L-NE	11T304L-NE							1/64	0.126	●	●			
	DCMT 32505APD	DCMT 09T302APD	3/8	5/32	0.173	0.008	0.106	1	●	●					
	3251APD	09T304APD							1/64	0.106	●	●			
	3252APD	09T308APD							1/32	0.106	●	●			

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN & PCD Inserts sold in 1 piece boxes.



Positive

Positive Insert with Hole

How to read this page **B15**

Part Number	Applicable Toolholder Page	Part Number	Applicable Toolholder Page
TP..1815_	E33, F28, F61, F63, F65	TP..22_	E33, F61, F63, F64
		TP..32_	F61, F64

C
CBN/PCD
INSERTS

CBN

PCD

POSITIVE

C

D

S

T

V

W

SOLID

GROOVING

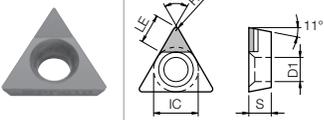
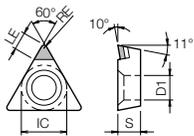
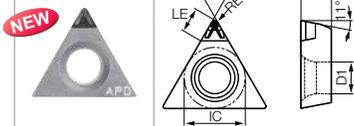
All PCD Items		Sharp Edge		Dimensions (in)					PCD		Toolholder Page					
Insert	ANSI Part Number	ISO Part Number	IC	S	D1	RE	LE	No. of Edges	KPD001	KPD010						
	TBGW 12105NE	TBGW 060102NE	5/32	1/16	0.091	0.008	0.083	1	●	●	F28 F61 F63 F65					
	TBGW 1211NE	TBGW 060104NE				1/64	0.075		●	●						
	TBGW 12105	TBGW 060102	5/32	1/16	0.091	0.008	0.094	1	●	●						
	TBGW 1211	TBGW 060104				1/64	0.087		●	●						
		TBMT 12102NE				TBMT 060101NE	5/32		1/16	0.091		0.004	0.087	1	●	●
		TBMT 1211NE				TBMT 060104NE						1/64	0.079		●	●
	TBMT 12105	TBMT 060102	5/32	1/16	0.091	0.008	0.098	1	●	●						
	TBMT 1211	TBMT 060104				1/64	0.091		●	●						
	TBMT 1212	TBMT 060108				1/32	0.079		●	●						
		TCGW 2205SE				TCGW 110302SE	1/4		1/8	0.110		0.008	0.098	1	●	●
		TCGW 221SE				TCGW 110304SE					1/64	0.094	●		●	
		TCGW 2205NE				TCGW 110302NE	1/4		1/8	0.110	0.008	0.130	1	●	●	
TCGW 221NE		TCGW 110304NE	1/64	0.126	●	●										
TCGW 2205		TCGW 110302	0.008	0.154	1	●		●								
	TCMT 2202SE	TCMT 110301SE	1/4	1/8	0.110	0.004	0.102	1	●	●	E33					
	TCMT 2205SE	TCMT 110302SE				0.008	0.098		1	●		●				
	TCMT 221SE	TCMT 110304SE				1/64	0.094		●	●						
	TCMT 151505NE	TCMT 080202NE				3/16	3/32		0.091	0.008		0.083	1	●	●	
	TCMT 2205NE	TCMT 110302NE				1/4	1/8		0.110	0.008		0.134	1	●	●	
	TCMT 221NE	TCMT 110304NE				1/64	0.130		●	●						
	TCMT 151505	TCMT 080202				3/16	3/32		0.091	0.008		0.094	1	●	●	
	TCMT 15151	TCMT 080204				1/64	0.087		1	●		●				
TCMT 2205	TCMT 110302	1/4	1/8	0.110	0.008	0.154	1	●	●							
	TPGB 181505SE	TPGB 090202SE	7/32	3/32	0.118	0.008	0.083	1	●	●	Reference Table Above					
	TPGB 18151SE	TPGB 090204SE				1/64	0.083		1	●		●				
	TPGB 18152SE	TPGB 090208SE				1/32	0.083		1	●		●				
	TPGB 2202SE	TPGB 110301SE				0.004	0.106		1	●		●				
	TPGB 2205SE	TPGB 110302SE				1/4	1/8		0.130	0.008		0.102	1	●	●	
	TPGB 221SE	TPGB 110304SE				1/64	0.098		1	●		●				
	TPGB 3205SE	TPGB 160302SE				3/8	1/8		0.177	0.008		0.102	1	●	●	
TPGB 321SE	TPGB 160304SE	1/64	0.094	1	●	●										

Positive

Positive Insert with Hole

How to read this page **B15**

Part Number	Applicable Toolholder Page	Part Number	Applicable Toolholder Page
TP..1515_	E33, F59, F61, F63, F65	TP..22_	E33, F61, F63, F64
TP..1815_	E33, F28, F61, F63, F65	TP..32_	F61, F64

Edge Prep.				N		Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)		S		Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)		PCD		Toolholder Page																						
All PCD Items		Sharp Edge																																						
Insert	ANSI Part Number	ISO Part Number	Dimensions (in)					No. of Edges	KPD001	KPD010																														
			IC	S	D1	RE	LE																																	
	TPGB 151505NE	TPGB 080202NE	3/16	3/32	0.098	1/64	0.087	1	●	●	●	●	●	●	●	●	●	●	●	●																				
	15151NE	080204NE																			0.083	1/32	0.071																	
	15152NE	080208NE																																						
	TPGB 181505NE	TPGB 090202NE	7/32	3/32	0.118	1/64	0.102	1	●	●	●	●	●	●	●	●	●	●	●	●																				
	18151NE	090204NE																			1/32	0.091																		
	18152NE	090208NE																																						
	TPGB 2205NE	TPGB 110302NE	1/4	1/8	0.130	1/64	0.130	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	221NE	110304NE																				1/32	0.118																	
	222NE	110308NE																																						
	TPGB 321NE	TPGB 160304NE	3/8	1/8	0.177	1/64	0.126	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●																		
322NE	160308NE	1/32																					0.114																	
TPGB 151505	TPGB 80202																							3/16	3/32	0.098	1/64	0.094	1	●	●	●	●	●	●	●	●	●	●	●
15151	80204	7/32	3/32	0.118	0.008	0.126	1	●	●	●	●	●	●	●	●	●	●	●	●	●																				
181505	90204																																							
TPGB 2205	TPGB 110302	1/4	1/8	0.130	1/64	0.146	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●																			
221	110304																					1/32	0.134																	
222	110308																																							
	TPMH 151505SE	TPMH 080202SE	3/16	3/32	0.098	1/64	0.079	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	15151SE	080204SE																				7/32	3/32	0.118	0.008	0.094	1	●	●	●	●	●	●	●	●	●	●	●	●	
	181505SE	090202SE																																						1/4
	2202SE	TPMH 110301SE	3/8	1/8	0.177	1/64	0.094	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	2205SE	110302SE																				0.004	0.106																	
	221SE	110304SE																						1/64	0.098															
	TPMH 3205SE	TPMH 160302SE	3/8	1/8	0.177	1/64	0.102	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	321SE	160304SE																				0.004	0.091																	
	TPMH 151502NE	TPMH 080201NE																						3/16	3/32	0.098	0.008	0.087	1	●	●	●	●	●	●	●	●	●	●	●
	151505NE	080202NE	7/32	3/32	0.118	0.008	0.102	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	15151NE	080204NE																																						
	TPMH 181502NE	TPMH 090201NE	1/4	1/8	0.130	1/64	0.126	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●																		
	181505NE	090202NE																					0.004	0.134																
	18152NE	090208NE																							1/32	0.114														
	TPMH 2202NE	TPMH 110301NE	3/8	1/8	0.177	1/64	0.130	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	2205NE	110302NE																				0.008	0.130																	
	221NE	110304NE																						1/32	0.118															
	TPMH 321NE	TPMH 160304NE	3/8	1/8	0.177	1/64	0.118	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	322NE	160308NE																				1/32	0.118																	
	TPMH 151505	TPMH 80202																						3/16	3/32	0.098	0.008	0.098	1	●	●	●	●	●	●	●	●	●	●	●
15151	80204	7/32	3/32	0.118	0.004	0.118	1	●	●	●	●	●	●	●	●	●	●	●	●	●																				
181502	90201																																							
TPMH 181505	TPMH 90202	7/32	3/32	0.118	0.008	0.114	1	●	●	●	●	●	●	●	●	●	●	●	●	●	●																			
18151	90204																					1/64	0.110																	
18152	90208																							1/32	0.098															
TPMH 2202	TPMH 110301	1/4	1/8	0.130	0.004	0.154	1	●	●	●	●	●	●	●	●	●	●	●	●	●																				
2205	110302																				0.008	0.154																		
221	110304																						1/64	0.146																
TPMH 3205	TPMH 160302	3/8	1/8	0.177	0.008	0.157	1	●	●	●	●	●	●	●	●	●	●	●	●	●																				
321	160304																				1/32	0.142																		
322	160308																																							
	TPMT 2205APD	TPMT 110302APD	1/4	1/8	0.130	1/64	0.098	1	●	●	●	●	●	●	●	●	●	●	●	●	●																			
	221APD	110304APD																				1/32	0.098																	
	222APD	110308APD																																						

Reference Table Above

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

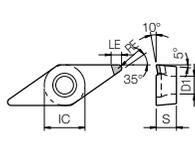
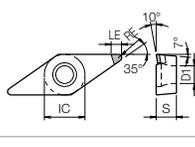
Positive

Positive Insert with Hole

How to read this page **B15**

Part Number	Applicable Toolholder Page
VB..22_	E34-E36, E43, E48, F66-F73
VB..33_	E34-E36, F66-F73

- C CBN/PCD INSERTS
- CBN
- PCD
- POSITIVE
- C
- D
- S
- T
- V
- W
- SOLID
- GROOVING

All PCD Items		Sharp Edge		Dimensions (in)					No. of Edges	PCD		Toolholder Page			
				IC	S	D1	RE	LE		KPD001	KPD010				
Insert		ANSI Part Number	ISO Part Number												
		VBMT 2202SE	VBMT 110301SE	1/4	1/8	0.110	0.004	0.098	1	●	Reference Table Above				
		2205SE	110302SE				0.008	0.091		●					
		221SE	110304SE				1/64	0.075		●					
		222SE	110308SE				1/32	0.075		●					
		VBMT 3302SE	VBMT 160401SE				3/8	3/16		0.173		0.004	0.106	1	●
		3305SE	160402SE									0.008	0.098		●
	331SE	160404SE	1/64	0.083	●										
	332SE	160408SE	1/32	0.079	●										
	VBMT 2202NE	VBMT 110301NE	1/4	1/8	0.110	0.004			0.102		1	●			
	2205NE	110302NE				0.008			0.094			●			
	221NE	110304NE				1/64	0.079	●							
	222NE	110308NE				1/32	0.122	●							
VBMT 3302NE	VBMT 160401NE	3/8				3/16	0.173	0.004	0.110	1		●			
3305NE	160402NE							0.008	0.102			●			
331NE	160404NE		1/64	0.087	●										
332NE	160408NE		1/32	0.118	●										
VBMT 2202	VBMT 110301		1/4	1/8	0.110			0.004	0.118		1	●			
2205	110302							0.008	0.110			●			
221	110304	1/64				0.094	●								
222	110308	1/32				0.138	●								
VBMT 3302	VBMT 160401	3/8				3/16	0.173	0.004	0.126	1		●			
3305	160402							0.008	0.118			●			
331	160404		1/64	0.102	●										
332	160408		1/32	0.138	●										
			VCMT 151505SE	VCMT 080202SE	3/16			3/32	0.091		0.008	0.055	1	●	Reference Table Above
			15151SE	080204SE							1/64	0.055		●	
		15152SE	080208SE	1/32		0.055	●								
		VCMT 151502NE	VCMT 080201NE	3/16		3/32	0.091			0.004	0.067	1		●	
		151505NE	080202NE							0.008	0.067			●	
		15151NE	080204NE							1/64	0.071			●	
	15152NE	080208NE	1/32		0.075			●							
	VCMT 151502	VCMT 080201	3/16		3/32			0.091	0.004	0.079	1		●		
	151505	080202							0.008	0.079			●		
	15151	080204		1/64		0.083	●								
	15152	080208		1/32		0.087	●								

Positive

Positive Insert with & without Hole

How to read this page **B15**

		Edge Prep.		N		Non-Ferrous Metals (with Interruption)		●							
All PCD Items		Sharp Edge		S		Non-Ferrous Metals (without Interruption)		●							
						Titanium Alloys (with Interruption)		●							
						Titanium Alloys (without Interruption)		●							
Insert		ANSI Part Number		ISO Part Number		Dimensions (in)					PCD		Toothholder Page		
						IC	S	D1	RE	LE	No. of Edges	KPD001	KPD010		
	WBMT 12105L-SE	WBMT 060102L-SE	5/32	1/16	0.091	0.008	0.051	1	●						
	WBMT 151505L-SE	WBMT 080202L-SE	3/16	3/32	0.091	0.008	0.062	1	●						
	WBMT 12102L	WBMT 060101L				0.004	0.075		●						
	12105L	060102L	5/32	1/16	0.091	0.008	0.075	1	●	●					
	1211L	060104L				1/64	0.075		●	●					
	WBMT 151505L	WBMT 080202L				0.008	0.094		1	●	●				
	WBMT 15151L	080204L	3/16	3/32	0.091	1/64	0.091		1	●	●				
	WPMT 21505SE	WPMT 110202SE	1/4	3/32	0.110	0.008	0.083	1	●						
	WPMT 21505NE	WPMT 110202NE	1/4	3/32	0.110	0.008	0.106	1	●						
	WPMT 21505	WPMT 110202	1/4	3/32	0.110	0.008	0.122	1	●	●					
	SPG 421NE	SPGN 120304NE	1/2	1/8	-	1/64	0.142	1	●						
	SPG 421	SPGN 120304	1/2	1/8	-	1/64	0.165	1	●			F78			
	TPG 2202SE	TPGN 110301SE				0.004	0.102		●						
	2205SE	110302SE	1/4	1/8	-	0.008	0.098	1	●	●					
	221SE	110304SE				1/64	0.094		●	●					
	TPG 3202SE	TPGN 160301SE				0.004	0.102		●	●					
	3205SE	160302SE	3/8	1/8	-	0.008	0.102	1	●	●					
	321SE	160304SE				1/64	0.094		●	●					
	TPG 321NE	TPGN 160304NE				1/64	0.126		1	●	●				
	322NE	160308NE	3/8	1/8	-	1/32	0.114		●	●					
	TPG 2205	TPGN 110302				0.008	0.154		●	●					
	221	110304	1/4	1/8	-	1/64	0.146	1	●	●					
	222	110308				1/32	0.134		●	●					
TPG 3205	TPGN 160302				0.008	0.154		△	●						
321	160304	3/8	1/8	-	1/64	0.146	1	●	●						
322	160308				1/32	0.134		●	●						

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

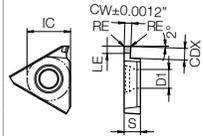
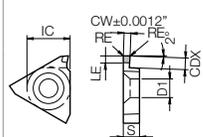
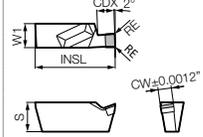
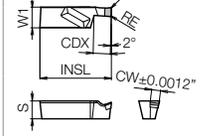
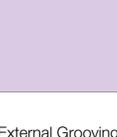
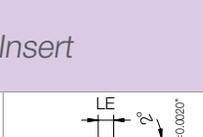
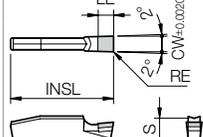
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

CBN & PCD Inserts sold in 1 piece boxes.



Grooving Inserts

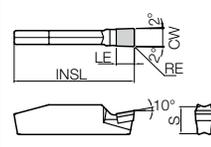
Grooving Inserts (1-edge)

		Edge Prep.		N		Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)																							
All PCD Items		Sharp Edge		S		Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)																							
Insert		ANSI Part Number		ANSI Old Part Number		CW ^{+0.0012} (in)		CW ^{+0.03}		CDX		RE		IC		S		D1		LE		No. of Edges		PCD		Toolholder Page					
																						KPD001		KPD010							
																						R		L		R		L			
		GBA32R	125-010	GBA32R	125	0.049	1.25	2.0	0.1	9.525	3.18	4.4	1.7	1																	
			150-010		150	0.059	1.50																								
				GBA43%	125-010	GBA43%	125	0.049	1.25	2.0																					
					150-010		150	0.059	1.50																						
					200-010		200	0.079	2.00	3.5	0.1	12.7	4.76	5.5	1.9	1															
					250-010		250	0.098	2.50																						
	300-010		300	0.118	3.00	4.0																									
		TGF32R	125-010	-	-	0.049	1.25	2.0																							
			150-010		-	0.059	1.50																						0.1	9.525	3.18	4.5	1.7	1
			200-010		-	0.079	2.00	2.5																							
		GV%	145-020A	GV%	145A	0.057	1.45	2.3	0.2	4.0	12	5.0	1																		
			200-020A		200A	0.079	2.00																								
				GV%	200-020B	GV%	200B	0.079	2.00	3.2	0.2	4.5	15	5.5	1																
					250-020B		250B	0.098	2.50																						
					300-020C		300C	0.118	3.00	4.5	0.2	5.8	21	6.5	1																
					400-020C		400C	0.157	4.00																							5.5
		GVF%	250-020B	GVF%	250B	0.098	2.50	4.8																							
			300-020B		300B	0.118	3.00																							0.2	5.8	20	5.0	1
			400-020B		400B	0.157	4.00	5.3																							
			GVF%	350-020C		-	0.138	3.50	6.8	0.2	7.0	27	7.0	1																	
			GVF%	350-040C		GVF%	350C	0.138	3.50	6.8	0.4	7.0	27	7.0	1																
		GMN	2	-	-	0.079	2.00																								
			3		-	0.118	3.00																								
					4		-	0.157	4.00	0.2	20	4.3		2.9	1																
					5		-	0.197	5.00																						
					6		-	0.236	6.00																						

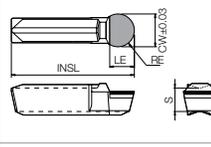
Grooving Inserts

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Deep Grooving Inserts (1-edge)

Edge Prep.		N	Non-Ferrous Metals (with Interruption)		●	PCD	Toolholder Page												
All PCD Items		S	Non-Ferrous Metals (without Interruption)		●														
Sharp Edge		Titanium Alloys (with Interruption)		●	KPD001	No. of Edges	Toolholder Page												
Titanium Alloys (without Interruption)				●															
Insert		Dimensions (mm)							ANSI Part Number	CW ^{#0.0012} (in)	CW ^{#0.03}	RE	INSL	S	LE	No. of Edges	KPD001	Toolholder Page	
External Deep Grooving 		GDGS	2020N-020NB	0.079	2.0											1	●	G28 G36	
			3020N-020NB	0.118	3.0												1		●
			4020N-020NB	0.157	4.0	0.2		20	4.3	2.9							1		●
			5020N-020NB	0.197	5.0												1		●
			6020N-020NB	0.236	6.0												1		●

For Aluminum Wheel (1-edge)

Edge Prep.		N	Non-Ferrous Metals (with Interruption)		●	PCD	Toolholder Page												
GMGW		S	Non-Ferrous Metals (without Interruption)		●														
Honed Cutting Edge		Titanium Alloys (with Interruption)		●	KPD001	No. of Edges	Toolholder Page												
Titanium Alloys (without Interruption)				●															
Insert		Dimensions (mm)							ANSI Part Number	CW ^{#0.0012} (in)	CW ^{#0.03}	RE	INSL	S	LE	No. of Edges	KPD001	Toolholder Page	
		GMGW	6030-30R	0.236	6	3	30	5.5	4.5							1	●	G56	
			8030-40R	0.315	8	4	30	5.5	6.0								1		●
			8030-40R-HR	0.315	8	4	30	5.5	5.0								1		●

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

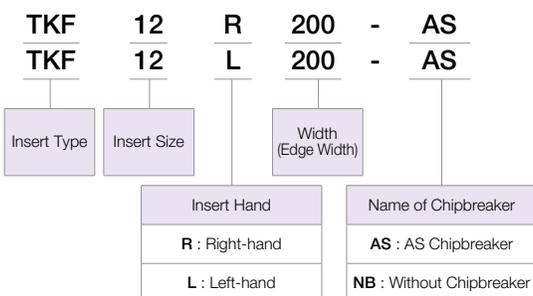
Grooving / Traversing

1 - Edge

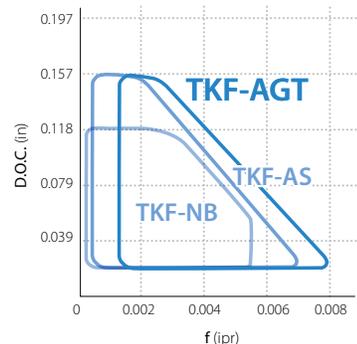
Edge Prep.		N	Non-Ferrous Metals (with Interruption)										●			
		S	Non-Ferrous Metals (without Interruption)										●			
All PCD Items		S	Titanium Alloys (with Interruption)										●			
		S	Titanium Alloys (without Interruption)										●			
Insert	ANSI Part Number	CW ^{+0.0012} (in)	Dimensions (mm)										Angle (°)	PCD	Toolholder Page	
			CW ^{+0.03}	CDX	RE	W1	S	S1	D1	LE	PSIR%	No. of Edges				
														R	L	
	TKF12R 200-AGT	0.079	2.0											1	●	
	TKF12R 250-AGT	0.098	2.5	4.8										1	●	
	TKF12% 200-AS	0.079	2.0	5.0										1	●	
	TKF16% 250-AS	0.098	2.5	8										1	●	
	TKF12% 150-NB	0.059	1.5	3.5								2.0		1	●	●
	TKF12% 200-NB	0.079	2.0	4.0								3.0		1	●	●
	TKF12% 250-NB	0.098	2.5	4.0								3.0		1	●	●
	TKF12% 250-NB4.5	0.098	2.5	5.0								4.5		1	●	●

- Lead angle (front cutting edge angle: **PSIR%**) shows the angle when installed into toolholder
- TKF PCD inserts are only for turning and grooving
- Cut-off is not recommended.
- Dimension **CDX** shows available grooving depth

◆ Insert Identification System



● Applicable Range



- TKF PCD inserts are only for turning and grooving
- Cut-off is not recommended

Note) 1. The cutting edge of the TKF-AS will be 0.04" lower than the center line when attached to the KTKF toolholder (Ref. Fig.1). Adjust the height by making NC lathe parameter settings or inserting a plate.

2. If the 0.04" adjustment is not possible on your automatic lathe, use the TKF-NB (Ref. Fig.2).

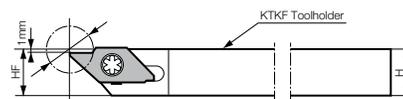


Fig.1 When a TKF-AS/ASR insert is attached (The cutting edge is 0.04" lower than the center line.)

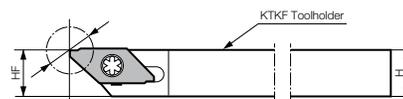
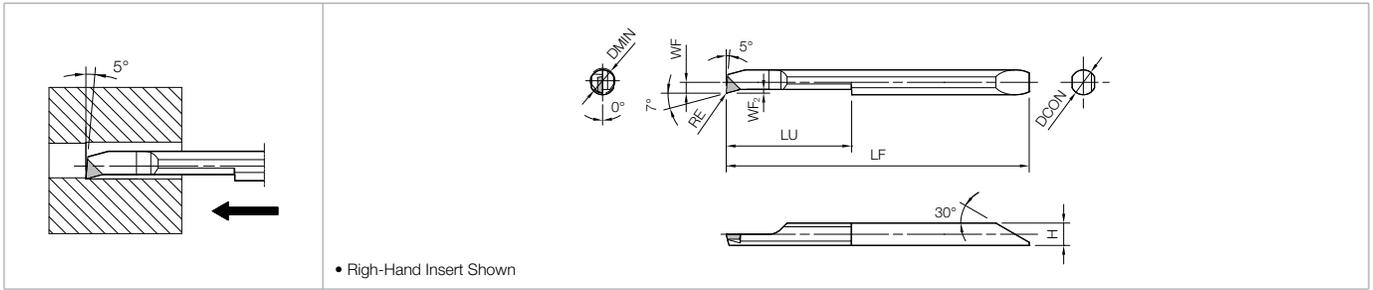


Fig.2 When a TKF-NB insert is attached

EZ Bar

EZB-NB : PCD

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EZ Bar Dimensions

Edge Prep.		N		Non-Ferrous Metals (with Interruption)		●							
All PCD Items		Sharp Edge		S		Titanium Alloys (with Interruption)		●					
		Min. Bore Dia.		Dimensions (mm)						No. of Edges		PCD	
ANSI Part Number		DMIN	DCON	H	LF	LU	WF	WF ₂	RE	KPD001		Applicable Sleeves Page	
EZBR	040040-003NB	4	4	3.6	48.8	20	1.75	0.5	0.035 ^{+0.015}	1	●	F30 F34	
	050050-003NB	5	5	4.6	58.1	25	2.25	0.5			●		
	060060-003NB	6	6	5.6	66.1	30	2.75	0.5			●		
	070070-003NB	7	7	6.6	74.1	35	3.25	0.5			●		

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

System Tip-Bars

Micro Boring / Micro Grooving

System Tip-Bars

C
CBN/PCD
INSERTS

CBN

PCD

Edge Prep.		N		●								
All PCD Items		Sharp Edge		S								
		Non-Ferrous Metals (with Interruption)		●								
		Non-Ferrous Metals (without Interruption)		●								
		Titanium Alloys (with Interruption)		●								
		Titanium Alloys (without Interruption)		●								
Insert	ANSI Part Number	Min. Bore Dia.	Dimensions (mm)						No. of Edges	PCD		Toolholder Page
		DMIN	H	LF	LU	WF	WF ₂	RE		KPD001	KPD010	
	VNBR 0411-02NB	4	3.9	30.8	11	3.5	0.5	0.2	1	●	●	F38 F39
	0420-02NB			39.8	20					●	●	
	VNBR 0511-02NB	5	3.9	30.8	11	4.5	0.7	0.2	1	●	●	
	0520-02NB			39.8	20					●	●	
	VNBR 0620-02NB	6	3.9	39.8	20	5.3	1.0	0.2	1	●	●	
	0630-02NB			49.8	30					●	●	
VNBR 0720-02NB	7	3.9	39.8	20	6.2	1.0	0.2	1	●	●		
0730-02NB			49.8	30					●	●		

System Tip-Bars

Edge Prep.		N		●											
All PCD Items		Sharp Edge		S											
		Non-Ferrous Metals (with Interruption)		●											
		Non-Ferrous Metals (without Interruption)		●											
		Titanium Alloys (with Interruption)		●											
		Titanium Alloys (without Interruption)		●											
Insert	ANSI Part Number	Min. Bore Dia.	Dimensions (mm)								No. of Edges	PCD		Toolholder Page	
		DMIN DAXN	CW (in)	CW (mm)	RE	H	LF	LU	WF	WF ₂		CDX	KPD001		KPD010
	VNGR 0410-11NB	4	0.039	1.0	0.05	3.9	30.8	11	3.5	0.1	0.8	1	□	□	G61 G92
	0420-11NB		0.079	2.0	0.10								□	□	
	VNGR 0510-11NB	5	0.039	1.0	0.05	3.9	30.8	11	4.4	0.1	1.0	1	□	□	
	0520-11NB		0.079	2.0	0.10								□	□	
	VNGR 0610-20NB	6	0.039	1.0	0.05	3.9	39.8	20	5.2	0.3	1.8	1	□	□	
	0620-20NB		0.079	2.0	0.10								□	□	
VNGR 0710-20NB	7	0.039	1.0	0.05	3.9	39.8	20	6.2	0.3	2.0	1	□	□		
0720-20NB		0.079	2.0	0.10								□	□		
	VNFGR 0820-10NB	8	0.079	2.0	0.05	3.9	39.8	10	7.3	-	2.0	1	□	□	
	0830-10NB		0.118	3.0									□	□	

EXTERNAL TURNING TOOLHOLDERS

D

D1 - D40

TURNING TOOLHOLDERS IDENTIFICATION SYSTEM		D3
PRODUCT LINEUP		D4 - D5
CLAMPING SYSTEMS		D6 - D7
TOOLHOLDERS FOR GENERAL PURPOSE		D8 - D25
CN□□ INSERT	DCLN / DCLN-JCT / MCLN	D8
	PCLN	D9
DN□□ INSERT	DDJN / DDJN-JCT / DDHN	D12
	PDJN / PDHN / MDJN	D13
SN□□ INSERT	DSBN / MSSN	D14
	PSBN / PSKN / PSSN / PSDN	D15
TN□□ INSERT	DTGN / MTGN	D16
	PTGN / PTFN	D17
	WTJN / WTKN / WTEN	D18
VN□□ INSERT	DVJN / DVLN / DVPN / DVVN	D20
	MVJN / MVLN / MVVN	D21
	PVLN / PVPN / PVVN	D22
RC□□ INSERT	PRGC / PRXC	D23
RN□□ INSERT	PRGN	D23
WN□□ INSERT	DWLN / MWLN	D24
	PWLN / WWLN	D25
TOOLHOLDERS FOR CERAMIC TOOLS		D26 - D31
CN□□ INSERT	CCLN / HCLN	D26
DN□□ INSERT	CDJN	D27
EN□□ INSERT	CELN	D27
SN□□ INSERT	CSRN / HSRN / CS-N / CSKN / CSYN / CSSN	D28
	CSDN / HSDN	D29
TN□□ INSERT	CTJN / CTUN	D30
RN□□ / RCGX INSERT	CRSN / HRSN / CRDN / CRDC	D31
TOOLHOLDERS FOR SOLID CBN TOOLS		D32 - D36
CNM INSERT	CCRN-A / CCLN-A	D32
RNM INSERT	CRSN-A / CRDN-A	D33
SNM INSERT	CSRN-A / CSKN-A / CSYN-A	D34
	CSSN-A / CSDN-A	D35
TNM INSERT	CTJN-A / CTUN-A	D36
TOOLHOLDERS FOR BEARING MACHINING		D37 - D38
RCMT INSERT	PRGC-BE / PRGC-BF	D37
SNMF INSERT	CBSN	D38
RECOMMENDED CUTTING CONDITIONS		D39 - D40

Double-Clamp-JCT

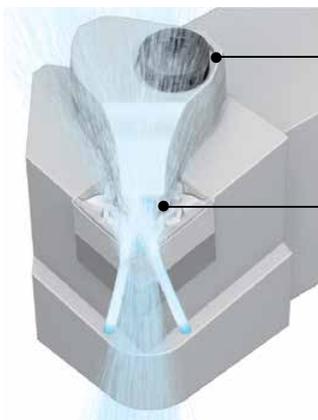
Coolant-Through Turning Holders

Discharges coolant in three directions to improve chip control and lengthen tool life for a wide variety of workpieces including steel, hardened material and difficult-to-cut material

D
TURNING
HOLDERS

1 Superior Chip Control Performance

Special coolant-through structure designed by careful simulation and analysis technology



Double-Clamp

Firm insert clamp and easy to use in single operations
High-density coolant supply close to the cutting edge

Unique Nozzle Shape

Provides coolant to a wide area of the insert surface

○ : Coolant Hole



Discharges coolant in three directions and the cutting edge stays cool

2 Advantages of Internal Coolant

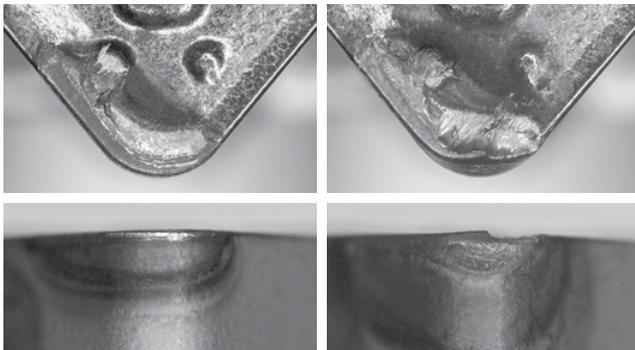
Discharges Coolant towards the Cutting Edge

Internal Coolant Provides Longer Tool Life and Excellent Chip Control

Extended Tool Life

Wear Resistance Comparison (Internal Evaluation)

Internal Coolant (1,015 psi) External Coolant (58 psi)



Cutting Conditions: Vc = 820 sfm, f = 0.079 ipr, D.O.C. = 0.079", Wet
CNMG432 Insert Workpiece: 4137
External Turning After Machining 42.2 min

Improved Chip Control

Chip Control Comparison (Internal Evaluation)

Internal Coolant (1,015 psi)

External Coolant (58 psi)



Cutting Conditions: Vc = 660 sfm, f = 0.002 ipr, D.O.C. = 0.020", Wet
DNMG432 Insert Workpiece: 4131 External Turning

EXTERNAL TOOLHOLDER IDENTIFICATION SYSTEM

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

LENGTH AND WIDTH	LENGTH AND SIDE
A - 4.000 Back and End	M - 4.000 Front and End
B - 4.500 Back and End	N - 4.500 Front and End
C - 5.000 Back and End	P - 5.000 Front and End
D - 6.000 Back and End	R - 6.000 Front and End
E - 7.000 Back and End	S - 7.000 Front and End
F - 8.000 Back and End	T - 8.000 Front and End
G - 5.500 Back and End	U - 5.500 Front and End

* NOTE: All qualified dimensions are given to a tolerance of 0.003" over a master gauge insert radius based on the standard shown.

Insert I.C.	Radius
1/4" - 5/16"	0.015"
3/8" - 1/2"	0.031"
5/8" - 3/4"	0.047"
1"	0.062"

⑧ Qualified Control

Number of 1/8ths on 1/4" I.C. and over.

⑦ Insert Size I.C.

A : Anchor Pin Style	R : Round
C : Clamp Only	S : Square
D : Double Clamp	T : Triangle
M : Clamp and Lock Pin	C : 80° Diamond
P : Lock Pin Only (or Lever Lock)	D : 55° Diamond
S : Screw Only	V : 35° Diamond
W : Wedge Only	W : 80° Trigon
	R : Round

① Clamping System

② Insert Shape

This position shall be a significant number which indicates the holder cross section. For square shanks this number will represent the number of sixteenths of width and height. For rectangular holders the first digit represents the number of eighths of width and the second digit the number of quarters of height, except the following toolholder: 1-1/4 x 1-1/2 which is given the number 91.

⑥ Toolholder Shank Size

ANSI
(inch)

D	C	L	N	R	16	4	D
①	②	③	④	⑤	⑥	⑦	⑧

ISO
(metric)

D	C	L	N	R	20	20	K	12	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

③ Cutting Edge Angle

A 90°	B 75°	C 90°	D 45°
E 60°	F 90°	G 90°	H 107.5°
J 93°	K 75°	L 95°	N 63°
P 117.5°	R 75°	S 45°	T 60°
U 93°	V 72.5°	W 60°	Y 85°

④ Insert Relief Angle



B : 5° Positive
C : 7° Positive
D : 15° Positive
E : 20° Positive
N : 0° Negative
P : 11° Positive

⑤ Hand of Tool

R : Right-hand
L : Left-hand
N : Neutral

⑥ Shank Height

Shank Height (mm)

⑦ Shank Width

Shank Width (mm)

⑧ Toolholder Length (mm)

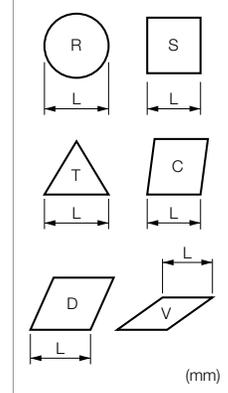


A : 32	J : 110	R : 200
B : 40	JX : 120	S : 250
C : 50	K : 125	T : 300
D : 60	L : 140	U : 350
E : 70	M : 150	V : 400
F : 80	N : 160	W : 450
G : 90	P : 170	Y : 500
H : 100	Q : 180	X : Special

⑩ Others

Optional Code
Optional Mark
or Number

⑨ Insert Size



- Specifications may change without prior notice.
- Due to the installation size constraints on the machine, the toolholder length of some products may not match with the symbol.

General Purpose Turning Holders

	CN..	WN..	TN..	DN..	RC..	RN..	VN..
Applicable Insert Shape							
Application	External / Facing			External / Facing / Copying			External / Facing / Copying / Undercutting
Cutting Edge Angle	95°		105°	107.5°	Special		117.5°
Lever Lock (Pin Lock)							
Ref. Page	D9	D25		D13	D23	D23	D23
Wedge Lock							
Ref. Page		D25	D18				
Double Clamp							
Ref. Page	D8	D24		D12			D20
Multi-Lock							
Ref. Page	D8	D24					

	VN..	DN..	SN..	TN..	SN..	SN..	TN..	SN..	TN..
Applicable Insert Shape									
Application	External / Copying		External / Chamfering		External / Facing / Chamfering		External		Facing
Cutting Edge Angle	72.5°	95°	93°	45°	60°	45°	75°	91°	15°
Lever Lock (Pin Lock)									
Ref. Page	D22	D22	D13	D15		D15	D15	D17	D15
Wedge Lock									
Ref. Page			D18	D18					
Double Clamp									
Ref. Page	D20	D20	D12			D14	D16		
Multi-Lock									
Ref. Page	D21	D21	D13		D14		D16		

Toolholders for Ceramic Tools

Application	External / Facing			External / Copying		External / Chamfering	External / Facing / Chamfering
Cutting Edge Angle	95°	97.5°	Special	93°	Special	45°	45°
Top Clamp							
Ref. Page	D26	D27	D29	D27	D31	D29	D28

Application	External			Facing		
Cutting Edge Angle	75°	85°	93°	5°	15°	-3°
Top Clamp						
Ref. Page	D28	D28	D30	D28	D28	D30

Toolholders for Solid CBN Tools

Application	External / Facing		External / Copying	External / Chamfering	External / Facing / Chamfering	External		
Cutting Edge Angle	95°	Special	Special	45°	45°	75°		93°
Top Clamp								
Ref. Page	D32	D33	D33	D35	D35	D32	D34	D36

Application	Facing		
Cutting Edge Angle	5°	15°	-3°
Top Clamp			
Ref. Page	D34	D34	D36

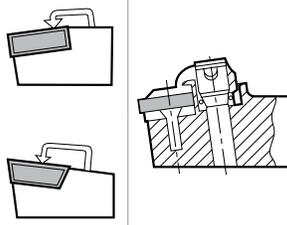
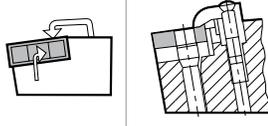
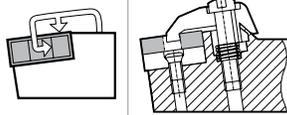
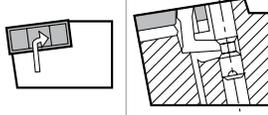
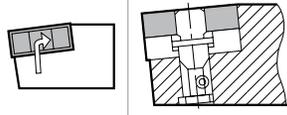
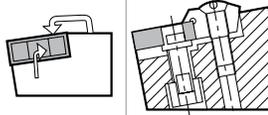
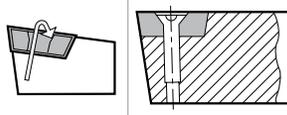
Toolholders for Bearing Machining

Application	External	Facing
Cutting Edge Angle	Special	Special
Lever Lock		
Ref. Page	D37	D37

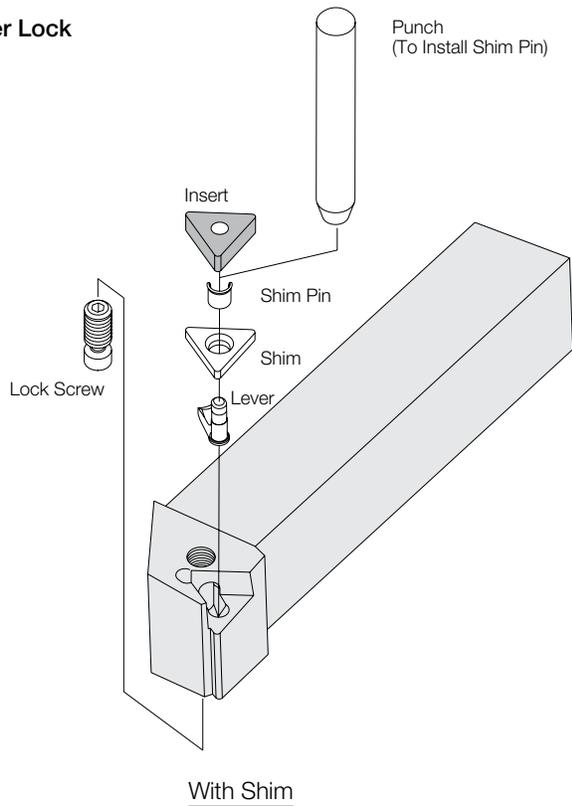
Application	Round Chamfering
Cutting Edge Angle	Special
Top Clamp	
Ref. Page	D38

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

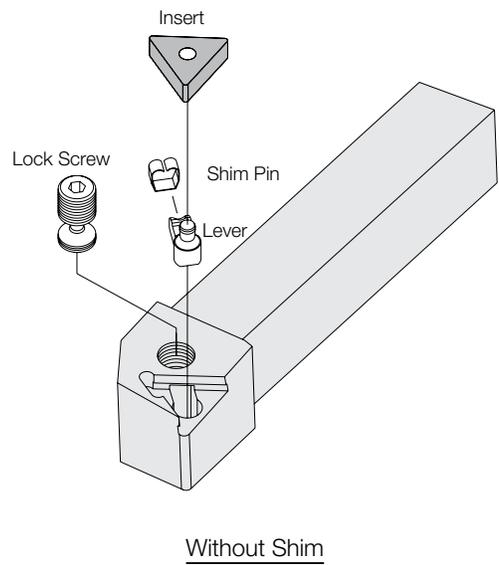
Clamping System

Series	Design	Features	Series	Design	Features
Top Clamp (C)		<ul style="list-style-type: none"> • Rigid Clamping • Negative Insert : Medium to Heavy Machining (Mainly for Ceramic Insert) • Positive Insert : Low Cutting Force 	Multi-Lock (M)		<ul style="list-style-type: none"> • Combination of Top Clamp and Pin Lock • Rigid Clamping • Heavy Machining
Double Clamp (D)		<ul style="list-style-type: none"> • Firmly clamp the insert in two directions with one action. 	Lever Lock (P)		<ul style="list-style-type: none"> • Easy Insert Replacement • General Use
Pin Lock (P)		<ul style="list-style-type: none"> • Easy Insert Replacement 	Wedge Lock (W)		<ul style="list-style-type: none"> • Rigid Clamping • Heavy Machining
Screw Clamp (S)		<ul style="list-style-type: none"> • Simple Mechanism • Fewer Parts • Finishing to Medium Machining 			

● Lever Lock



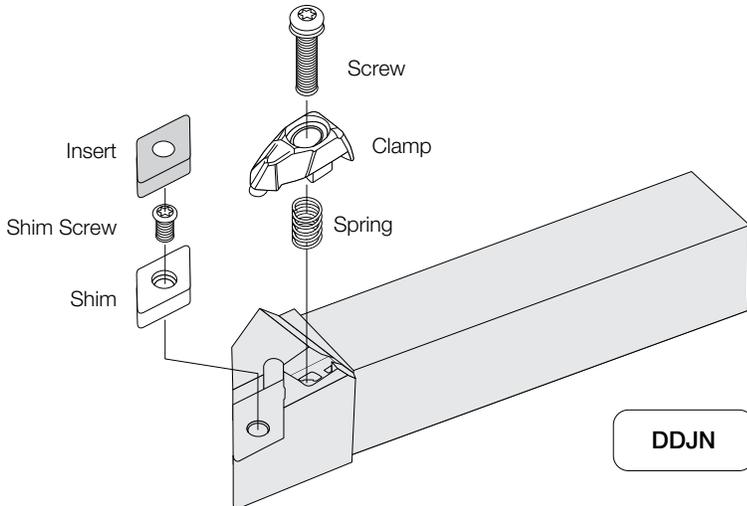
PCLN
PWLN
PTGN / PTFN / PTLN
PDJN / PDHN
PSBN / PSKN / PSSN / PSDN
PRGN
PRGC / PRXC



PTGN-11 / PTFN-11

CLAMPING SYSTEM

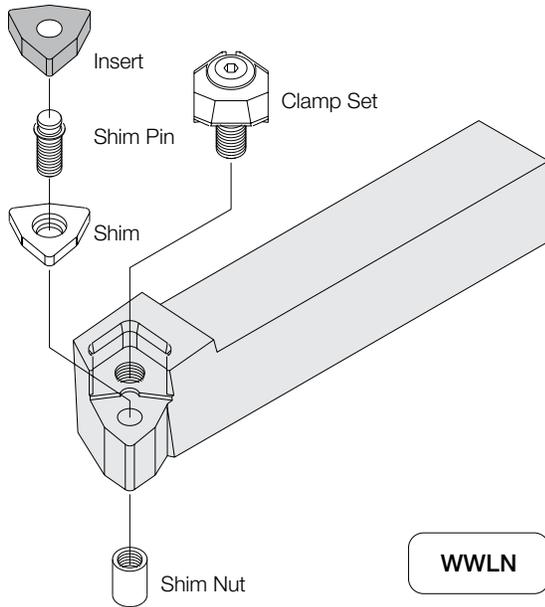
● Double Clamp



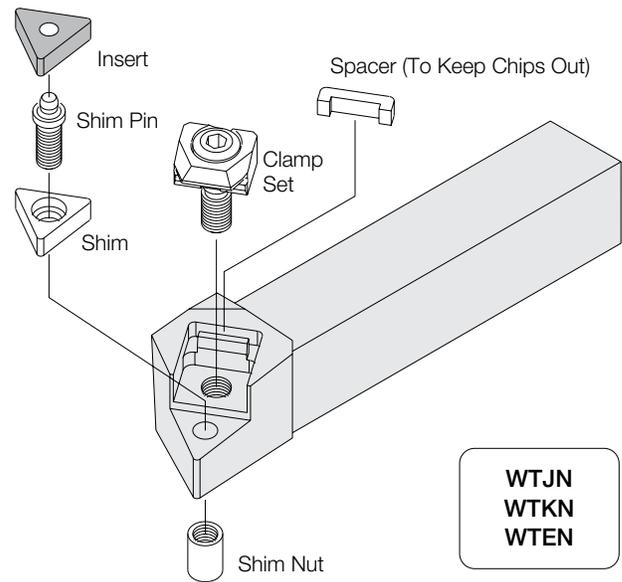
DCLN
DDJN / DDHN
DSBN
DTGN
DVLN / DVJN / DVPN / DVVN
DWLN

DDJN

● Wedge Lock

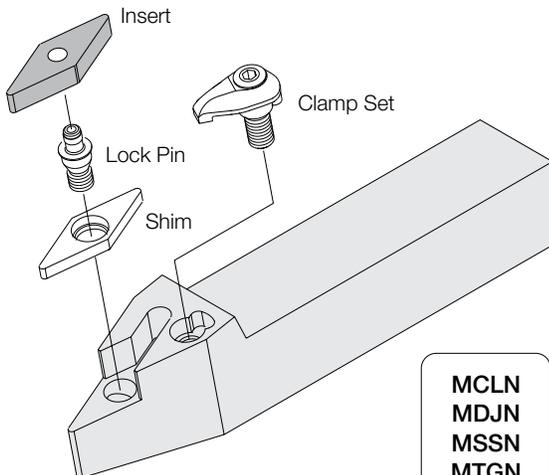


WWLN



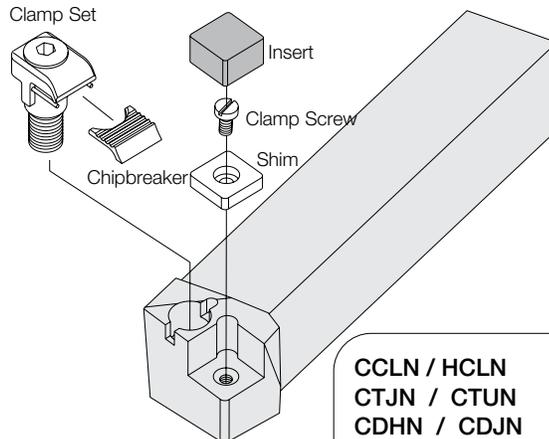
WTJN
WTKN
WTEN

● Multi Lock



MCLN
MDJN
MSSN
MTGN
MVJN
MVVN
MWLN

● Top Clamp



CCLN / HCLN
CTJN / CTUN
CDHN / CDJN
CELN
CSRN / HSRN / CS-N / CSKN
CSYN / CSSN / CSDN / HSDN
*CRSN / HRSN / *CRDN / CRDC

* Chipbreaker is not included with CRSN / CRDN.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DCLN (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts**

Toolholder	Insert
DCLN%...12-4B	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M
DCLN%...16-4D	
DCLN%...-12	

● Right-hand shown

DCLN-JCT (External / Facing, Jet Coolant-Through) NEW

Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts**

Toolholder	Insert
DCLN%...-12JCT	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M

● Right-hand shown

Pressure Resistance: up to 4,350 psi

Toolholder Dimensions

JCT Coolant Connections and Pipe Parts D11

Part Number	Stock		Unit	Dimensions										Standard Corner-R (RE)	Drawing	Spare Parts							
	R	L		H	HF	HBH	B	HBKW	LF	LH	WF	MHD	Clamp			Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Sold Separately)	
DCLN% 12-4B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.30	1.00	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	LW-3	FT-15	
16-4D	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.26	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	LW-3	FT-15	
DCLN% 2020K-12	●	●	mm	20	20	-	20	-	125	33	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	LW-3	FT-15	
2525M-12	●	●	mm	25	25	-	25	-	150	32	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	LW-3	FT-15	
DCLN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.06	1.00	3.87	1/32	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	-	FT-15	
16-4DJCT	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.06	1.25	5.37	1/32	Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	-	FT-15	
DCLN% 2020K-12JCT	●	●	mm	25	25	5	20	7	125	27	25	109	0.8	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	-	FT-15	
2525M-12JCT	●	●	mm	25	25	-	25	-	150	27	32	134	0.8	Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	*2DC-44 *3DC-44-C	SB-4085TR	-	FT-15	

*1 O-ring (SS-035) is available to order separately

*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

*3 This shim is required for SX chipbreaker inserts (sold separately)

MCLN (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts**

Toolholder	Insert
MCLN%...-12-4B	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M
MCLN%...-16-4D	
MCLN%...-16-5D	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M
MCLN%...-20-5D	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M
MCLN%...-20-6D	<input type="checkbox"/> CN□A <input type="checkbox"/> CN□G <input type="checkbox"/> CN□M

● Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF	Clamp		Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench	
MCLN% 12-4B	●	●	inch	0.75	0.75	0.75	4.00	1.190	1.00	1/32	CL-20	XNS-48	LW-125	ICSN433	S-46	NL46	LW-094	
16-4D	●	●		1.00	1.00	1.00	6.00	1.260	1.25	1/32	CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125	
16-5D	●	●		1.00	1.00	1.00	6.00	1.375	1.25	1/32	CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125	
20-5D	●	●		1.25	1.25	1.25	6.00	1.375	1.50	1/32	CL-12	XNS-510	LW-156	ICSN633	S-68	NL68	LW-140	
20-6D	●	●		1.25	1.25	1.25	6.00	1.500	1.50	1/32	CL-12	XNS-510	LW-156	ICSN633	S-68	NL68	LW-140	

Applicable Inserts D9

PCLN (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

Applicable Inserts

Toolholder	Insert	
PCLN%...12-3B	CN□G	33..
PCLN%...16-3D	CN□G	33..
PCLN%...12-4B	CN□A CN□G CN□M	43..
PCLN%...16-4D	CN□G	33..
PCLN%...-09	CN□G	33..
PCLN%...-12	CN□A CN□G CN□M	43..
PCLN%...-16	CN□M	54..

• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R(RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF	Lever		Lock Screw	Shim	Shim Pin	Punch	Wrench	
PCLN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.87	1.00	1/32	LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5	
PCLN% 12-4B	●			0.75	0.75	0.75	4.50	1.06	1.00	1/32	LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 16-4D	●			1.00	1.00	1.00	6.00	1.06	1.25	1/32	LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 1616H-09	●	●	mm	16	16	16	100	22	20	0.8	LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5	
PCLN% 2020K-09	●	●		20	20	20	125	22	25		LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5	
PCLN% 2525M-09	●	●		25	25	25	150	22	32		LL-1N	LS-1N	LC-32N	LSP-1	PC-1	FH-2.5	
PCLN% 1616H-12	●		mm	16	16	16	100	27	20	0.8	LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 2020H-12*1	●			20	20	20	100	27	25		LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 2020K-12	●	●		20	20	20	125	27	25		LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 2525M-12	●	●		25	25	25	150	27	32		LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 3225P-12	●	●		32	32	25	170	27	32		LL-2N	LS-2N	LC-42N *2 LC-42N-20 *3 LC-42N-C	LSP-2	PC-2	LW-3	
PCLN% 2525M-16	●	●	mm	25	25	25	150	32	32	0.8	LL-5N	LS-4N	LC-53N *3 LC-53N-C	LSP-3	-	LW-3	
PCLN% 3232P-16	●	●		32	32	32	170	32	40		LL-5N	LS-4N	LC-53N *3 LC-53N-C	LSP-3	-	LW-3	

*1 Short shank type.

*2 When using inserts whose corner-R(RE) is greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other.

*3 This shim is required for SX chipbreaker inserts.

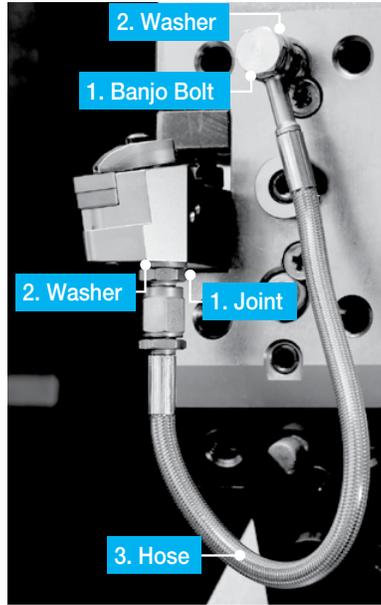
Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT
Size	43..	43..	43..	43..	43.., 54..	43.., 54..	33.., 43..	43..	43.., 54..	43.., 54..
Ref. Page	● B16	● B16	● B16	● B16	● B17	● B17	● B17	● B17	● B17	● B18
Application	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing
Insert	Standard	PH	PX	%-S	%	XF	XP	XQ	XS	MQ
Size	43.., 54.., 64..	43.., 54.., 64..	43.., 54.., 64..	33..	33.., 43..	43..	43..	43..	43..	43..
Ref. Page	● B18	● B18	● B19	● B22	● B22	● B19	● B19	● B19	● B19	● B20
Application	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert	MS	MU	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic
Size	43..	43.., 54.., 64..	43..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B20	● B20	● B21	● B21	● B21	● B21	● B21	● B21	● B21	● B106
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloy Roughing	Heat-Resistant Alloy Roughing	Hard Materials			
Insert	A3	AH	PCD	SQ	SG	%-SX	CBN			
Size	43..	43..	43..	43.., 54.., 64..	43.., 54.., 64..	43.., 54.., 64..	43..			
Ref. Page	● B22	● B22	● C23	● B20	● B20	● B21	● C6, C7			

Recommended Cutting Conditions ● D39-D40

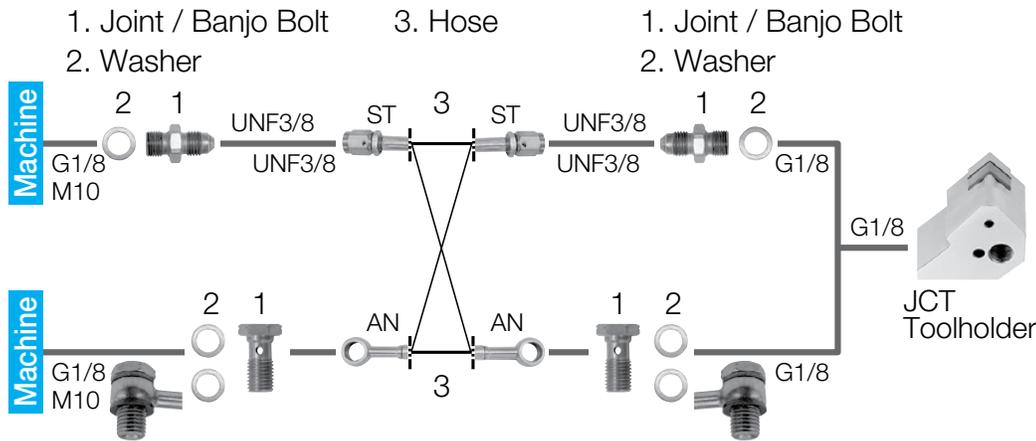
Easy Coolant Connections

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



● Improved performance and stable machining with internal coolant even with low pressure

Pressure Range	Tool Life	Chip Control	Notes
~ 290 psi (Low Pressure)	Good	Poor	Tool life is improved even when machining with low pressure coolant systems
290 psi ~ 1,015 psi (Medium Pressure)	Excellent	Good	Improved tool life and chip control performance
1,015 psi ~ 2,175 psi (High Pressure)	Excellent	Excellent	Chips become smaller and are easily evacuated
2,175 psi ~ 4,350 psi (Extra High Pressure)	Excellent	Excellent	Chips are smaller and high-speed machining of heat-resistant alloys is possible

Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

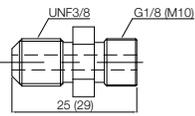
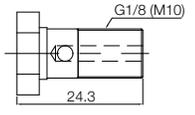
1. **Joint / Banjo bolt** × 2

2. **Washer** × 2-4

3. **Hose** × 1

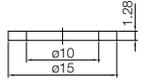
1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock	Thread Standard	
			Holder / Machine Connection	
		●	G1/8	J-G1/8-UNF3/8
	J-10X1.5-UNF3/8		M10X1.5	
Banjo Bolt (for Angle Hose) 		●	G1/8	BB-G1/8
	BB-M10X1.5		M10X1.5	

2. Washer

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock
 	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: up to 4,350 psi

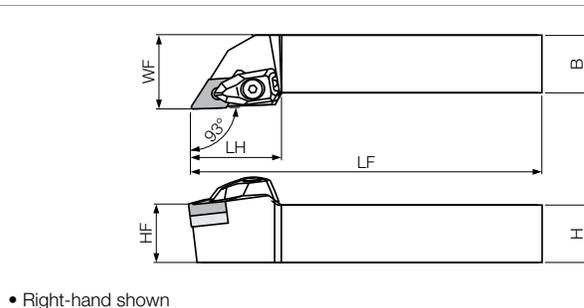
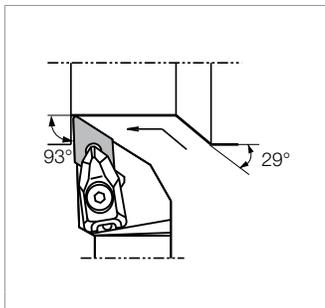
Shape	Part Number	Stock	Thread Standard		Dimensions (mm)
					L
	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
	HS-ST-AN-200	●	UNF3/8	(Banjo Bolt)	200
	HS-ST-AN-250	●			250
	HS-AN-AN-200	●	(Banjo Bolt)	(Banjo Bolt)	200
	HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DDJN (External / Copying)



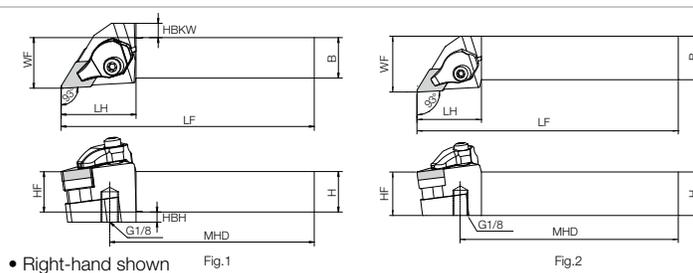
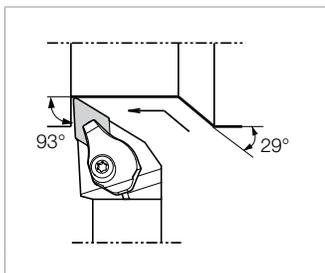
• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -7°

Applicable Inserts

Toolholder	Insert
DDJN%...12-4B	DN□A 43.. DN□G (44..) DN□M DN□X
DDJN%...16-4D	43.. (44..)
DDJN%...-1504	DN□A 43.. DN□G (44..) DN□M DN□X
DDJN%...-1506	44.. (43..)

DDJN-JCT (External / Copying, Jet Coolant-Through) NEW



• Right-hand shown

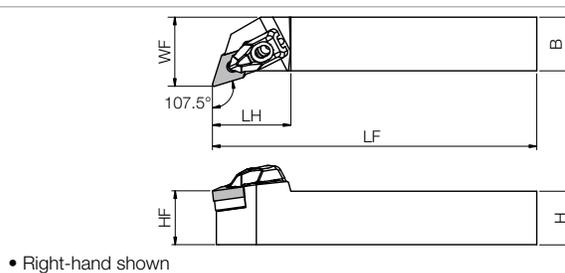
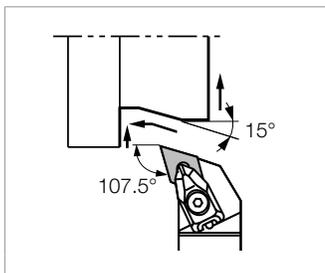
Pressure Resistance: up to 4,350 psi

Side Rake Angle: -6°
Angle of Inclination: -7°

Applicable Inserts

Toolholder	Insert
DDJN%...-15JCT	DN□A 44.. DN□G (43..) DN□M DN□X

DDHN (External / Face Grooving / Copying)



• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -6°

Applicable Inserts

Toolholder	Insert
DDHN%...-1504	DN□A 43.. DN□G (44..) DN□M DN□X
DDHN%...-1506	44.. (43..)

Toolholder Dimensions

JCT Coolant Connections and Pipe Parts D11

Part Number	Stock		Dimensions										Standard Corner-R(RE)	Drawing	Spare Parts							
	R	L	Unit	H	HF	HBH	B	HBKW	LF	LH	WF	MHD			Clamp	Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench
DDJN% 12-4B	●	●	inch	0.75	0.75	0.75	-	4.50	1.54	1.00	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3		
16-4D	●	●	inch	1.00	1.00	1.00	-	6.00	1.54	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3		
DDJN% 2020K-1504	●	●	mm	20	20	20	-	125	39	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3	FT-15 Sold Separately	
2525M-1504	●	●	mm	25	25	25	-	150	39	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*DD-44)	SB-4085TR	LW-3		
DDJN% 2020K-1506	●	●	mm	20	20	20	-	125	39	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*DD-44)	SB-4085TR	LW-3		
2525M-1506	●	●	mm	25	25	25	-	150	39	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*DD-44)	SB-4085TR	LW-3		
DDJN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.46	1.00	3.56	1/32	Fig.1	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15
16-4DJCT	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.46	1.25	5.06	1/32	Fig.2	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15
DDJN% 2020K-15JCT	●	●	mm	20	20	5	20	7	125	37	25	101	0.8	Fig.1	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15
2525M-15JCT	●	●	mm	25	25	-	25	-	150	37	32	126	0.8	Fig.2	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15
DDHN% 2020K-1504	●	●	mm	20	20	20	-	125	37	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*2DD-44 (DD-43)	SB-4085TR	LW-3	FT-15 Sold Separately	
2525M-1504	●	●	mm	25	25	25	-	150	37	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*2DD-44)	SB-4085TR	LW-3		
DDHN% 2020K-1506	●	●	mm	20	20	20	-	125	37	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*2DD-44)	SB-4085TR	LW-3		
2525M-1506	●	●	mm	25	25	25	-	150	37	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*2DD-44)	SB-4085TR	LW-3		

Shims indicated within () are not included with the toolholder. To change insert thickness, please purchase it separately.

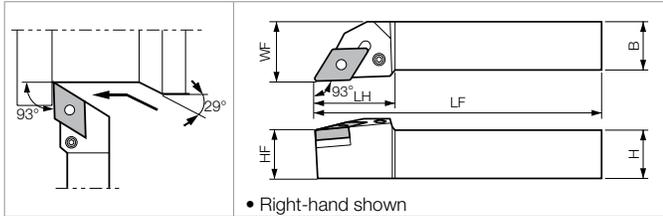
Applicable Inserts D13

*1 O-ring (SS-035) is available to order separately

*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

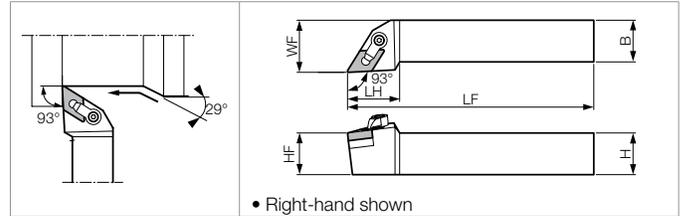
PDJN (External / Copying)

Side Rake Angle: -6°
Angle of Inclination: -7°



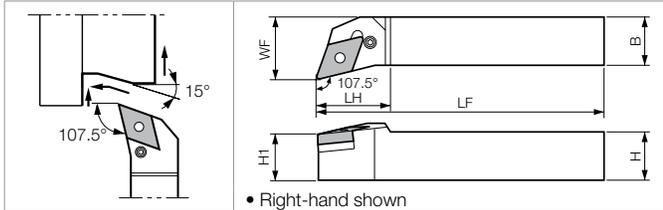
MDJN (External / Copying)

Side Rake Angle: -6°
Angle of Inclination: -6°



PDHN (External / Face Grooving / Copying)

Side Rake Angle: -6°
Angle of Inclination: -6°



PDJN / MDJN Applicable Inserts

Toolholder	Insert	
PDJN%...-3□ PDJN%...-11	DN□A DN□G	33..
PDJN%...-4□ PDJN%...-15	DN□A DN□G DN□M DN□X	43.. (43..)
PDJN%...-15U	DN□A DN□G DN□M DN□X	44.. (43..)
MDJN%...-4□	DN□A DN□G DN□M DN□X	43..

PDHN Applicable Inserts

Toolholder	Insert
PDHN%...-15	DN□A DN□G DN□M DN□X

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts									
	R	L		H	HF	B	LF	LH	WF	Lever		Lock Screw	Shim	Shim Pin	Punch	Wrench	Clamp	Clamp Screw	Shim Screw	Lock Pin	
PDJN% 12-3B 16-3D	●	●	inch	0.75	0.75	0.75	4.50	0.87	1.00	1/64	LL-1N	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5	-	-	-	-	
PDJN% 16-4D	●	●	inch	1.00	1.00	0.75	4.50	1.06	1.00	1/32	LL-3N	LS-2N	LD-42 *2 LD-42-20	LSP-2	PC-2	LW-3	-	-	-	-	
PDJN% 1616H-11 2020K-11 2525M-11	●	●	mm	16	16	16	100	28	20	0.4	LL-1DN	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5	-	-	-	-	
PDJN% 2020H-15*1 2020K-15 2525M-15 3225P-15	●	●	mm	20	20	20	100	36	25	0.8	LL-3N	LS-2N	LD-42 *2 LD-42-20	LSP-2	PC-2	LW-3	-	-	-	-	
PDJN% 2525M-15U 3232P-15U	●	●	mm	25	25	25	150	34	32	0.8	LL-4	LS-3	LD-42 *2 LD-42-20 (LD-43) *2 LD-43-20	LSP-2	PC-2	LW-3	-	-	-	-	
PDHN% 2020K-15 2525M-15	●	●	mm	20	20	20	125	35	25	0.8	LL-4	LS-3	LD-43 *2 LD-43-20 (LD-42) *2 LD-42-20	LSP-2	PC-2	LW-3	-	-	-	-	
MDJN% 12-4B 16-4D	●	●	inch	0.75	0.75	0.75	4.50	1.25	1.00	1/32	-	-	IDSN443	-	-	LW-125, LW-094	CL-20	XNS-48	S-46	NL46	

*1 Short shank type.

• Shim: PDJN%...15U...LD-42 is attached to PDJN%...15U. When using DN□□43 type insert, please purchase LD-43 separately.

PDHN ...LD-43 is attached to PDHN. When using DN□□44 type Insert, please purchase LD-42 separately.

*2 When using inserts whose corner-R(RE) is greater than 1/16", please purchase this shim in order to prevent workpiece and shim from interfering each other.

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Insert	WF (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Size	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	33.., 43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..
Ref. Page	● B23	● B23	● B23	● B24	● B24	● B24	● B25	● B25	● B25	● B26
Application	Roughing	Single Sided Roughing High Feed Rate	Finishing	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
Insert	PH	PX	%-S	%	XP	XQ	XS	MQ	MS	MU
Size	43.., 44..	43.., 44..	33..	33.., 43..	43.., 44..	43.., 44..	43..	43.., 44..	43.., 44..	43.., 44..
Ref. Page	● B26	● B26	● B30	● B30	● B26	● B26	● B26	● B27	● B28	● B28
Application	Heat-Resistant Alloy Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals
Insert	SG	TK	C	KQ	KG	KH	ZS	GC	Ceramic	%-A3
Size	43..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43..
Ref. Page	● B28	● B27	● B29	● B29	● B29	● B29	● B29	● B29	● B107	● B30
Application	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Hard Materials						
Insert	AH	PCD	SQ	CBN						
Size	43.., 44..	43..	43.., 44..	43.., 44..						
Ref. Page	● B30	● C23	● B28	● C8, C9						

Recommended Cutting Conditions ● D39-D40

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

DSBN (External)

Side Rake Angle: -6°
Angle of Inclination: -6°

2020K-12 type

● **Applicable Inserts**

Toolholder	Insert
DSBN%L...-12	SN□A SN□G SN□M 43..

• Right-hand shown

● **Toolholder Dimensions**

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Sold Separately)
	DSBN% 2020K-12	●		●	mm	20	20	20	125		34	17	0.8				
2525M-12	●	●	mm	25	25	25	150	34	22		CP-3D	CS-3D	SP-3D	DS-44	SB-4085TR	LW-3	FT-15

MSSN (External / Facing / Chamfering)

● **Applicable Inserts**

Toolholder	Insert
MSSN%...-12-4B MSSN%...-16-4D	SN□A SN□G SN□M 43..

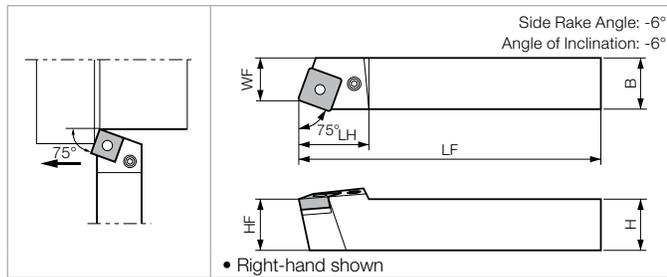
• Right-hand shown

● **Toolholder Dimensions**

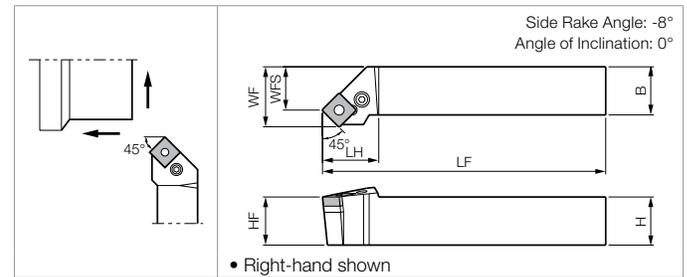
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
	MSSN% 12-4B	●		□	inch	0.75	0.75	0.75	4.50		1.23	0.675	1/32				
16-4D	●	□	inch	1.00	1.00	1.00	6.00	1.23	0.925		CL-9	XNS59	LW-156	ISSN433	S-46	NL46	LW-094

Applicable Inserts ➔ **D15**

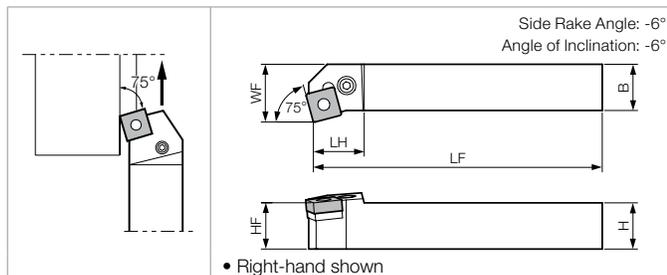
PSBN (External)



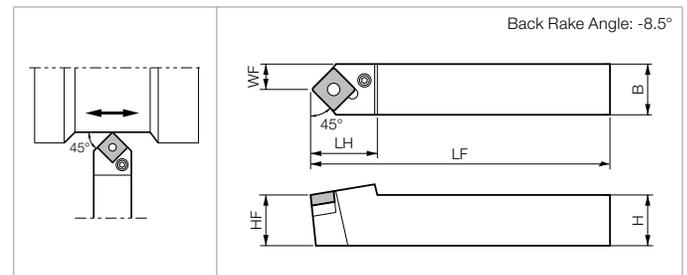
PSSN (External / Facing / Chamfering)



PSKN (Facing)



PSDN (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions							Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF	WFS		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PSBN% 1616H-09 2020K-12 2525M-12	●		●	mm	16	16	16	100	21.0	13	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	●		●		20	20	20	125	27.0	17	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	●		●		25	25	25	150	24.0	22	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSKN% 1616H-09 2020K-12 2525M-12	●		●		16	16	16	100	19.0	20	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	●		●		20	20	20	125	22.5	25	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	●		●		25	25	25	150	22.5	32	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSSN% 1616H-09 2020K-12 2525M-12	●		●		16	16	16	100	22	20	13.6	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
	●		●		20	20	20	125	29	25	16.4	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
	●		●		25	25	25	150	29	32	23.4	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSDNN 1616H-09 2020K-12 2525M-12		●			16	16	16	100	21	8	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
		●			20	20	20	125	30	10	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
		●			25	25	25	150	30	12.5	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3

Applicable Inserts

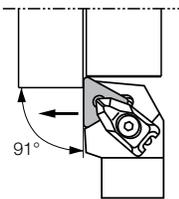
Toolholder	Insert	Application	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided Roughing High Feed	
PSBN% ...-09	SN□G 32..	Insert	PQ	PG	PS	HS	PT	Standard	PH	PX	
PSKN% ...-09		Size	43..	43..	43..	43..	43..	32.., 43..	43..	43..	
PSSN% ...-09		Ref. Page	● B32	● B32	● B32	● B32	● B32	● B32	● B32	● B33	● B33
PSDNN...-09	SN□A SN□G SN□M 43..	Application	Finishing-Roughing	Medium-Roughing / Low Cutting Force	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	
PSBN% ...-12		Insert	%□-□	%-25R	XP	XQ	XS	MQ	MS	SG	
PSKN% ...-12		Size	32.., 43..	43..	43..	43..	43..	43..	43..	43..	43..
PSSN% ...-12		Ref. Page	● B35	● B35	● B33	● B33	● B33	● B33	● B34	● B34	● B34
PSDNN...-12		Application	Cast Iron	Cast Iron / Roughing	Cast Iron / Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Hard Materials
		Insert	C	KG	KH	ZS	GC	Without Chipbreaker	Ceramic	CBN	
	Size	43..	43..	43..	43..	43..	43..	43..	43..	43..	
	Ref. Page	● B34	● B34	● B34	● B34	● B34	● B34	● B35	● B109	● C10	

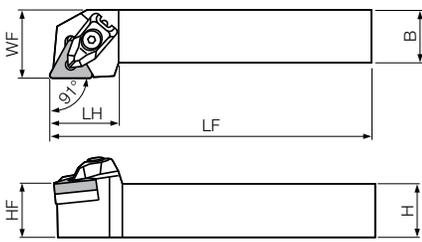
- PSKN%: Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
- PSSN%: For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder. For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Recommended Cutting Conditions ● D39-D40

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DTGN (External)





Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts** ● **D19**

Toolholder	Insert
DTGN%L...-16	TN□A TN□G TN□M TN□X
	33..

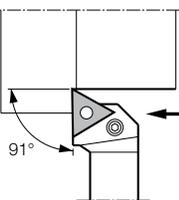
• Right-hand shown

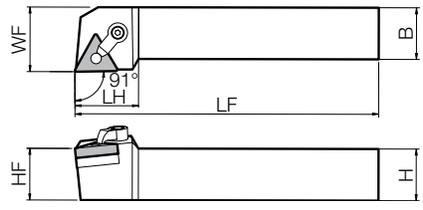
Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (sold separately)
																	
DTGN% 2020K-16	●	●	mm	20	20	20	125	25	25	0.8				*DT-32	SB-3080TR	LW-2.5	FT-10
2525M-16	●	●	mm	25	25	25	150	25	32								

* When using inserts whose corner-R(RE) is greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other.
 • When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See ● **R50**

MTGN (External)





Side Rake Angle: -5°
Angle of Inclination: -5°

● **Applicable Inserts** ● **D19**

Toolholder	Insert
MTGN%...-12-3B	TN□A TN□G TN□M TN□X
MTGN%...-16-3D	33..
MTGN%...-16-4D	43..

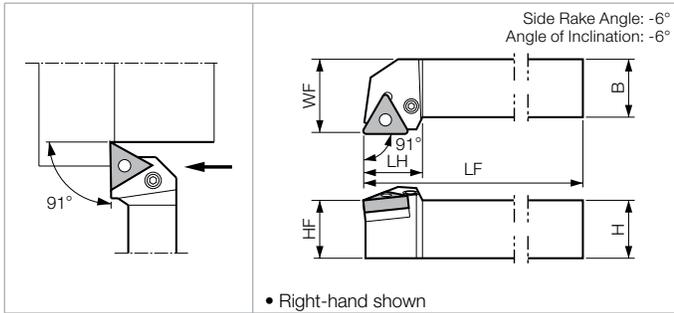
• Right-hand shown

Toolholder Dimensions

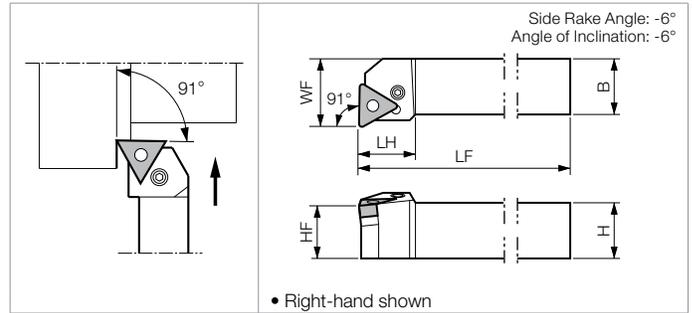
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																	
MTGN% 12-3B	●	●	inch	0.75	0.75	0.75	4.50	0.94	1.00	1/64				ITSN333 (ITSN323)	S-34	NL34L	(5/64 Hex)
16-3D	●	●		1.00	1.00	1.00	6.00	0.94	1.25								
16-4D	●	●		1.00	1.00	1.00	6.00	1.19	1.25		1/32				ITSN432	S-46	NL46	LW0

• Shim: ITSN333 is included with MTGN%12-3B. When using TN__33_ insert, please purchase ITSN323 separately.

PTGN (External)



PTFN (Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PTGN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.96	1.00	1/32	LL-1N	LS-1N	LT-32N *LT-32N-20	LSP-1	PC-1	LW-2.5
PTGN% 1212F-11	●	●	mm	12	12	12	80	18.0	16	0.8	LL-03N	LS-03N	-	P-03	-	FH-2
1616H-11	●	△		16	16	16	100	22.0	20		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
2020K-11	●	●		20	20	20	125	22.0	25		LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2525M-11	●	●		25	25	25	150	22.0	32		LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTGN% 1616H-16	●	●	mm	16	16	16	100	24.0	20	0.8	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2020H-16*	●			20	20	20	100	24.0	25		LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2020K-16	●	●		20	20	20	125	24.0	25		LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2525M-16	●	●		25	25	25	150	24.0	32		LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTGN% 2525M-22	●	●	mm	25	25	25	150	29.0	32	0.8	LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTFN% 12-3C	●	●	inch	0.75	0.75	0.75	5.00	0.88	1.00	1/32	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
16-3D	●	●		1.00	1.00	1.00	6.00	0.88	1.25	1/32	LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
16-4D	●			1.00	1.00	1.00	6.00	1.10	1.25	1/32	LL-03N	LS-03N	-	P-03	-	FH-2
PTFN% 1212F-11	●	●	mm	12	12	12	80	15.0	16	0.8	LL-03N	LS-03N	-	P-03	-	FH-2
1616H-11	●	●		16	16	16	100	22.5	20		LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
2020K-11	●	△		20	20	20	125	22.5	25		LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2525M-11	●	●		25	25	25	150	22.5	32		LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTFN% 2020K-16	●	●	mm	20	20	20	125	22.0	25	0.8	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2525M-16	●	●		25	25	25	150	23.0	32		LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTFN% 2525M-22	●	●	mm	25	25	25	150	28.0	32	0.8	LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3

*1 Short shank type.

*2 When using inserts whose corner-R(RE) is greater than 1/16", please purchase this shim in order to prevent workpiece and shim from interfering each other.

• When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See **R50**

Applicable Inserts **D19**

Toolholder	Insert	Applicable Inserts
PTGN% ...12-3B	TN□A TN□G TN□M TNMX	33..
PTFN% ...12-3C	TN□A TN□G TNMX	33..
PTFN% ...16-3D	TN□A TN□G TNMX	43..
PT□N% 12...-11	TN□□	22..
PT□N% ...-11	TN□□	23..
PT□N% ...-16	TN□A TN□G TN□M TNMX*	33..
PT□N% ...-22	TN□A TN□G TN□M TNMX*	43..

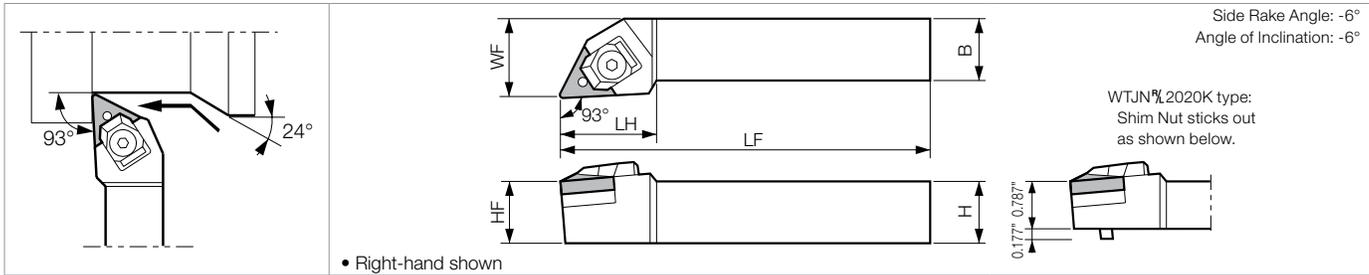
PTGN% 1212F-11 }
PTFN% 1212F-11 } Insert applicable for above
TN□□1103-type Insert is applicable.

• PTFN%: Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

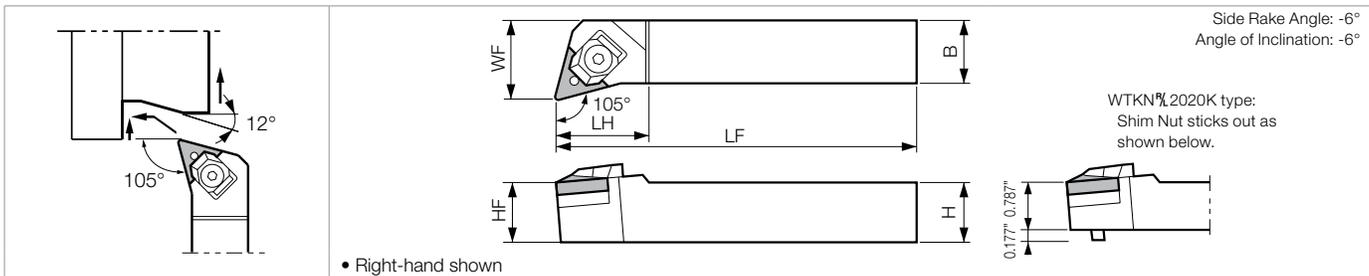
*3 TNMX insert is NOT applicable for PT□N% ...-22 type toolholders.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

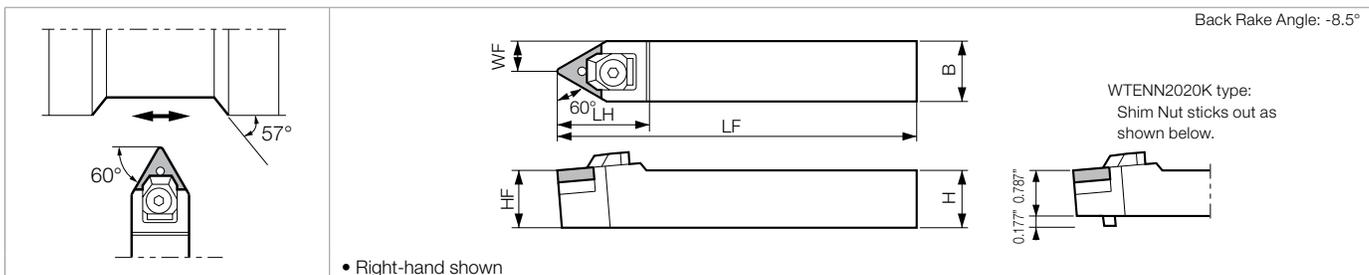
WTJN (External / Copying)



WTKN (External / Facing / Copying)



WTEN (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Spacer
WTJN% 12-3C	●	●	●	inch	0.75	0.75	0.75	5.00	1.26	1.00	1/32	WCS-1N	WTN-33 *WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
16-3D	●	●	●	inch	1.00	1.00	1.00	6.00	1.26	1.25							
WTJN% 2020K-16N	●	●	●	mm	20	20	20	125	32	25.0	0.8	WCS-1N	WTN-33 *WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
2525M-16N	●	●	●	mm	25	25	25	150	32	32.0							
WTKN% 12-3C	●	●	●	inch	0.75	0.75	0.75	5.00	1.26	1.00	1/32	WCS-1N	WTN-33 *WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
WTKN% 2020K-16N	●	●	●	mm	20	20	20	125	32	25.0	0.8	WCS-1N	WTN-33 *WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
2525M-16N	●	●	●	mm	25	25	25	150	32	32.0							
WTENN 2020K-16N		●	●	mm	20	20	20	125	32	10.0	0.8	WCS-1N	WTN-33 *WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
2525M-16N		●	●	mm	25	25	25	150	32	12.5							

* When using inserts whose corner-R (RE) is greater than 1/16", please purchase a shim (WTN-33-20) with * mark and use it in order to prevent workpiece and shim from interfering with each other.

Applicable Inserts D19

Toolholder	Insert
WTJN%...12-3C	TN□A TN□G TN□M
WTJN%...16-3D	
WTJN%...16N	
WTKN%...12-3C	
WTKN%...16-3D	
WTKN%...16N	

Toolholder	Insert
WTENN...-16N	TN□A TN□G TN□M

● Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Medium-Roughing / High Feed Rate	Medium-Roughing	Single Sided / Roughing / High Feed	Roughing
Insert	PP 	PQ 	CQ 	GS 	PG 	PS 	PT 	GT 	PH 	PX 	Standard 
Size	33..	33..	33.., 43..	23.., 33..	33..	33.., 43..	33..	33..	33.., 43..	33.., 43..	23.., 33..
Ref. Page	B36	B36	B36	B36	B36	B37	B37	B37	B37	B38	B37
Application	Finishing	Finishing-Roughing	Medium-Roughing Low Cutting Force	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing
Insert	$\frac{1}{4}$ -S 	$\frac{1}{4}$ -□ 	$\frac{1}{4}$ -25R 	XF 	XP 	XQ 	XS 	MQ 	MS 	MU 	SG 
Size	23.., 33..	22.., 23.., 33.., 43..	33..	33..	33..	33..	33..	33..	33..	33..	33.., 43..
Ref. Page	B42	B42 , B43	B43	B38	B38	B38	B38	B39	B39	B39	B39
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials		
Insert	KQ 	KG 	KH 	ZS 	Ceramic 	$\frac{1}{4}$ -A3 	AH 	PCD 	CBN 		
Size	33..	33..	33..	33..	33..	33..	33..	33..	33..		
Ref. Page	B40	B40	B40	B40	B111	B41	B41	C23	C10 , C11		

• In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Recommended Cutting Conditions [D39-D40](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DVJN / DVLN (External / Copying)

Side Rake Angle: -6°
Angle of Inclination: -9°

● **Applicable Inserts** D21

Toolholder	Insert	
DVJN%...12-3B	VN□A VN□G VN□M	33..
DVJN%...16-3D		
DVLN%...-16		

● Right-hand shown

DVPN (External / Facing / Copying / Undercutting)

Side Rake Angle: -13°
Angle of Inclination: -10°

● **Applicable Inserts** D21

Toolholder	Insert	
DVPN%...12-3B	VN□A VN□G VN□M	33..
DVPN%...16-3D		
DVPN%...-16		

● Right-hand shown

DVVN (External / Copying)

Back Rake Angle: -11°

● **Applicable Inserts** D21

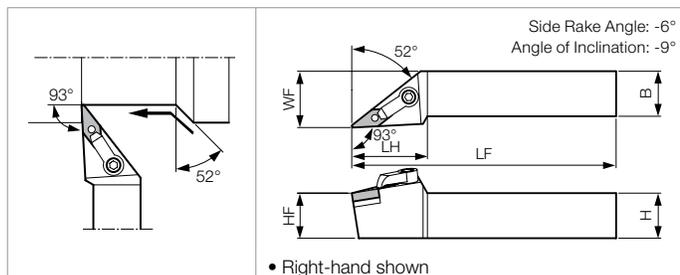
Toolholder	Insert	
DVVNN...12-3B	VN□A VN□G VN□M	33..
DVVNN...16-3D		
DVVNN...-16		

● Right-hand shown

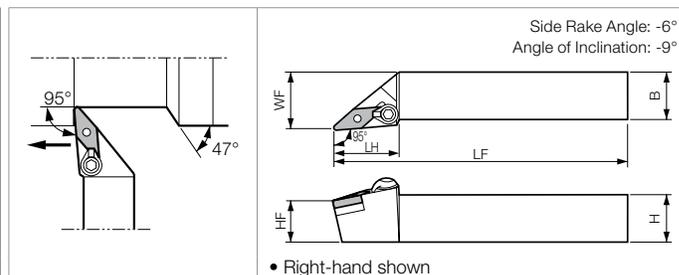
● Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	N	L		H	HF	B	LF	LH	WF		Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (sold separately)
DVJN% 12-3B	●		●	inch	0.75	0.75	0.75	4.50	1.77	1.00	1/32							
16-3D	●		●	inch	1.00	1.00	1.00	6.00	1.77	1.25								
DVLN% 2020K-16	●		●	mm	20	20	20	125	45	25.0	0.8							
2525M-16	●		●	mm	25	25	25	150	45	32.0								
DVPN% 12-3B	●		●	inch	0.75	0.75	0.75	4.50	1.58	1.00	1/32							
16-3D	●		●	inch	1.00	1.00	1.00	6.00	1.58	1.25								
DVPN% 2020K-16	●		●	mm	20	20	20	125	40	27.0	0.8							
2525M-16	●		●	mm	25	25	25	150	40	32.0								
DVVNN 12-3B		●		inch	0.75	0.75	0.75	4.50	1.81	0.40	1/32							
16-3D		●		inch	1.00	1.00	1.00	6.00	1.81	0.52								
DVVNN 2020K-16		●		mm	20	20	20	125	46	10.0	0.8							
2525M-16		●		mm	25	25	25	150	46	12.5								

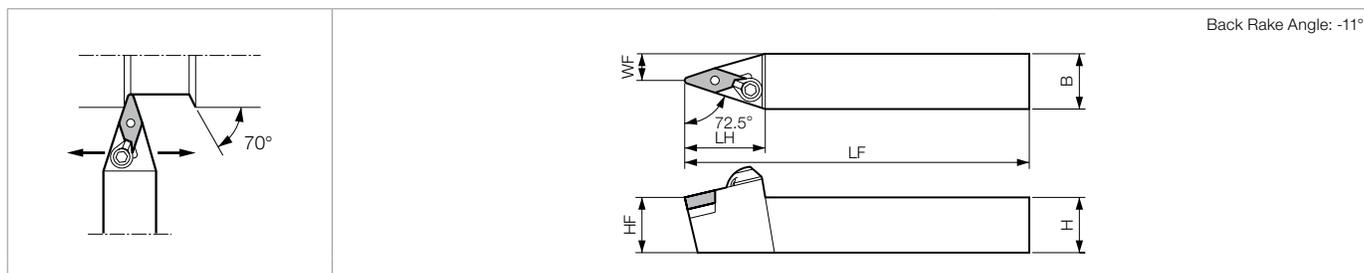
MVJN (External / Copying)



MVLN (External / Copying)



MVVN (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts							
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench	Clamp	Clamp Screw
MVJN% 12-3B	●	●	●	inch	0.75	0.75	0.75	4.5	1.69	1.00	1/64	-	(5/64 hex)	IVSN322	S-34	NL34L	LX-156	CL-30	XNS48
16-3C	●	●	●	inch	1.00	1.00	1.00	5.0	1.69	1.25	1/64	-	(5/64 hex)	IVSN322	S-34	NL34L	LX-156	CL-30	XNS48
MVLN% 2020K-16	●	●	●	mm	20	20	20	125	38	25.0	0.8	CPS-5%	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-
2525M-16	●	●	●	mm	25	25	25	150	38	32.0	0.8	CPS-5%	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-
MVVNN 12-3B	●	●	●	inch	0.75	0.75	0.75	4.50	1.67	0.375	1/32	-	(5/64 Hex)	IVSN322	-	NL34L	LW-156	CL-12	XNS510
16-3D	●	●	●	inch	1.00	1.00	1.00	6.00	1.67	0.500	1/32	-	(5/64 Hex)	IVSN322	-	NL34L	LW-156	CL-12	XNS510
MVVNN 2020K-16	●	●	●	mm	20	20	20	125	39	10.0	0.8	CPS-5R	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-
2525M-16	●	●	●	mm	25	25	25	150	39	12.5	0.8	CPS-5R	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-

• Clamp Set: CPS-5R for Right-hand Toolholder, CPS-5L for Left-hand Toolholder.

Applicable Inserts

Toolholder	Insert	Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium	Roughing	Finishing-Medium	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	
MVJN%...12-3B	VN□A VN□G VN□M	Insert	PP	% -VC	VF	PQ	TN-V	Standard	%	MQ	MS	
MVJN%...16-3C		Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	
MVLN%...-16		Ref. Page	B44	B44	B44	B44	B44	B44	B45	B45	B45	
MVVNN...12-3B		Application	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials		
MVVNN...16-3D		Insert	MU	SG	KG	KH	Without Chipbreaker	Ceramic	PCD	CBN		
MVVNN...-16	Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..	
	Ref. Page	B45	B45	B45	B45	B45	B112	C23	C12			

Rotation Directions of the Clamp Set

Recommended Cutting Conditions D39-D40



MVVNN type (Neutral)



MVLNR type (Right-hand Toolholder)



MVLNL type (Left-hand Toolholder)

Clamp set: (CPS-5R) has Right-hand thread.
When clamping the insert, turn the screw in the arrow direction (clockwise).
When removing the insert, turn the screw away from the arrow (counterclockwise).

Clamp set: (CPS-5L) has Left-hand thread.
When clamping the insert, turn the screw in the arrow direction (counterclockwise).
When removing the insert, turn the screw away from the arrow (clockwise).

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

D TURNING HOLDERS

PVLN (External / Copying)

• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -9°

PVPN (External / Facing / Copying / Undercutting)

• Right-hand shown

Side Rake Angle: -13°
Angle of Inclination: -10°

PVVN (External / Copying)

Back Rake Angle: -11°

Toolholder Dimensions

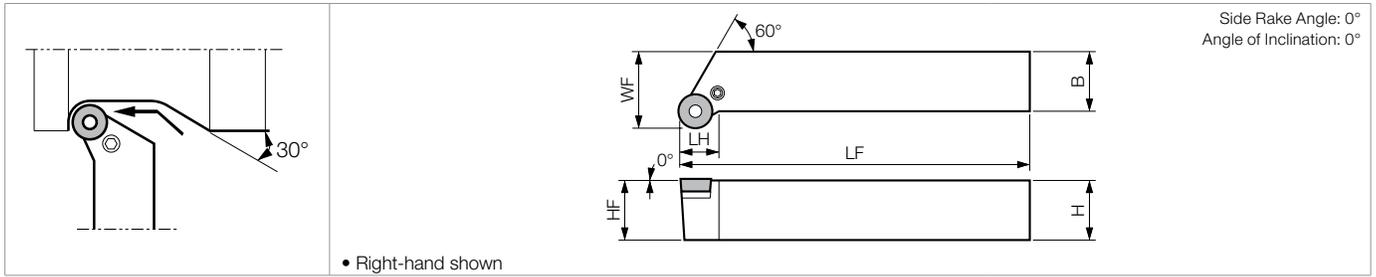
Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts			
	R	N	L		H	HF	B	LF	LH	WF		Lock Pin	Lock Screw	Shim	Wrench
PVLN% 2525M-16Q	●		●	mm	25	25	25	150	37	32.0	0.8	LP-6S	LS-15	KVN-32	LW-3
PVPN% 2020K-16Q	●		●		20	20	20	125	30	25.0		0.8	LP-2S	LS-11	KVN-32	LW-3
2525M-16Q	●		●		25	25	25	150	30	32.0	LP-6S				
PVVNN 2020K-16Q		●			20	20	20	125	35	10.0	0.8	LP-2S	LS-15	KVN-32	LW-3
2525M-16Q		●			25	25	25	150	40	12.5		LP-6S			

Applicable Inserts

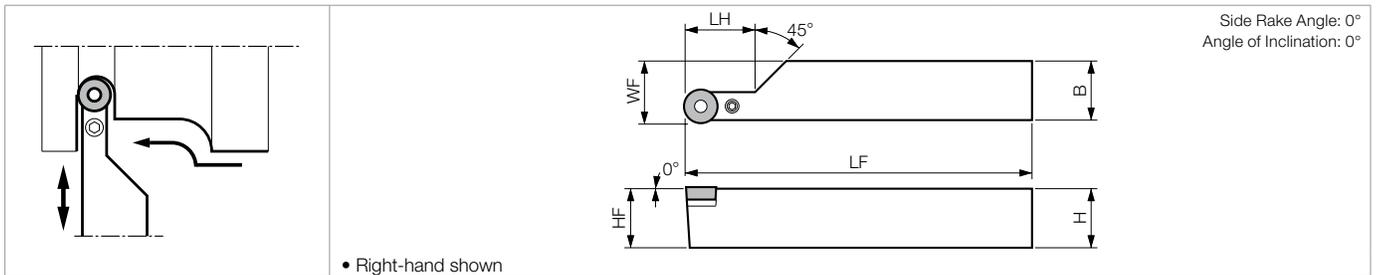
Toolholder	Insert	Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium	Roughing	Finishing-Medium	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
PVLN%...-16Q	VN□A VN□G VN□M	Insert	PP	% -VC	VF	PQ	TN-V	Standard	%	MQ	MS
PVPN%...-16Q		Size	33..	33..	33..	33..	33..	33..	33..	33..	33..
PVVNN...-16Q		Ref. Page	● B44	● B44	● B44	● B44	● B44	● B44	● B44	● B45	● B45
		Application	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials	
		Insert	MU	SG	KG	KH	Without Chipbreaker	Ceramic	PCD	CBN	
		Size	33..	33..	33..	33..	33..	33..	33..	33..	
		Ref. Page	● B45	● B45	● B45	● B45	● B45	● B112	● C23	● C12	

Recommended Cutting Conditions ● D39-D40

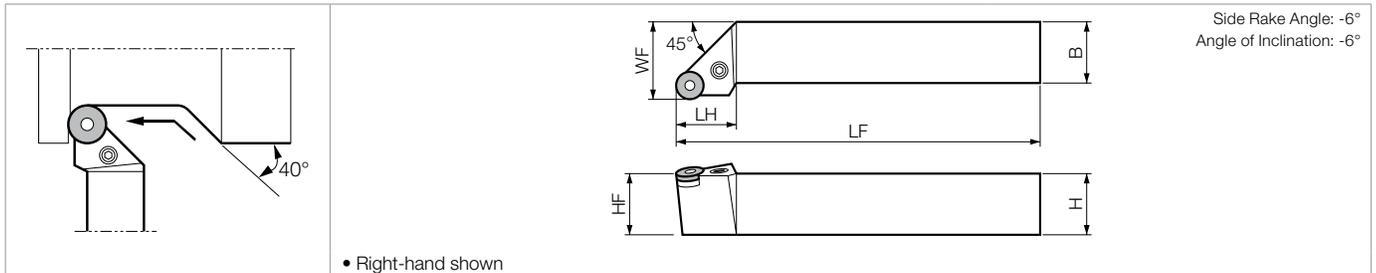
PRGC (External / Facing / Undercutting)



PRXC (External / Facing / Undercutting)



PRGN (External / Facing / Undercutting)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PRGC% 12-10MC	●	●	inch	0.75	0.75	0.75	5.00	0.60	1.00	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●		1.00	1.00	1.00	6.00	0.60	1.25	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRGC% 12-12MC	●	●		0.75	0.75	0.75	5.00	0.60	1.00	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
16-12MD	●	●	1.00	1.00	1.00	6.00	0.60	1.25	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
PRGC% 2020K-10	●	●	mm	20	20	20	125	15	25.0	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
2525M-10	●	●		25	25	25	150	15	32.0	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRGC% 2020K-12	●	●		20	20	20	125	14	25.0	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
2525M-12	●	●	25	25	25	150	17	32.0	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
PRXC% 12-10MC	●	●	inch	0.75	0.75	0.75	5.00	1.00	0.77	-	LL-05C	LX-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●		1.00	1.00	1.00	6.00	1.00	1.02	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRXC% 12-12MC	●	●		0.75	0.75	0.75	5.00	1.00	0.77	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
16-12MD	●	●	1.00	1.00	1.00	6.00	1.00	1.02	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
PRXC% 2020K-10	●	●	mm	20	20	20	125	25	20.5	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
2525M-10	●	●		25	25	25	150	30	25.5	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
2525Q-10	●	●		25	25	25	180	30	25.5	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRXC% 2525M-12	●	●	25	25	25	150	30	25.7	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
PRGN% 2020K-09	●	●	mm	20	20	20	125	19	25.0	-	LL-1N	LS-1N	LR-80	LSP-1	PC-1	FH-2.5
2525M-12	●	●		25	25	25	150	26	32.0	-	LL-2N	LS-2N	LR-81	LSP-2	PC-2	LW-3

Applicable Inserts

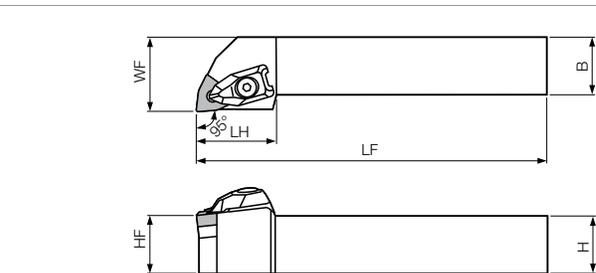
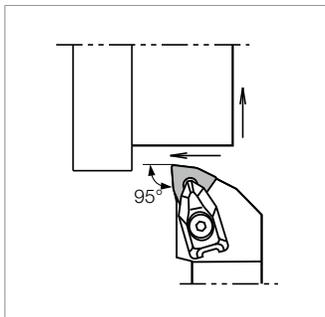
Toolholder	Insert	Toolholder	Insert
PR□C%...12-10..	RCGX	PRGC%...-10	1003M0
PR□C%...16-10..	RCMX	PRGC%...-12	1204M0
PR□C%...12-12..	RCGX	PRXC%...-10	1003M0
PR□C%...16-12..	RCMX	PRXC%...-12	1204M0
		PRGN%...-09	32
		PRGN%...-12	43

Application	Medium	Non-ferrous Metals	Medium-Roughing
Insert	Standard	AQ	Standard
Size	RC□X10.., RC□X12..	RC□X10..	RNMG32, RNMG43..
Ref. Page	➔ B74	➔ B74	➔ B31

Recommended Cutting Conditions ➔ D39-D40

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DWLN (External / Facing)



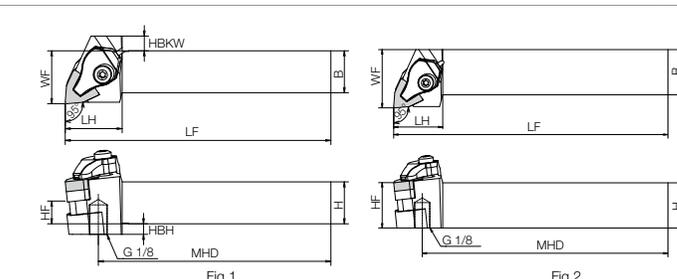
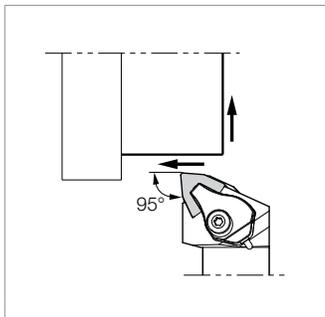
• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -6°

Applicable Inserts D25

Toolholder	Insert
DWLN% 12-3B	WN□G WN□M 33..
DWLN% 16-3D	
DWLN% 12-4B	WN□A WN□G WN□M 43..
DWLN% 16-4D	
DWLN% ...-08	

DWLN-JCT (External / Facing, Jet Coolant-Through) NEW



• Right-hand shown

Pressure Resistance: up to 4,350 psi

Side Rake Angle: -6°
Angle of Inclination: -6°

Applicable Inserts D25

Toolholder	Insert
DWLN% 12-4BJCT	WN□A WN□G WN□M 43..
DWLN% 16-4DJCT	
DWLN% ...-08JCT	

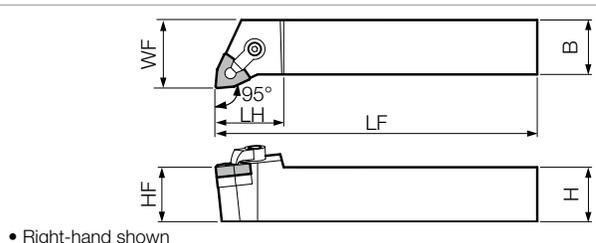
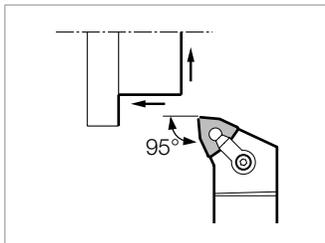
Toolholder Dimensions

JCT Coolant Connections and Pipe Parts D11

Part Number	Stock		Dimensions										Standard Corner-R (RE)	Drawing	Spare Parts							
	R	L	Unit	H	HF	HBH	B	HBKW	LF	LH	WF	MHD			Clamp	Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench
DWLN% 12-3B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.06	1.00	-	1/32	-	CP-2D	-	CS-2D	SP-2D	DW-32	SB-3080TR	LW-2.5	FT-10 Sold Separately
DWLN% 16-3D	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.06	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately
DWLN% 12-4B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.34	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately
DWLN% 16-4D	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.34	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately
DWLN% 2020K-08	●	●	mm	20	20	-	20	-	125	34	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately
DWLN% 2525M-08	●	●	mm	25	25	-	25	-	150	34	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately
DWLN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.06	1.00	0.39	1/32	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15
DWLN% 16-4DJCT	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.06	1.25	5.38	1/32	Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15
DWLN% 2020K-08JCT	●	●	mm	20	20	5	20	7	125	27	25	109	0.8	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15
DWLN% 2525M-08JCT	●	●	mm	25	25	-	25	-	150	27	32	134	0.8	Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15

*1 O-ring (SS-035) is available to order separately

MWLN (External / Facing)



• Right-hand shown

Side Rake Angle: -5°
Angle of Inclination: -5°

Applicable Inserts D25

Toolholder	Insert
MWLN% ...-12-4B	WN□A WN□G WN□M 43..
MWLN% ...-16-4D	

Toolholder Dimensions

Part Number	Stock		Dimensions							Standard Corner-R (RE)	Spare Parts						
	R	L	Unit	H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
MWLN% 12-4B	□	□	inch	0.75	0.75	0.75	4.50	1.19	1.00	1/32	CL-20	XNS-48	LW-156	IWSN432	S-46	NL46	LW-094
MWLN% 16-4D	●	●	inch	1.00	1.00	1.00	6.00	1.19	1.25	1/32	CL-20	XNS-48	LW-156	IWSN432	S-46	NL46	LW-094

PWLN (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

Applicable Inserts

Toolholder	Insert
PWLN%...12-3B	WN□G 33..
PWLN%...16-3D	WN□G 33..
PWLN%...-06	WN□A WN□G WN□M 43..
PWLN%...-08	WN□M 43..

• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PWLN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.87	1.00	1/32						
PWLN% 16-3D	●		inch	1.00	1.00	1.00	6.00	0.87	1.25							
PWLN% 1616H-06	●	●	mm	16	16	16	100	22	20	0.8						
PWLN% 2020K-06	●	●		20	20	20	125	22	25							
PWLN% 2525M-06	●	●		25	25	25	150	22	32							
PWLN% 2020K-08	●	●		20	20	20	125	26	25							
PWLN% 2525M-08	●	●		25	25	25	150	26	32							
										0.8						

WWLN (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

WWLN% 2020K type:
Shim Nut sticks out as shown below.

Applicable Inserts

Toolholder	Insert
WWLN%...-08	WN□A WN□G WN□M 43..

• Right-hand shown

Toolholder Dimensions

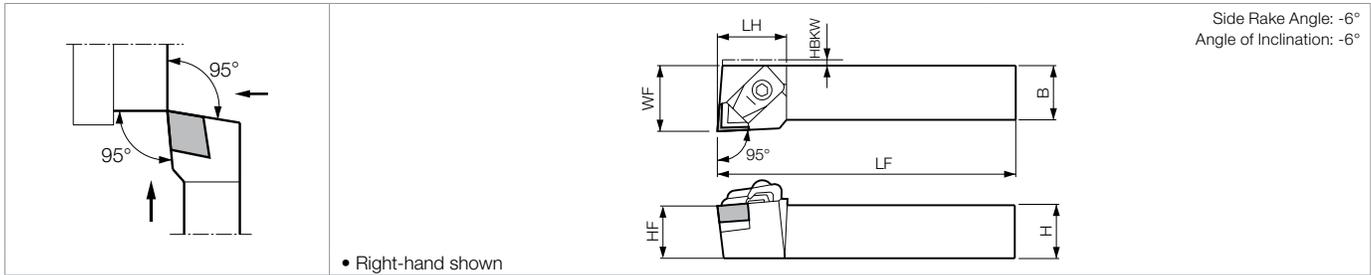
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Shim	Shim Pin	Shim Nut	Wrench
WWLN% 2020K-08	●	●	mm	20	20	20	125	30	25	1.2					
WWLN% 2525M-08	●	●		25	25	25	150	30	32							WCS-8	WWN-42	WP5X15	WN-1	LW-3

Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT
Size	43..	43..	43..	43..	43..	43..	33.., 43..	43..	43..	43..
Ref. Page	● B46	● B46	● B46	● B46	● B47	● B47	● B47	● B47	● B47	● B47
Application	Roughing	Finishing	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel Medium-Roughing	Stainless Steel Medium-Roughing	Heat-Resistant Alloy Roughing
Insert	Standard	%-S	%	XP	XQ	XS	MQ	MS	MU	SG
Size	43..	33..	33..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B47	● B49	● B49	● B48	● B48	● B48	● B48	● B48	● B48	● B48
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Hard Materials		
Insert	KQ	KG	KH	ZS	GC	AH	PCD	CBN		
Size	43..	43..	43..	43..	43..	43..	43..	43..		
Ref. Page	● B49	● B49	● B49	● B49	● B49	● B49	● C23	● C13		

• In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force. Recommended Cutting Conditions ● D39-D40

CCLN / HCLN (External / Facing)



Toolholder Dimensions

Part Number	Stock		Dimensions								Standard Corner-R (RE)	Spare Parts						
	R	L	Unit	H	HF	B	LF	LH	WF	HBKW		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
CCLN% 2020K-12	●	●		20	20	20	125	32	27	5	0.8	CB-16	CE-010	LW-4	SP-441 (SP-443)	M3X8 (M3X12)	-	-
2525M-12	●	●	mm	25	25	25	150	32	32	-								
CCLN% 3225P-16	●	●		32	32	25	170	35	32	-	0.8	CB-17	CE-220	LW-4	SP-454	M4X10	-	-
HCLN% 16-4D	●	□	inch	1.00	1.00	1.00	6.00	1.26	1.25	-	1/32	HCB318	HCL008	LW-4	ICSN433 (ICSN453)	S-46	NL46L	LW-094

• Shim & Shim Screw: When using CN□□43 Insert, purchase spare parts in () separately.

Applicable Inserts

Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Ref. Page	● B106	● C19
Shape	Ceramic	CBN (KBN900)
Toolholder		
CCLN% ...-12	CNG45.., (CNG43..) CNM45	(CNM43..)
CCLN% ...-16	CNG55..	-

Application	Cast Iron / Hard Materials	Cast Iron / Hard Materials
Ref. Page	● B106	● B106
Shape	Ceramic	Ceramic
Toolholder		
HCLN% ...-16-4D	CNG 45.. (43..)	CN□A 45.. (43..)

Recommended Cutting Conditions ● **D39-D40**

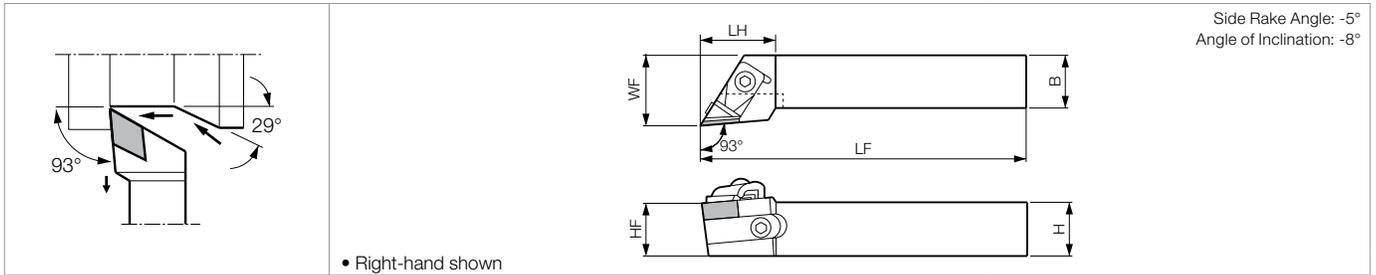
Ceramic Insert Selection Guide

Select the suitable ceramic specifications (Corner-R(RE), Feed Rate, Chamfer, etc.) from the table below.

(No.45, Cutting Edge Angle: 0°~15°)

Insert Shape	Corner-R (RE)	f (ipr)										D.O.C.	
		0.004	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	0.024		
	RN	-	→										0.012~0.157
	SN	2.0	→										0.012~0.157
		1.6	→										
	EN	1.2	→										
	CN	0.8	→										
		0.4	→										
	TN	1.6	→										0.012~0.079
		1.2	→										
	DN	0.8	→										
Chamfer		0.002"×20°		(0.004"~0.008")×(20°~25°)				0.012"×30°				-	
Insert Thickness		5/16"										-	

CDJN (External / Copying / Back Turning)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CDJN% 2525M-15	●	●	mm	25	25	25	150	32	32	0.8					
3225P-15	●	●		32	32	25	170	32	32		CB-14/15	CE-010	LW-4	556C%	HH5X16

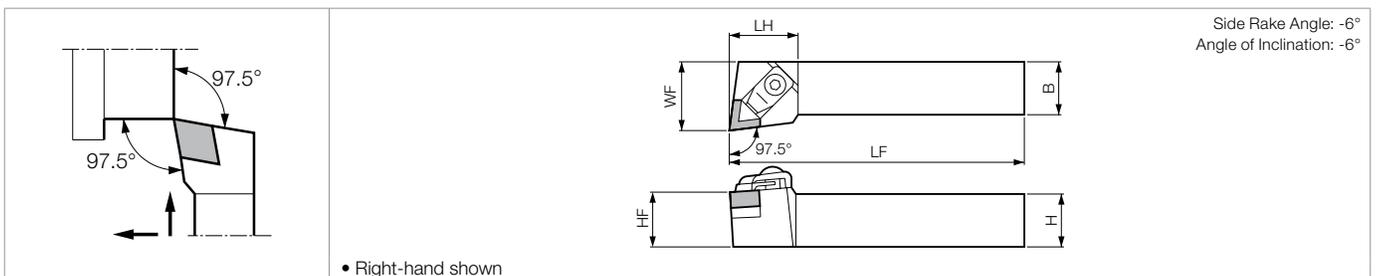
- Chipbreaker: CB-14 for Right-hand Toolholder, and CB-15 for Left-hand Toolholder.
- Shim: 556CR for Right-hand Toolholder, and 556CL for Left-hand Toolholder.

Applicable Inserts

Application	Cast Iron / Hard Materials
Ref. Page	● B107
Shape	Ceramic
Toolholder	
CDJN%...-15	DNG45..

Recommended Cutting Conditions ● D39-D40

CELN (External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CELN% 2525M-13	●	●	mm	25	25	25	150	32	32	0.8					

Applicable Inserts

Application	Cast Iron / Hard Materials
Ref. Page	● B107
Shape	Ceramic
Toolholder	
CELN%...-13	ENG45..

Recommended Cutting Conditions ● D39-D40

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CSRN / HSRN (External)

Side Rake Angle: -6°
Angle of Inclination: -4°

• Right-hand shown

CS-N (External)

Side Rake Angle: -6°
Angle of Inclination: -4°

• Right-hand shown

CSKN (Facing)

Side Rake Angle: -6°
Angle of Inclination: -4°

• Right-hand shown

CSYN (Facing)

Side Rake Angle: -6°
Angle of Inclination: -4°

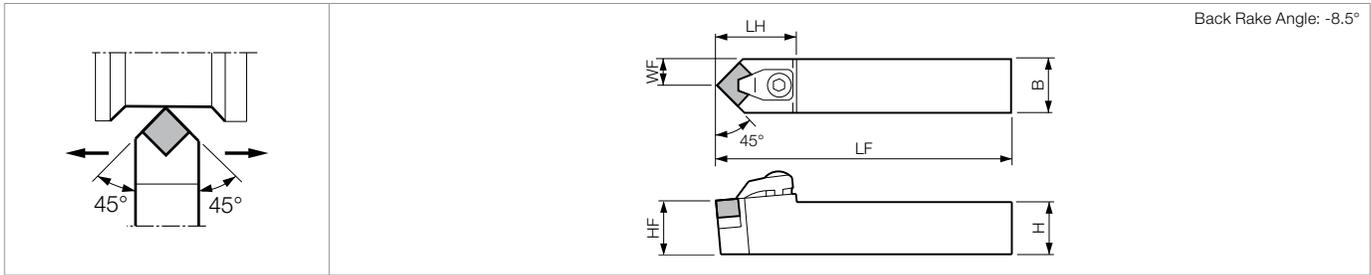
• Right-hand shown

CSSN (External / Facing / Chamfering)

Side Rake Angle: -6°
Angle of Inclination: 0°

• Right-hand shown

CSDN / HSDN (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions								Standard Corner-R (RE)	Spare Parts								
	R	N	L		H	HF	B	LF	LH	WF	HBKW	WFS		Chipbreaker	Clamp Set			Wrench	Shim	Shim Screw	Lock Pin	Wrench
CSRN% 20-4E	●		●	inch	1.25	1.25	1.25	7.00	0.88	1.50	-	-	1/32	CB-11	CE-020			LW-4	SP-141	M3X8	-	-
CSRN% 2020K-12	●		●	mm	20	20	20	125	22	22.0	2	-	0.8	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	22	27.0	-	-		CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
3225P-12	●		●		32	32	25	170	22	27.0	-	-		CB-51	CE-220			LW-4	SP-162	M4X10	-	-
3225P-15	●		●		32	32	25	170	30	32.4	-	-		CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
4040R-15	●		●		40	40	40	200	30	43.0	-	-		CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CS-N% 2525M-12	●		●	mm	25	25	25	150	20	32.0	-	-	0.8	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSKN% 2020K-12	●			mm	20	20	20	125	27	25.0	-	-	0.8	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	27	32.0	-	-		CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
3225P-15	●				32	32	25	170	37	32.0	-	-		CB-51	CE-220			LW-4	SP-162	M4X10	-	-
CSYN% 2525M-12	●		●	mm	25	25	25	150	27	32.0	-	-	0.8	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSSN% 16-4D	●		●	inch	1.00	1.00	1.00	6.00	1.00	1.25	-	-	1/32	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSSN% 2020K-12	●			mm	20	20	20	125	26	25.0	-	16	0.8	CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	26	32.0	-	23		CB-11	CE-020			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSDNN 2020K-12		●		mm	20	20	20	125	32	10.0	-	-	0.8	-	CE-040			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M-12		●			25	25	25	150	32	12.5	-	-		-	CE-040			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
3225P-12		●			32	32	25	170	32	12.5	-	-		-	CE-040			LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
HSRN% 16-4D	●		●	inch	1.00	1.00	1.00	6.00	0.87	1.13	-	-	1/32	HCB300	HCL-000 (HCL-001)			LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094
HSDNN 16-4D		●		inch	1.00	1.00	1.00	6.00	1.30	0.500	-	-	1/32	-	HCL-002			LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094
20-4D		●			1.25	1.25	1.25	6.00	1.30	0.625	-	-		-	HCL-002			LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094

● Shim & Shim Screw : When using SN□□43 Insert, purchase spare parts in () separately.

Applicable Inserts

Application	Cast Iron / Hard Materials	Cast Iron / Hard Materials	Cast Iron	Hard Materials / Cast Iron	When using as toolholder for CBN tools (KBN900), prepare spare parts below separately.		
Ref. Page	● B109, B110	● B109	● B35	● C19			
Shape	Ceramic	Ceramic	Coated Carbide	CBN (KBN900)	Clamp Set	Shim	Shim Screw
Toolholder							
CSRN% ...-4E CSRN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSRN% ...-15	SNG55..	-	-	-	-	-	-
CS-N% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSKN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSKN% ...-15	SNG55..	-	-	-	-	-	-
CSYN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSSN% ...-4D CSSN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSDNN...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	*	SP-143	M3X12
HSRN% ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)	(SNM43..)	HCL-001	ISSN453	S-46
HSDNN...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)	(SNM43..)	*	ISSN453	S-46

● Shim & Shim Screw : When using SN□□43 Insert, purchase spare parts in () separately.

*CSDNN...-12: Clamp Set CE-040 is used continuously.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

Recommended Cutting Conditions ● D39-D40

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

CTJN (External)

93°

• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -4°

CTUN (Facing)

93°

• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -4°

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF	HBKW		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CTJN% 16-3D	●	●	inch	1.00	1.00	1.00	6.00	0.88	1.25	-	1/32	CB-12/13	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
CTJN% 16-4D	●	●		1.00	1.00	1.00	6.00	0.88	1.25	-						
CTJN% 2020K-16	●	●	mm	20	20	20	125	21	25	2	0.8	CB-12/13	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
CTJN% 2525M-16	●	●		25	25	25	150	21	32	-						
CTUN% 2020K-16	●	●		20	20	20	125	27	25	-	0.8	CB-13/12	CE-020	LW-4	SP-221 (SP-223)	M3X8 (M3X12)
CTUN% 2525M-16	●	●		25	25	25	150	27	32	-						

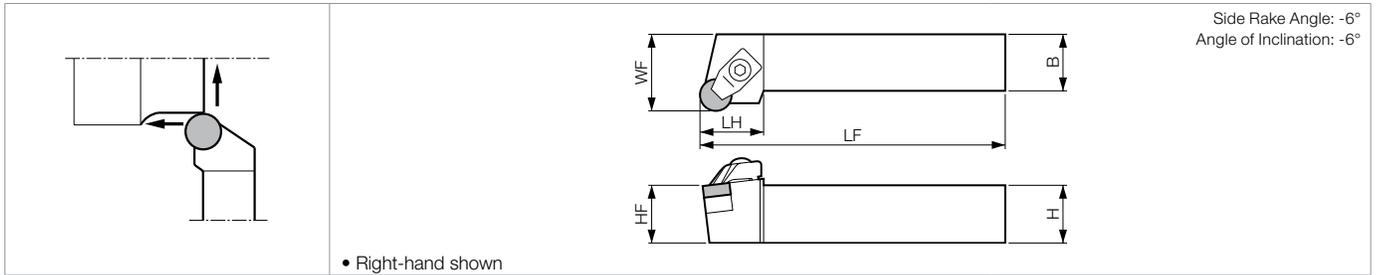
- CTJN (Chipbreaker): CB-12 for Right-hand Toolholder, CB-13 for Left-hand Toolholder.
- CTUN (Chipbreaker): CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.
- Shim & Shim Screw: When using TN□□33 Insert, purchase spare parts in () separately.

Applicable Inserts

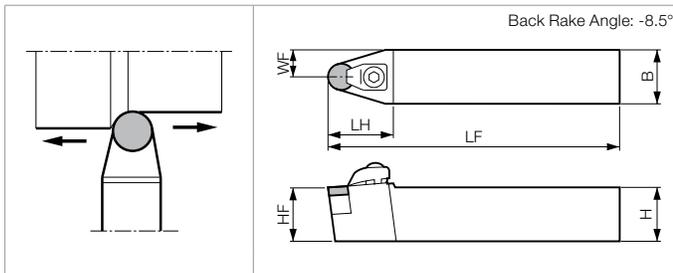
Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Ref. Page	● B111	● C19
Shape	Ceramic	CBN (KBN900)
Toolholder		
CTJN%...-3D	TNG35.. (TNG33..) (TNM33..)	(TNM33..)
CTJN%...-4D	TNG45.. (TNG43..) (TNM43..)	(TNM43..)
CTJN%...-16	TNG35.. (TNG33..)	(TNM33..)
CTUN%...-16	TNG35.. (TNG33..) (TNM33..)	(TNM33..)

Recommended Cutting Conditions ● D39-D40

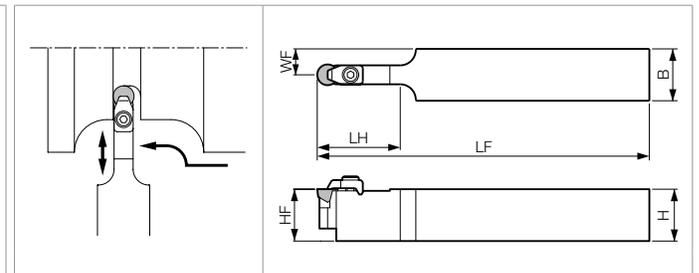
CRSN / HRSN (External / Facing)



CRDN (External / Copying)



CRDC (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
												CE HCL	LW	SP HSH	M S		
CRSN% 2020K-12	●		●	mm	20	20	20	125	26	25.0	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	26	32.0							
3225P-12	●		●		32	32	25	170	26	32.0							
CRDNN 16-4D		●		inch	1.00	1.00	1.00	6.00	1.13	0.500	-	CE-030	LW-4	SP-841 (SP-843)	M3X8	-	-
20-4E		●			1.25	1.25	1.25	7.00	1.13	0.625							
CRDNN 2020K-12		●		mm	20	20	20	125	28	10.0	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)	-	-
2525M-12		●			25	25	25	150	28	12.5							
3225P-12		●			32	32	25	170	28	12.5							
3232P-15		●			32	32	32	170	35	16.0							
4040R-15		●			40	40	40	200	35	20.0							
HRSN% 16-4D	●		□	inch	1.00	1.00	1.00	6.00	1.03	1.250	-	HCL-001	LW-4	IRSN43 (IRSN45)	S-46	NL46L	LW-094
20-4D	●		□		1.25	1.25	1.25	6.00	1.03	1.500							
CRDCN 16-2		●		inch	1.00	1.00	1.00	8.00	1.00	0.500	-	HCL-017C	LW-2	HSH665A	-	-	-
16-3		●			1.00	1.00	1.00	8.00	1.50	0.500							
20-3		●			1.25	1.25	1.25	8.00	1.50	0.625							
20-4		●			1.25	1.25	1.25	8.00	2.00	0.625							
20-6		●			1.25	1.25	1.25	8.00	2.00	0.625							
		●															

● Shim & Shim Screw : When using RN□43 Insert, purchase spare parts in () separately.

Applicable Inserts

Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron	When using as toolholder for CBN tools (KBN900), prepare spare parts below separately.			Application	Cast Iron / Hard Materials
Ref. Page	● B108	● C19	Clamp Set	Shim	Shim Screw	Ref. Page	● B114
Shape						Shape	
Toolholder						Toolholder	
CRSN% ...-12	RNG45.. (RNG43..)	(RNM43..)	CE-030A	SP-843	M3X12	CRDCN ...-2	RCGX 102..
CRDNN ...-4D/4E CRDNN ...-12	RNG45.. (RNG43..)	(RNM43..)	CE-030A	SP-843	M3X12	CRDCN ...-3	RCGX 35.., 103..
CRDNN ...-15	RNG55..	-	-	-	-	CRDCN ...-4	RCGX 45.., 104..
HRSN% ...-4D	RNG45.. (RNG43..)	(RNM43..)	HCL-001	IRSN45	S-46	CRDCN ...-6	RCGX 106..

Recommended Cutting Conditions ➔ D39-D40

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CCRN-A (External)

Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

CCLN-A (External / Facing)

Side Rake Angle: -5°
Angle of Inclination: -5°

• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw
	CCRN% 2525M-09A	●		●	mm	25	25	25	150		27	27	0.8	
CCLN% 2525M-09A	●	●	mm	25	25	25	150	28	32	0.8				

Applicable Inserts

Application	Hard Materials / Cast Iron
Ref. Page	C19
Shape	CBN (KBN900)
Toolholder	
CCRN%...-09A	CNM32..
CCLN%...-09A	

* For CNM43 Insert toolholder [D26](#)

Recommended Cutting Conditions [D39-D40](#)

CRSN-A (External / Facing)

Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

CRDN-A (External / Copying)

Back Rake Angle: -8.5°

Toolholder Dimensions

Part Number	Stock			Unit	Dimensions					Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH		WF	Clamp Set	Wrench	Shim		Shim Screw
CRSN% 2525M-09A	●		●	mm	25	25	25	150	26	32.0	-					HH3X12
	●		●		32	32	25	170	26	32.0						
	●		●		25	25	25	150	26	32.0						
	●		●		32	32	25	170	26	32.0						
CRDNN 2525M-09A		●			25	25	25	150	29	12.5	-					HH3X12
		●			32	32	25	170	29	12.5						
		●			25	25	25	150	28	12.5						
		●			32	32	25	170	28	12.5						

• -12A toolholder Shim: When using RN□□1204 Insert, purchase spare parts: SP-843 in () separately.

Applicable Inserts

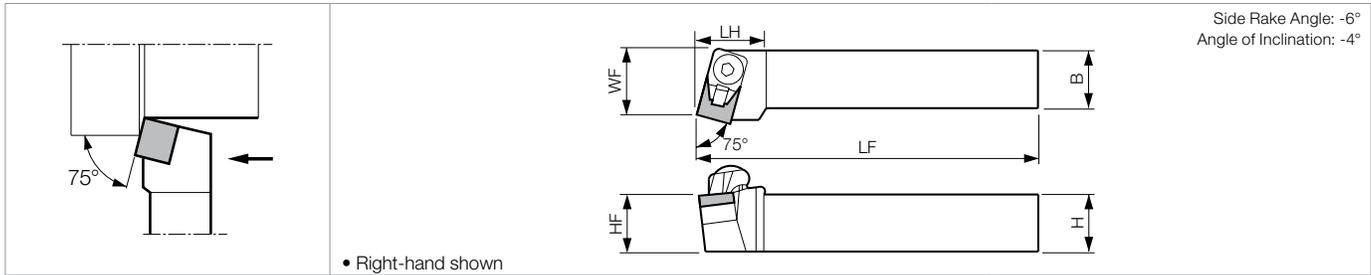
Application	Hard Materials / Cast Iron	Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.	
			Shim	Shim Screw
Ref. Page	● C19	● B108		
Toolholder	CBN (KBN900)	Ceramic		
CRSN%...-09A	RNM32	(RNG33)	SP-826	-
CRSN%...-12A	RNM42 (RNM43)	(RNG43)	SP-843	M3X12
		(RNG45)	SP-841	M3X8
		(RNG33)	SP-826	-
CRDNN...-09A	RNM32	(RNG43)	SP-843	M3X12
CRDNN...-12A	RNM42 (RNM43)	(RNG45)	SP-841	M3X8

Recommended Cutting Conditions ● D39-D40

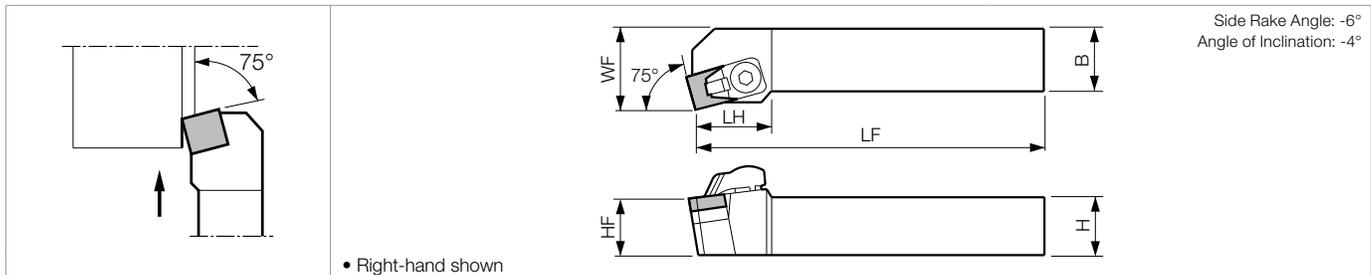
INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

D TURNING HOLDERS

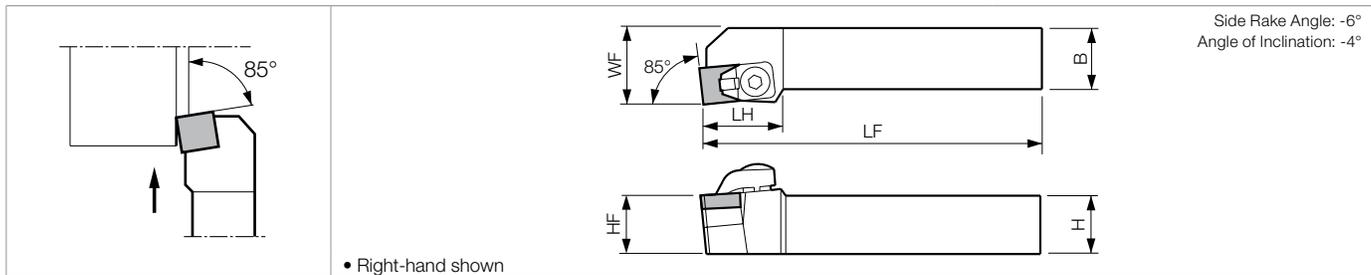
CSRN-A (External)



CSKN-A (Facing)



CSYN-A (Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim		Shim Screw
CSRN% 2525M-09A	△	△	mm	25	25	25	150	22	27	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M-12A	●	●		25	25	25	150	22	27				-	SP-148 (SP-143)	BH3X12
CSKNR 2525M-09A	●			25	25	25	150	27	32	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M-12A	△			25	25	25	150	29	32				-	SP-148 (SP-143)	BH3X12
CSYN% 2525M-09A	△	△		25	25	25	150	27	32	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M-12A	△	△		25	25	25	150	27	32				-	SP-148 (SP-143)	BH3X12

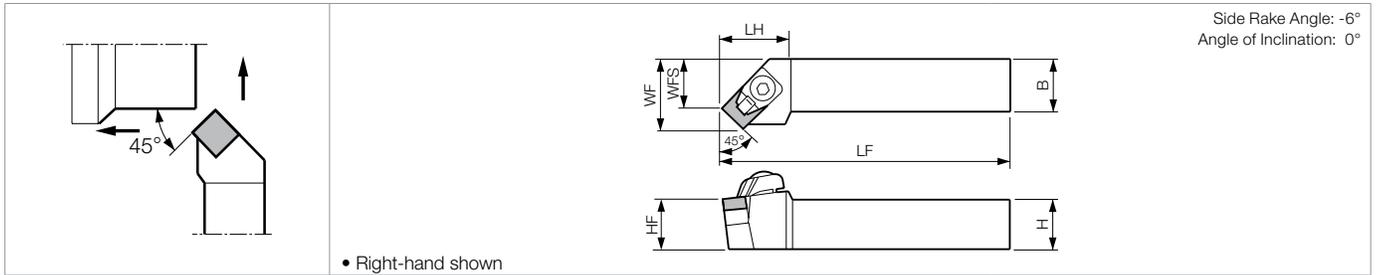
• -12A toolholder Shim: When using SN□□43 Insert, purchase spare parts: SP-143 in () separately.

Applicable Inserts

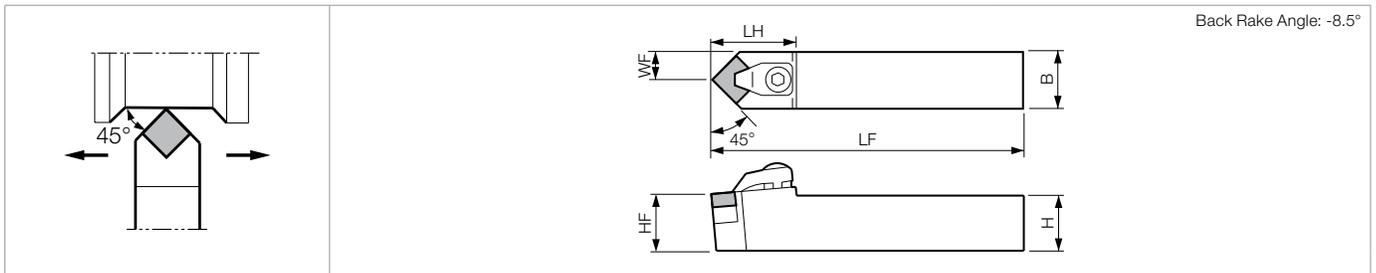
Application	Hard Materials / Cast Iron		Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.				
	Ref. Page	● C19		● B35	Chipbreaker	Clamp Set	Shim	Shim Screw
Toolholder	Shape	CBN (KBN900)	Coated Carbide	Ceramic				
CSRN%...-09A	SNM32..	-	-	-	-	-	-	-
CSRN%...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	CB-11	CE-020	SP-143 SP-141	M3X12 M3X8	
CSKN%...-09A	SNM32..	-	-	-	-	-	-	-
CSKN%...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	CB-11	CE-020	SP-143 SP-141	M3X12 M3X8	
CSYN%...-09A	SNM32..	-	-	-	-	-	-	-
CSYN%...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	CB-11	CE-020	SP-143 SP-141	M3X12 M3X8	

Recommended Cutting Conditions **D39-D40**

CSSN-A (External / Facing / Chamfering)



CSDN-A (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions							Standard Corner-R (RE)	Spare Parts				
	R	N	L		H	HF	B	LF	LH	WF	WFS		Clamp Set	Wrench	Shim	Shim Screw	
CSSN% 2525M-09A	●		●	mm	25	25	25	150	26	32.0	25	0.8	CE-030A	LW-4	SP-129	-	HHX12
	2525M-12A	●	●		25	25	25	150	26	32.0	23				-	SP-148 (SP-143)	BH3X12
CSDNN 2525M-09A		●			25	25	25	150	32	12.5	-	0.8	CE-040	LW-4	SP-129	-	HHX12
	3225P-09A		△		32	32	25	170	32	12.5	-				-	SP-148 (SP-143)	BH3X12
	2525M-12A		●		25	25	25	150	32	12.5	-				-	SP-148 (SP-143)	BH3X12

• -12A toolholder Shim: When using SN□□43 Insert, purchase spare parts: SP-143 in () separately.

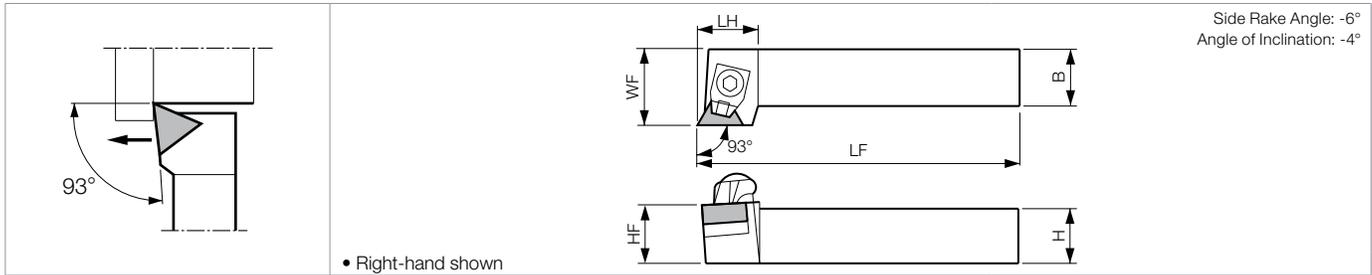
Applicable Inserts

Application	Hard Materials / Cast Iron	Cast Iron	Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.			
Ref. Page	C19	B35	B109, B110	Chipbreaker	Clamp Set	Shim	Shim Screw
Toolholder Shape	CBN (KBN900)	Coated Carbide	Ceramic				
CSSN%...-09A	SNM32..	-	-	-	-	-	-
CSSN%...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..)	CB-11	CE-020	SP-143	M3X12
			(SNG45..) (SNM45..)			SP-141	M3X8
CSDNN...-09A	SNM32..	-	-	-	-	-	-
CSDNN...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..)	-	-	SP-143	M3X12
			(SNG45..) (SNM45..)			SP-141	M3X8

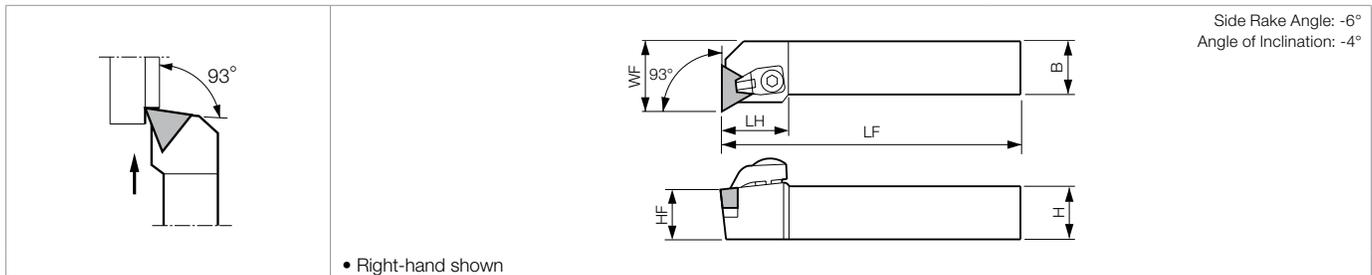
Recommended Cutting Conditions **D39-D40**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CTJN-A (External)



CTUN-A (Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(RE)	Spare Parts			
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw
	CTJN% 2525M-11A	●		●	mm	25	25	25	150		22	32	0.8	
CTUN% 2525M-11A	△	△	mm	25	25	25	150	27	32	0.8				

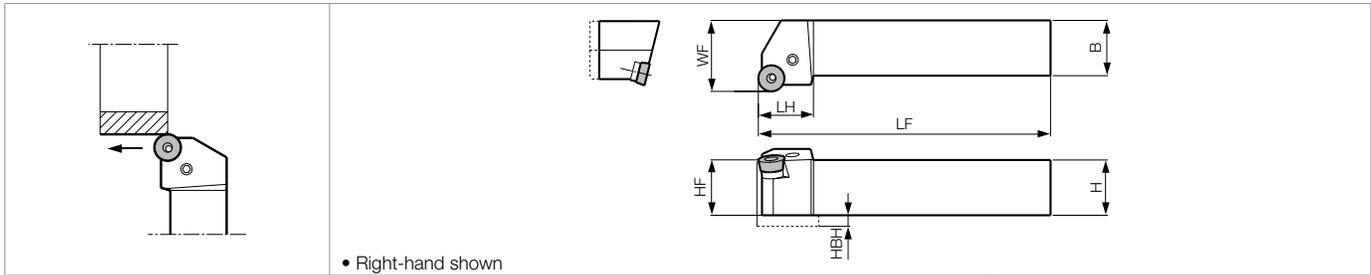
Applicable Inserts

Application	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Ref. Page	● C19	● B111
Shape	CBN (KBN900)	Ceramic
Toolholder		
CTJN%...-11A	TNM22..	TNG22..
CTUN%...-11A		

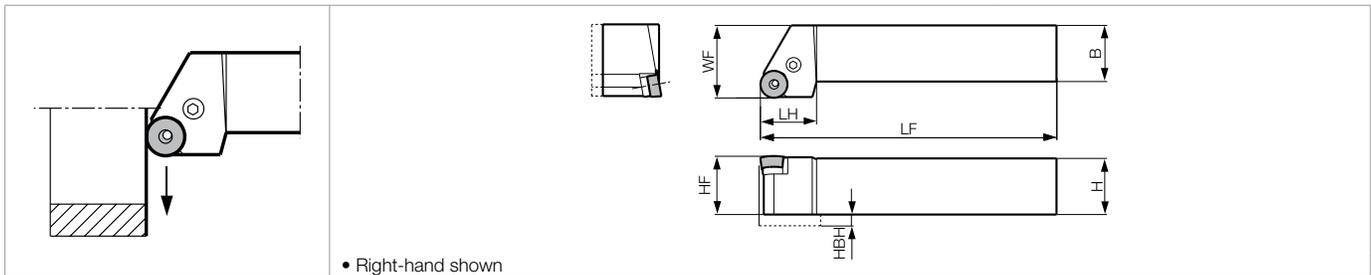
* TNM33 Insert toolholder is described in ● D30

Recommended Cutting Conditions ● D39-D40

PRGC-BE (External)



PRGC-BF (Facing)



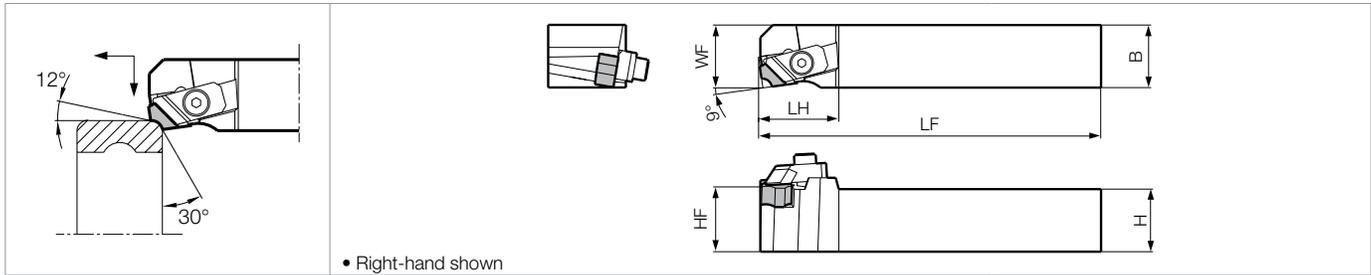
Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Spare Parts						Applicable Inserts ➔ B103	
			H	HF	HBH	B	LF	LH	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench		
PRGCR 2020K-12BE	△	mm	20	20	-	20	125	22	25	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	RCMT 1204M0-BB	
	●		25	25	-	25	150	25	32								
2525M-12BE	●		25	25	-	25	150	27	29	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5		RCMT 1606M0-BB
	△		20	20	5	20	125	22	25								
2020K-16BE	△		20	20	5	20	125	22	25	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5		RCMT 1204M0-BB
	△		25	25	-	25	150	27	32								
2525M-16BE	△		25	25	-	25	150	27	25	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5		RCMT 1606M0-BB
	△		20	20	-	20	125	22	25								
PRGCR 2020K-12BF	△	20	20	-	20	125	22	25	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	RCMT 1204M0-BB		
	△	25	25	-	25	150	27	32									
2525M-12BF	△	25	25	-	25	150	27	25	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5	RCMT 1606M0-BB		
	△	20	20	5	20	125	22	25									
2020K-16BF	△	20	20	5	20	125	22	25	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	RCMT 1204M0-BB		
	△	25	25	-	25	150	27	32									
2525M-16BF	△	25	25	-	25	150	27	25	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5	RCMT 1606M0-BB		
	△	20	20	5	20	125	22	25									

Recommended Cutting Conditions ➔ D39-D40

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CBSN (External Corner Filletting)



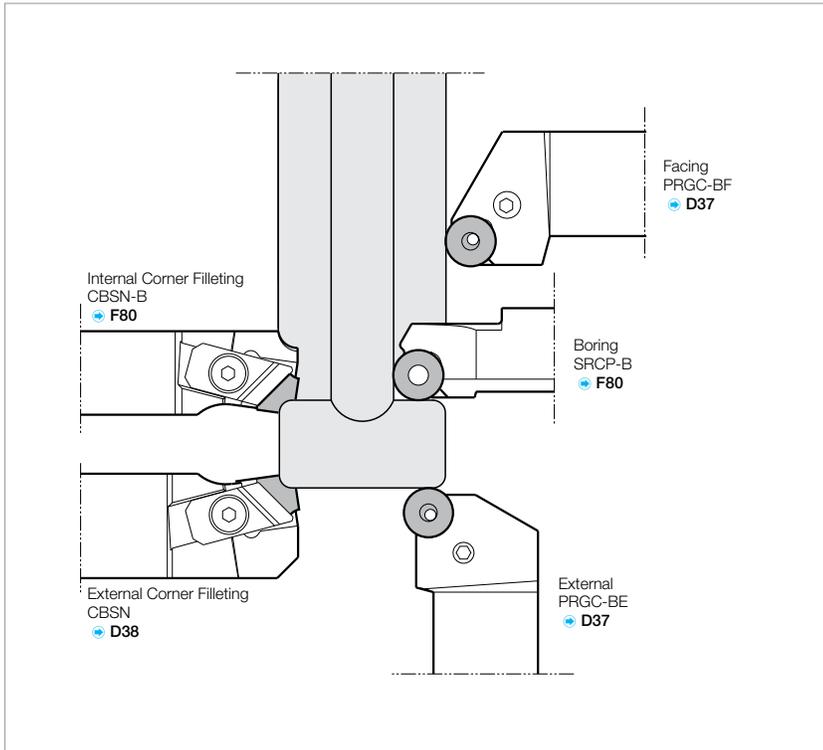
Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Spare Parts				Applicable Inserts ➔ B103
	R	L		H	HF	B	LF	LH	WF	Clamp Set	Wrench	Shim	Shim Screw	
CBSN 2020K-12	●	●	mm	20	20	20	125	32	20					SNMF1204○○-21
2525M-12	●	●		25	25	25	150	32	25	CP-RC%	LW-5	SP-RC	SP3X8	

• Clamp Set: CP-RCR for Right-hand Toolholder, and CP-RCL for Left-hand Toolholder.

Recommended Cutting Conditions ➔ D39-D40

Tooling for Bearing Machining



RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions - External Turning (Negative Insert) [D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit			INSERT GRADES	
								Vc (sfm)	D.O.C. (in)	Feed Rate (ipr)		TURNING INSERTS
P	Low Carbon Steel Low Carbon Alloy	HB 300	Finishing (High Speed)	Continuous	XP	CCX	1/32	980 - 1970 - 2620	0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008	A	
			Finishing (Small D.O.C.)	Continuous Interruption	XF	PV710 PV720	1/64 1/32	820 - 1150 - 1710 790 - 1050 - 1570	0.002 - 0.005 - 0.024 0.002 - 0.006 - 0.024	0.001 - 0.004 - 0.009 0.002 - 0.005 - 0.010	B	
			Finishing (Gloss Oriented)	Continuous Interruption	XP	TN610 TN620	1/64 1/32	820 - 1050 - 1310 790 - 1020 - 1210	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008	C	
			Finishing (Tool Life Oriented)	Continuous Interruption	XP	PV710 PV720	1/64 1/32	820 - 980 - 1210 790 - 950 - 1120	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008	C	
			Finishing-Medium (Gloss Oriented)	Continuous Interruption	XQ	TN610 TN620	1/64 1/32	820 - 1050 - 1310 790 - 920 - 1120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012	D	
			Finishing-Medium (Tool Life Oriented)	Continuous Interruption	XQ	PV710 PV720	1/32 1/32	820 - 980 - 1210 790 - 920 - 1120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012	D	
			Medium-Roughing	Continuous Interruption	XS	PV720 CA515	1/32 1/32	720 - 850 - 1050 520 - 690 - 850	0.031 - 0.059 - 0.079 0.031 - 0.059 - 0.079	0.010 - 0.012 - 0.016 0.010 - 0.012 - 0.016	E	
			Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 3/64	590 - 720 - 850 490 - 660 - 790	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016	E	
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	490 - 660 - 790 390 - 590 - 720	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018	F	
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	F	
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	G	
	Medium Carbon Steel Medium Carbon Alloy	HB 300	Finishing (Time Oriented)	Continuous Interruption	WF (Wiper)	PV710 CA515	1/32 1/32	660 - 820 - 1050 520 - 720 - 920	0.012 - 0.020 - 0.039 0.012 - 0.020 - 0.039	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016	H	
			Finishing-Medium (Time Oriented)	Continuous Interruption	WE (Wiper)	PV710 CA025P	1/32 1/32	590 - 720 - 920 430 - 590 - 790	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016	H	
			Finishing (High Speed)	Continuous	PP	CCX	1/32	660 - 980 - 1480	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011	I	
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610	1/64 1/32	660 - 820 - 1050 590 - 750 - 980	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014	J	
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 PV720	1/64 1/32	660 - 820 - 1050 660 - 790 - 950	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014	J	
			Finishing-Medium (Gloss Oriented)	Continuous Interruption	PQ	TN610 TN620	1/32 3/64	590 - 750 - 980 520 - 720 - 850	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010	K	
			Finishing-Medium (Tool Life Oriented)	Continuous Interruption	PQ	PV710 CA025P	1/32 1/32	520 - 690 - 920 460 - 660 - 790	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010	K	
			Medium-Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 3/64	490 - 660 - 790 390 - 530 - 660	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016	L	
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	390 - 590 - 750 330 - 490 - 660	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018	M	
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	N	
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	N	
	High Carbon Alloy	HB 280	Finishing (High Speed)	Continuous	PP	CCX	1/32	660 - 980 - 1310	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011	O	
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610 TN620	1/64 1/32	490 - 660 - 920 460 - 590 - 790	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014	P	
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 CA515	1/64 1/32	390 - 590 - 850 330 - 490 - 660	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014	R	
			Finishing-Medium	Continuous Interruption	PQ	CA515 CA025P	1/32 1/32	390 - 520 - 720 330 - 460 - 590	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.006 - 0.010 - 0.012 0.006 - 0.008 - 0.010	R	
			Medium-Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 1/32	390 - 490 - 660 330 - 430 - 590	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.020 0.006 - 0.008 - 0.012	S	
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	330 - 460 - 590 260 - 390 - 520	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018	T	
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	T	
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028	T	

RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions - External Turning (Negative Insert) [D.O.C. Indicates Radius]

D
TURNING
HOLDERS

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit					
								Vc (sfm)	D.O.C. (in)	Feed Rate (ipr)			
M	Stainless Steel (Austenitic)	HB 220	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620	1/32	390 - 520 - 660	0.020 - 0.039 - 0.059	0.002 - 0.006 - 0.008			
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64	390 - 590 - 790	0.020 - 0.039 - 0.059	0.002 - 0.006 - 0.008			
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/64	390 - 520 - 660	0.039 - 0.079 - 0.118	0.004 - 0.008 - 0.012			
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/32	260 - 460 - 590	0.039 - 0.079 - 0.118	0.006 - 0.010 - 0.016			
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	3/64	260 - 390 - 490	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016			
	Stainless Steel (Precipitation Hardened)	HB 300	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620	1/32	330 - 390 - 490	0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.006			
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64	330 - 390 - 490	0.020 - 0.039 - 0.059	0.002 - 0.006 - 0.008			
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/32	260 - 330 - 390	0.039 - 0.079 - 0.118	0.004 - 0.006 - 0.008			
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/64	330 - 390 - 490	0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.010			
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	3/64	200 - 260 - 330	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016			
K	Gray Cast Iron	HB 250	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN475 KBN900 KBN900	1/32	1310 - 2620 - 3940	0.002 - 0.008 - 0.020	0.004 - 0.008 - 0.012			
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32	980 - 1150 - 1310	0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012			
			Finishing (Ceramic)	Continuous	Without Chipbreaker	KA30 PT600M	3/64	980 - 1640 - 2300	0.012 - 0.020 - 0.039	0.004 - 0.008 - 0.012			
			Medium (Ceramic)	Continuous Interruption	Without Chipbreaker	CS7050 KS6050	3/64	980 - 1480 - 1800	0.039 - 0.079 - 0.118	0.006 - 0.010 - 0.014			
			Medium	Continuous Interruption	KH	CA310 CA315	3/64	660 - 820 - 980	0.020 - 0.079 - 0.098	0.004 - 0.008 - 0.012			
			Roughing	Continuous Interruption	KH	CA310 CA315	3/64	490 - 660 - 820	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016			
	Nodular Cast Iron	HB 270	High Speed Machining	Continuous	Without Chipbreaker	KBN60M PT600M	1/64	660 - 980 - 1310	0.004 - 0.012 - 0.020	0.004 - 0.006 - 0.008			
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32	490 - 820 - 980	0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012			
			Medium	Continuous Interruption	KG	CA310 CA315	3/64	390 - 590 - 720	0.020 - 0.079 - 0.098	0.003 - 0.006 - 0.008			
			Roughing	Continuous Interruption	KG KH	CA315 CA320	3/64	490 - 660 - 820	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016			
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB 100	High Speed Machining (Glossy Surface)	Continuous	Without Chipbreaker	KPD001	1/64	980 - 2620 - 6560	0.002 - 0.020 - 0.039	0.002 - 0.004 - 0.006			
			Finishing (Long Tool Life)	Continuous Interruption	A3	PDL025	1/32	1310 - 1640 - 2300	0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010			
			Finishing	Continuous Interruption	A3	KW10	1/32	1310 - 1640 - 2300	0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010			
			Medium	Continuous Interruption	AH	KW10	1/32	660 - 980 - 1640	0.039 - 0.079 - 0.138	0.004 - 0.012 - 0.016			
S	Titanium Alloys	HB 400	Precision Finishing (Glossy Surface)	Continuous Interruption	Without Chipbreaker	KPD001	1/64	330 - 490 - 590	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006			
			Finishing	Continuous Interruption	MQ	SW05	1/64	130 - 230 - 330	0.008 - 0.020 - 0.039	0.002 - 0.006 - 0.008			
			Medium	Continuous Interruption	MU	SW05	1/32	130 - 200 - 260	0.020 - 0.039 - 0.118	0.004 - 0.010 - 0.014			
	Heat-resistant Alloys	HB 350	Finishing	Continuous Interruption	MQ	PR005S PR015S	1/64	100 - 180 - 300	0.008 - 0.012 - 0.039	0.002 - 0.003 - 0.006			
			Medium	Continuous Interruption	SQ	PR005S PR015S	1/32	80 - 150 - 230	0.012 - 0.020 - 0.059	0.004 - 0.007 - 0.014			
			Roughing	Continuous Interruption	SG	PR005S PR015S	1/32	100 - 180 - 300	0.020 - 0.079 - 0.157	0.004 - 0.012 - 0.016			
				Continuous Interruption	SX	PR005S PR015S	1/32	80 - 150 - 230	0.020 - 0.079 - 0.157	0.004 - 0.012 - 0.016			
				Continuous Interruption	-	-	-	100 - 180 - 300	0.020 - 0.079 - 0.157	0.006 - 0.012 - 0.018			
			H	Hardened Steel Hard Materials	40-50 HRC	Finishing	Continuous Interruption	PQ Standard	CA515	1/32	200 - 330 - 390	0.004 - 0.012 - 0.020	0.002 - 0.003 - 0.004
					40-50 HRC	Finishing	Continuous	Without Chipbreaker	PT600M	1/32	200 - 250 - 325	0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006
Continuous	Without Chipbreaker	PT600M					3/64	100 - 125 - 200	0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006			
50-65 HRC	Finishing	Continuous Interruption			ME MET	KBN05M	1/32	325 - 500 - 650	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004			
		Continuous Interruption			Without Chipbreaker	KBN900	3/64	300 - 450 - 600	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004			
50-68 HRC	Medium	Continuous Interruption	Without Chipbreaker	KBN900	3/64	250 - 325 - 400	0.020 - 0.039 - 0.079	0.002 - 0.004 - 0.008					
Radius					Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006					

SMALL TOOLS

E

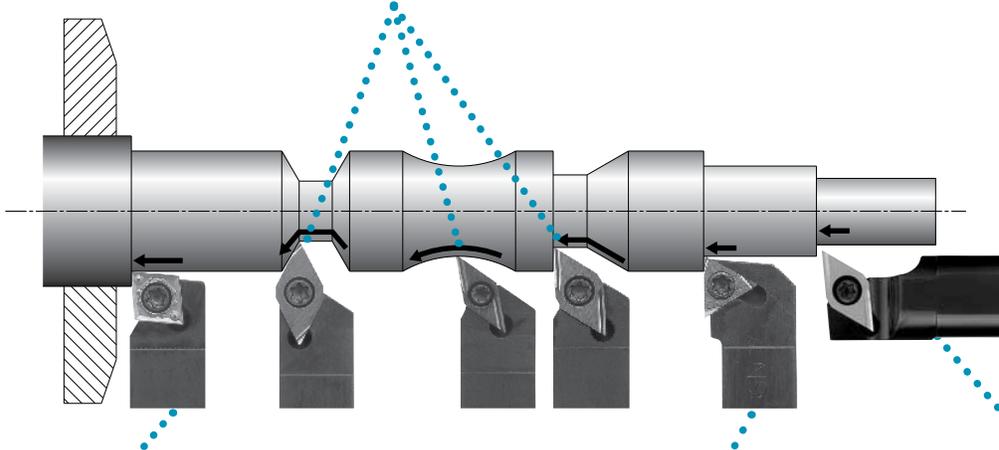
E1 - E56

TURNING SUMMARY	E2 - E10
IDENTIFICATION SYSTEM	E11
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TKFB INSERT	(Back Turning / Goose-neck / Y-axis) E12, E14
TKFB-GTP	(Back Turning) E13
TKF-AGT / TKF-AS INSERT	(Back Turning) E18
ABS INSERT	(Back Turning) E19
ABW INSERT	(Back Turning) E20
GOOSE-NECK HOLDER	E22 - E23
DC INSERT	(Goose-neck Holder) E22
VP INSERT	(Goose-neck Holder) E23
EXTERNAL TURNING (BACK CLAMP / SCREW CLAMP)	E24 - E36
CC INSERT	(Without Offset / With Offset) E24
DC INSERT	(Without Offset / With Offset) E26
DP INSERT	(Without Offset) E32
TC / TP INSERT	E33
VB / VC INSERT	(Without Offset / With Offset) E34
VP INSERT	(Without Offset / With Offset) E39
EXTERNAL SLEEVE HOLDER TOOLS	E41 - E43
CC INSERT	E41
DC INSERT	E42
VB / VC INSERT	E43
SMALL DOUBLE-SIDED TOOLING (SCREW CLAMP)	E44 - E45
CN / DN INSERT	(Without Offset) E44
TN INSERT	(Without Offset) E45
SMALL DOUBLE-SIDED TOOLING (LEVER LOCK)	E46 - E47
CN INSERT	(Without Offset) E46
TN INSERT	(Without Offset) E47
SUB-SPINDLE TOOLS (FOR STAR™ MACHINES)	E48 - E50
RECOMMENDED CUTTING CONDITIONS	E51 - E52
NEW PART DESCRIPTION REFERENCE TABLE	E53 - E56

TURNING SUMMARY

External / Copying

						
ADJC-FF	SDJC-FF(JCT) SDJC-FF-Y	SDJC	SDLC-FF SDLP-FF	SDLN	SDNC-F	SDNC
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp
E26	E26, E27, E28	E27	E30, E32	E44	E31	E31



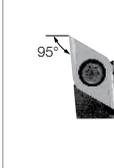
External / Facing

			
ACLC-FF	SCLC-FF(JCT)	SCLC	SCLN-FF
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset
E24	E24, E25	E25	E44

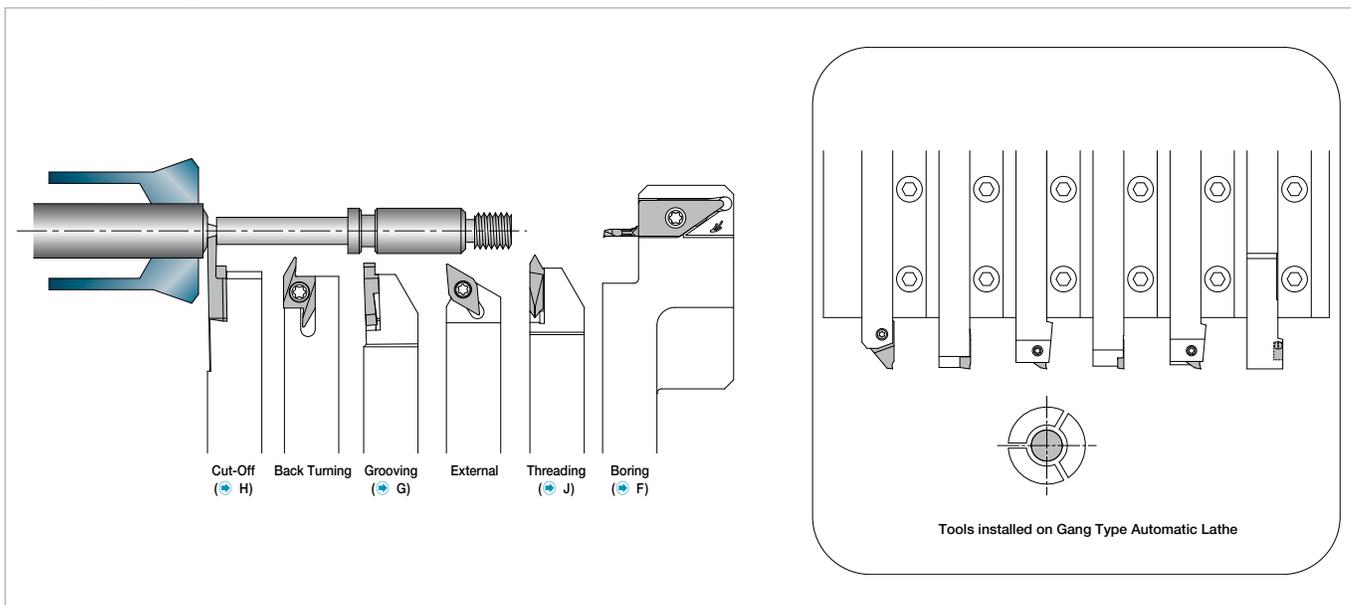
External

	
STGC(P)	STLN-FF
Screw Clamp	Screw Clamp Without Offset
E33	E45

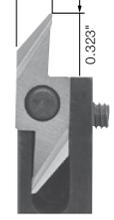
External Sleeve Holder

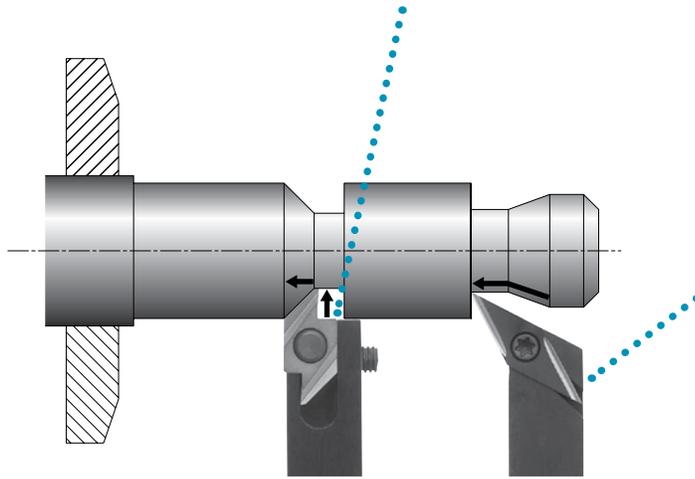

S...SDLC
Screw Clamp Shank Dia. Ø0.625"~Ø1.000" Ø12.0mm~Ø25.4mm
E42

Tooling Example ① - CNC Automatic Lathe (Gang Type)



Back Turning

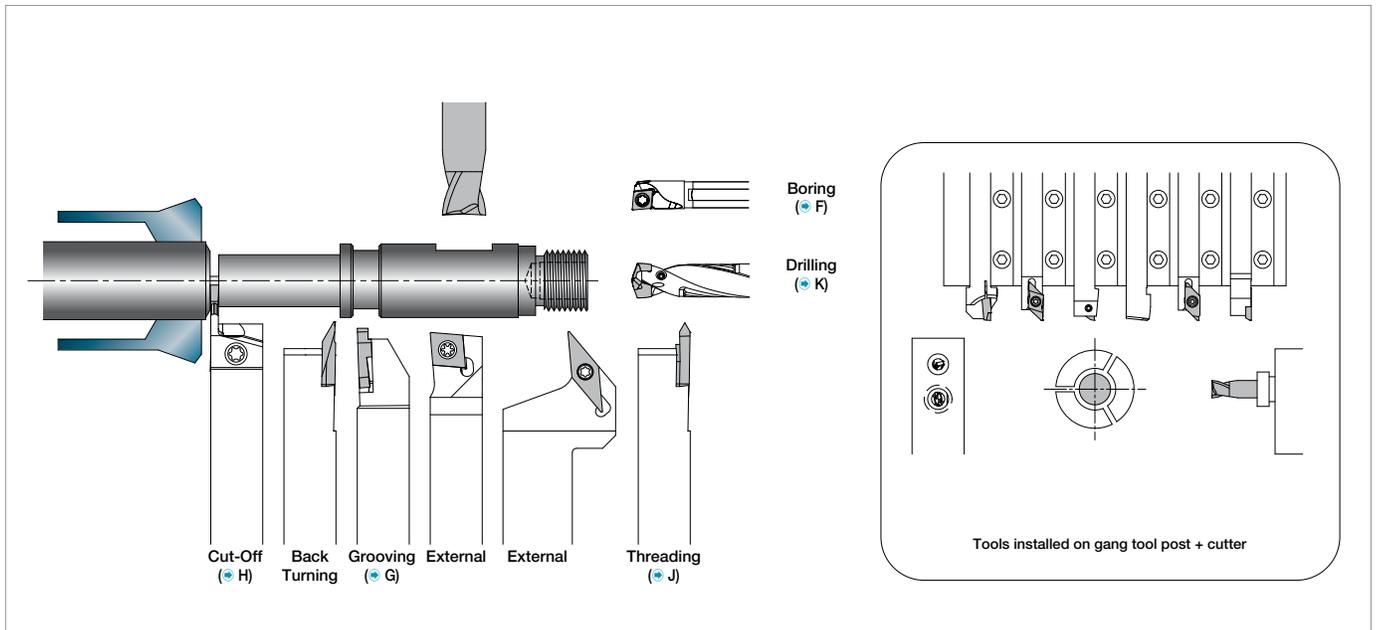
						
AABS-40F	SABS-40F	AABW-40F	SABW-40F	AABW-50F	SABW-50F	KTKF
Back Clamp Edge Width: 0.110" / 2.8mm D.O.C. ~0.158" / ~4.0mm	Screw Clamp Edge Width: 0.110" / 2.8mm D.O.C. ~0.158" / ~4.0mm	Back Clamp Edge Width: 0.185" / 4.7mm D.O.C. ~0.158" / ~4.0mm	Screw Clamp Edge Width: 0.185" / 4.7mm D.O.C. ~0.158" / ~4.0mm	Back Clamp Edge Width: 0.185" / 4.7mm D.O.C. ~0.197" / ~5.0mm	Screw Clamp Edge Width: 0.185" / 4.7mm D.O.C. ~0.197" / ~5.0mm	Screw Clamp Edge Width: 0.059"-0.150" / 1.5mm-3.8mm D.O.C. 0.071"-0.217" / 1.8mm-5.5mm
 E19	 E19	 E20	 E20	 E21	 E21	 E12



External / Facing / Copying / Undercutting

	
SVPB	SVPP-FF
Screw Clamp	Screw Clamp (Without Offset)
 E35	 E40

Tooling Example ② - CNC Automatic Lathe (Gang Type)



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Goose-Neck Toolholder

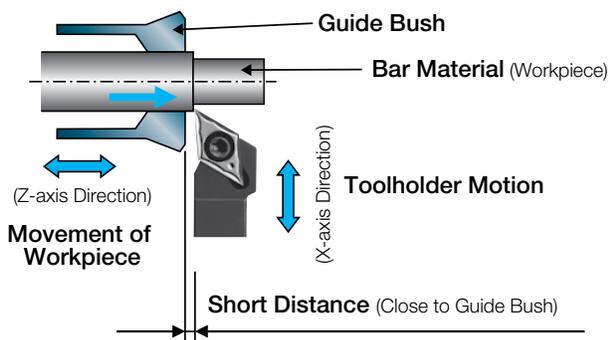
for Swiss Tool Automatic Lathe (Gang Edge Tool Post)



Swiss Tool Automatic Lathe (Guide Bush System)

The Goose-neck Holder works with automatic lathes that do not move toolholders in longitudinal direction (Z-axis)

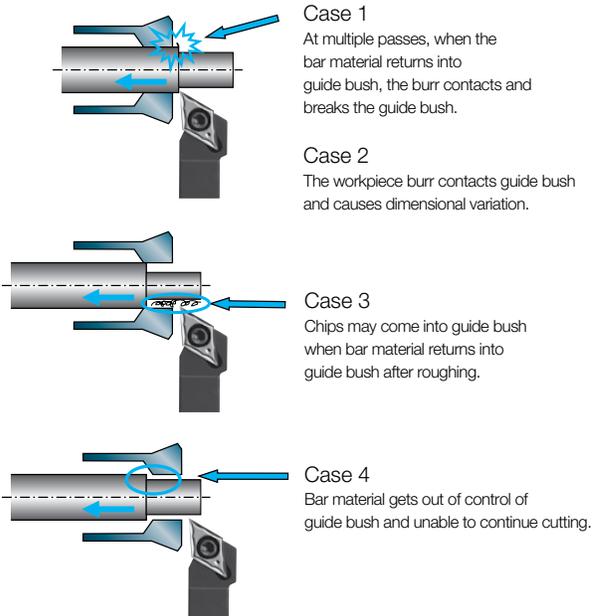
When Using a Conventional Toolholder



Tool position is fixed and workpiece moves longitudinally

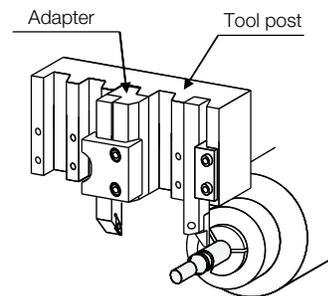
Problems When Using a Conventional Toolholder

Problems When Machining with a Conventional Toolholder



Toolholder Installation Problems When Using a Conventional Toolholder

- 1) Additional space is required for an adapter.
- 2) Toolholder's handling is difficult due to limited space.
- 3) It is necessary to buy an adapter.
- 4) An adapter may interfere with the next toolpost

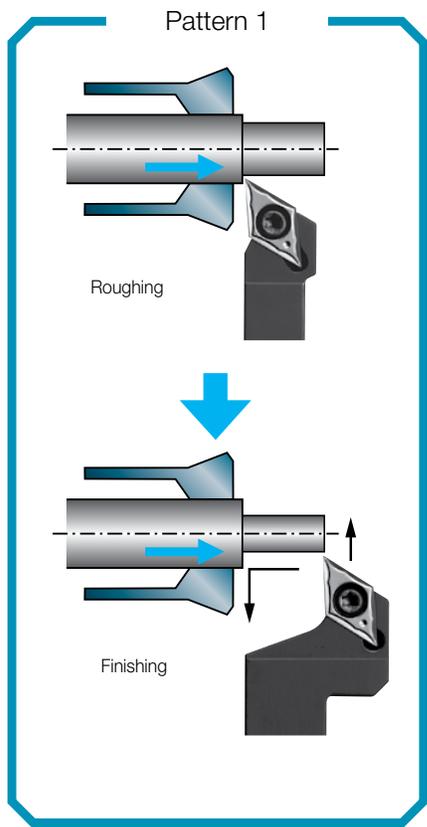


ADVANTAGES

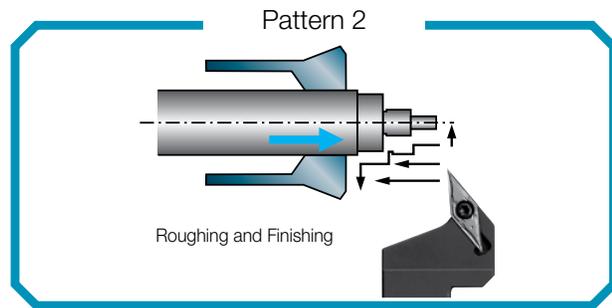
of the Goose-Neck Holder

- 1) Additional finishing process improves machining precision
- 2) Chips do not enter guide bushing
- 3) Large chip evacuation space produces better chip control

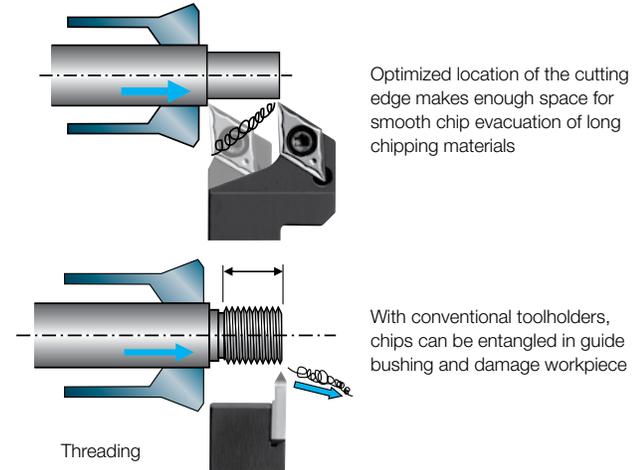
Available for machining after roughing without returning bar material into guide bushing, prevents damages and improves precision.



Available for machining from roughing to finishing with a single Goose-neck Holder.



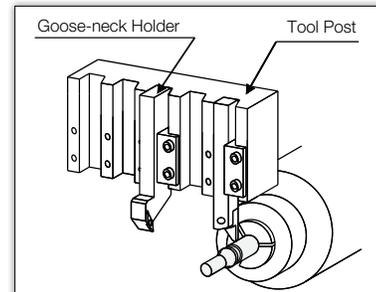
For smooth chip control



Advantages of Toolholder Installation

Using Goose-neck Holder

- 1) Maximum number of toolholders can be attached
- 2) No interference with next tool post



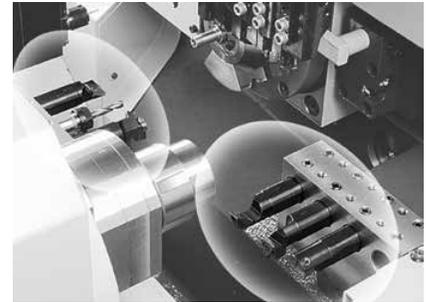
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

External Sleeve Holder

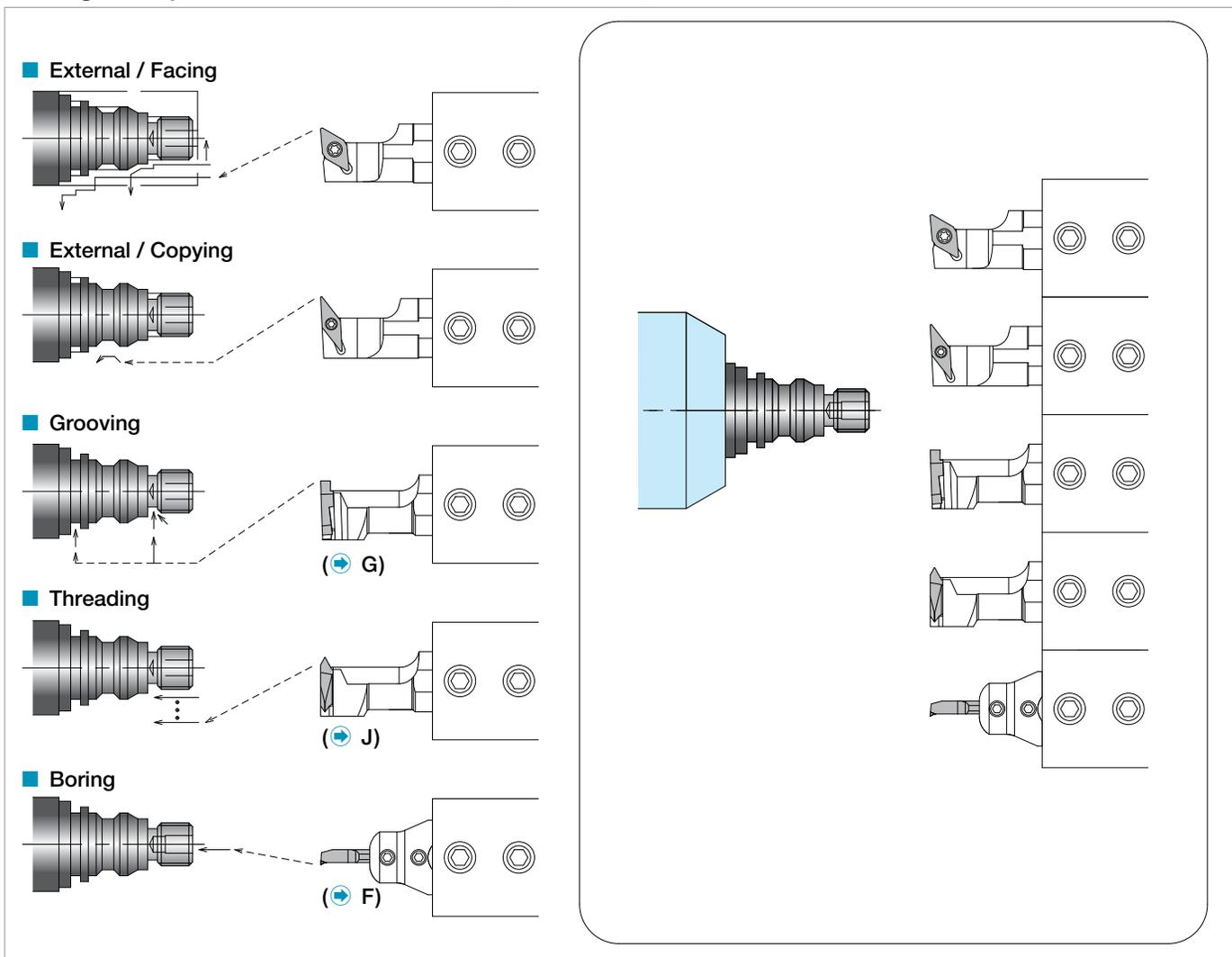
More Tools for CNC Automatic Lathe

Use External Sleeve Holders → → → With Attachable Tools During Intricate Part Machining

S...SCLC	S...SDUC	S...SDLC	S...SVUB(C)
Screw Clamp Shank Dia. Ø0.625"~Ø1.000" Ø12.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø0.625"~Ø1.000" Ø14.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø0.625"~Ø1.000" Ø12.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø0.625"~Ø1.000" Ø12.0mm~Ø25.4mm
➔ E41	➔ E42	➔ E42	➔ E43



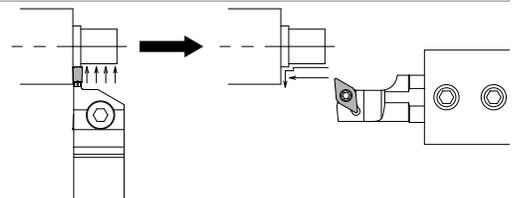
Tooling Example ③ - CNC Automatic Lathe (Opposed Gang Type)



See Page ➔ **R66-R71** for Automatic Lathe List of Machine Manufacturer and Tooling Examples

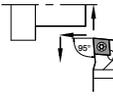
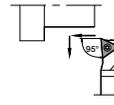
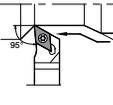
Examples of Finishing with Sleeve Holder

- 1) Roughing by Grooving Toolholder
- 2) Finishing by Sleeve Holder Improves Chip Control and Reduces Cutting Time



Double-Sided Swiss Tools (Screw Clamp)

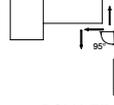
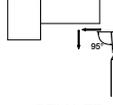


Application	External / Facing	External / Up Facing	External / Copying
Cutting Edge Angle	95°	95°	95°
Screw Clamp (Without Offset)	 SCLN	 STLN	 SDLN
Ref. Page	E44	E45	E44

The double-sided design offers less cost per insert and more stability. Sharp cutting performance equivalent to conventional positive inserts.

Double-Sided Toolholder for Automatic Lathe (Without Offset / Lever Lock)



Application	External / Facing	External / Up Facing
Cutting Edge Angle	95°	95°
Lever Lock (Without Offset)	 PCLN-FF	 PTLN-FF
Ref. Page	E46	E47

The Lever Lock type is available for small tools with external turning.

Double-Sided Toolholder for Automatic Lathe (Without Offset / Lever Lock)

Boring (F)
 Drilling (K)

Cut-Off (H) Turning
 Back External External Grooving Threading (G) (J)

See Page [R66-R71](#) for Automatic Lathe List of Machine Manufacturer and Tooling Examples

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Screw-Clamp-JCT

Coolant-Through Turning Holders for Small Parts Machining

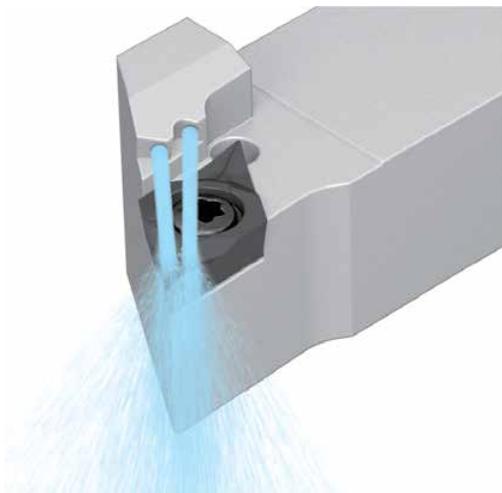
Double Coolant Hole Design Delivers an Ample Supply of Coolant to the Cutting Edge
Excellent Chip Control and Longer Tool Life

1 Superior Chip Control Performance

2 Sufficient Cooling of the Cutting Edge Leads to Longer Tool Life

Double coolant hole design provides coolant to the insert cutting edge surface

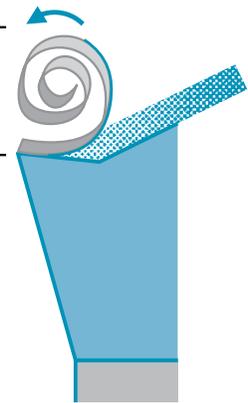
E
SMALL
TOOLS



Double Coolant Holes

Provides stable chip curls for superior chip control

The cutting edge stays cool increasing tool life



Insert cross-section

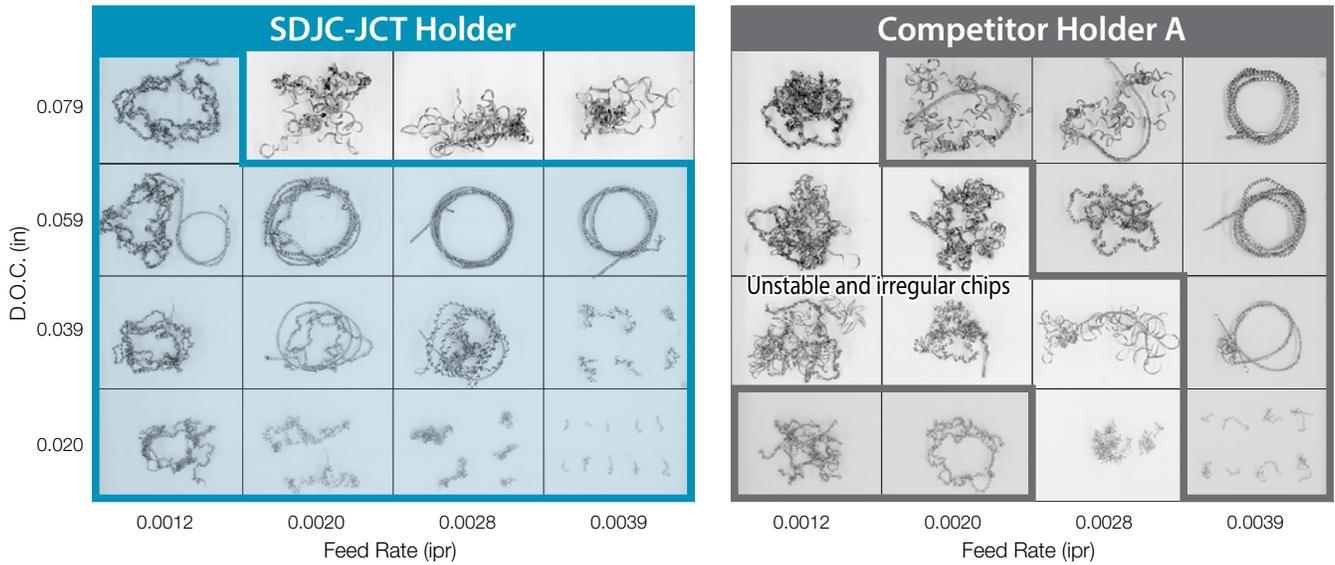
Coolant System Comparison (Internal Evaluation)

	Screw-Clamp-JCT Holder	Competitor A Holder
Coolant System	<p>Discharges coolant towards the rake surface of insert</p> <p>Chip Evacuation Direction</p>	<p>Discharges coolant down onto the chip forcing the chip into the part</p> <p>Chip Evacuation Direction</p>
Superior Chip Control	Excellent : Provides stable chip curls	Poor : Chip becomes unstable
Coolant Effects	Excellent : Ensures proper cooling of the cutting edge	Poor : Chip can cause interference with the workpiece

COOLANT THROUGH HOLDERS FOR SMALL PARTS TURNING

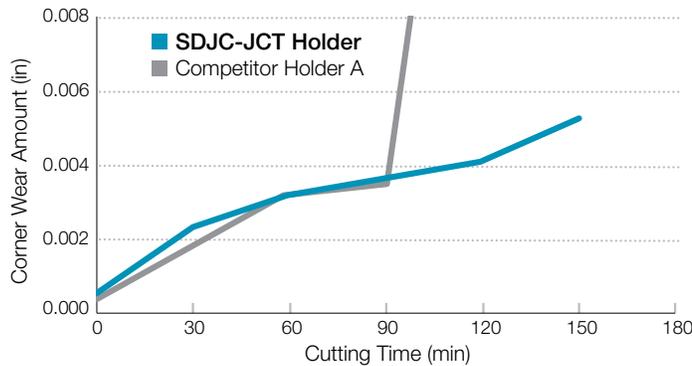
Chip Control Comparison (Internal Evaluation)

SDJC-JCT holder allows excellent chip control in a wide range of cutting conditions



Cutting Conditions: $V_c = 260$ sfm, DCGT32505MP-CK PR1535 (Same inserts were used) Workpiece: Ti-6Al-4V External and Internal Coolant (218 psi) Turning

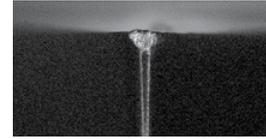
Great for High Pressure Coolant Wear Resistance Comparison (Internal Evaluation)



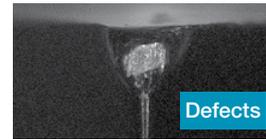
Cutting Conditions: $V_c = 660$ sfm, External Turning: D.O.C. = 0.079", $f = 0.0020$ ipr, Facing: D.O.C. = 0.008", $f = 0.0012$ ipr DCGT32505MFP-GQ PR1535 (Same inserts were used) Workpiece: 304 External and Internal Coolant (218 psi) External Turning and Facing

Cutting Edge

SDJC-JCT Holder (After Machining 150 min)



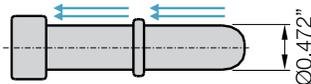
Competitor A Holder (After Machining 106 min)



Case Studies

Pipe - Stainless Steel

$V_c = 525$ sfm
D.O.C. = 0.035" / 0.047"
 $f = 0.007$ ipr
Wet (Internal Coolant: 14MPa)
DCMT3251 Insert



Chip Control

SDJC-JCT Holder
(Internal Coolant)



Good
Chip
Control

Competitor Holder B
(Internal Coolant)



Change to SDJC-JCT improved chip control and tool life.

(User Evaluation)

Pin - Tool Steel

$V_c = 590$ sfm
D.O.C. = 0.055"
 $f = 0.005$ ipr
Wet
DCMT3251 Insert



Chip Control

SDJC-JCT Holder
(Internal Coolant: 360 psi)



Good
Chip
Control

Conventional Holder
(External Coolant)



SDJC-JCT holder with internal coolant improved chip control.
Reduced chip entanglement

(User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Small Parts Machining

KTKF

E12

Back Turning

TKFB

E12

GQ Chipbreaker

Double function chipbreaker for improved chip control



TKFB-GQ

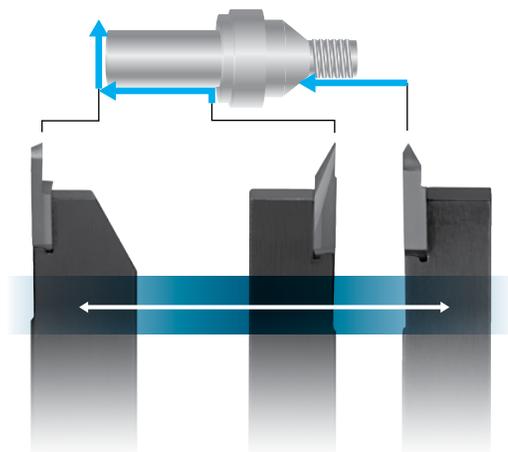
NEW

PR1725

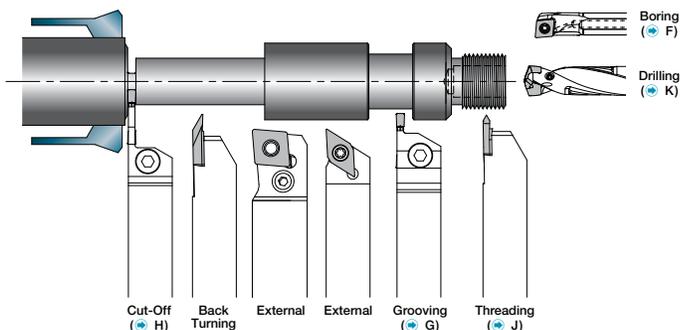
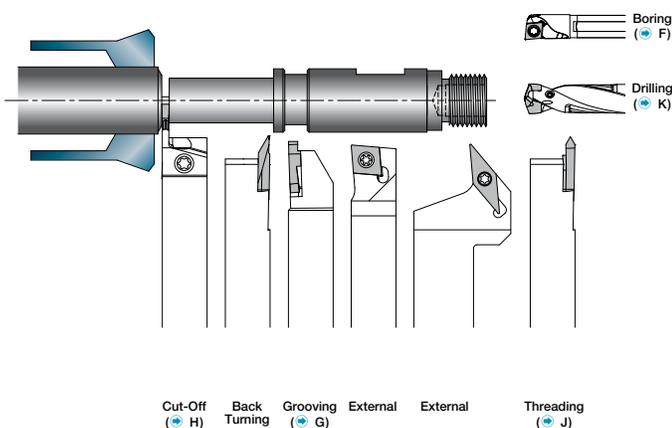
Insert grade for Steel and Stainless

PR1535

Insert grade for Stainless and HRSA



Tooling Examples of KTKF Toolholders



Cutting Edge Shape

For Small D.O.C.		For General Purpose		For Large D.O.C.	
Part Number	Cutting Edge Length L	Part Number	Cutting Edge Length L	Part Number	Cutting Edge Length L
TKFB12R15..	0.083"	TKFB12R28..	0.165"	TKFB16R38..	0.228"
-	-	TKFB12L28..	0.173"	TKFB16L38..	0.244"
For small diameter workpieces or shorter lengths Minimum overhang length of toolholder, stable machining		For General Purpose Good Chip Control		Large D.O.C. Per Pass	

SMALL TOOLS IDENTIFICATION SYSTEM

■ Square / Rectangle Shank Identification System

Note: JCT-Series holders for small parts machining have rectangle shanks
See below for part number identification examples

A : Back Clamp C : Top Clamp P : Level Lock S : Screw Clamp Clamping System	C : 80° Rhombic D : 55° Rhombic S : 90° Square T : 60° Triangle V : 35° Rhombic Insert Shape	R : Right-Hand L : Left-Hand N : Neutral Hand of Tool	Square Shank: This number will represent the number of sixteenths of width and height. Ex. $\frac{6}{16} = 3/8"$ Square Rectangle Shank: the first digit represents the number of eighths of width and the second digit the number of quarters of height. Ex. Width = $\frac{6}{8} = 3/4"$ Height = $\frac{2}{4} = 1/2"$ Shank Size	Number of 1/8ths on 1/4" I.C. and over. Insert Size I.C.	Optional Code Manufacturer Options (FF : Without Offset) (JCT : Jet Coolant-Through Series) Others
---	--	---	--	---	--

ANSI (inch) **S C L C R 6 - 2 JX FF (JCT)**

ISO (metric) **S C L C R 12 12 JX - 09 FF (JCT)**

Cutting Edge Angle					Insert Relief Angle	Shank Height	Shank Width	Toolholder Length	Insert Size
A 90° 	B 75° 	D 45° 	F 90° 	G 90° 		Shank Height (mm)	Shank Width (mm)		
J 93° 	K 75° 	L 95° 	N 63° 	P 117.5° 	B : 5° Positive C : 7° Positive N : 0° Negative P : 11° Positive			F : 80 (85) H : 100 JX : 4.750" 120mm K : 125mm M : 150	
S 45° 	T 60° 	V 72.5° 							

• Some back turning toolholders have Kyocera's unique descriptions

■ External Sleeve Holder Identification System

S : Steel Shank	<table border="1"> <tr> <th>ANSI (in)</th> <th>ISO (mm)</th> <th>ANSI (in)</th> <th>ISO (mm)</th> </tr> <tr> <td>F: 3.00</td> <td>80</td> <td>Q: 7.00</td> <td>180</td> </tr> <tr> <td>G: 3.50</td> <td>90</td> <td>R: 8.00</td> <td>200</td> </tr> <tr> <td>H: 4.00</td> <td>100</td> <td>S: 10.00</td> <td>250</td> </tr> <tr> <td>J: 4.50</td> <td>110</td> <td>T: 12.00</td> <td>300</td> </tr> <tr> <td>K: 5.00</td> <td>125</td> <td>U: 14.00</td> <td>350</td> </tr> <tr> <td>L: 5.50</td> <td>140</td> <td>V: 16.00</td> <td>400</td> </tr> <tr> <td>M: 6.00</td> <td>150</td> <td>W: 18.00</td> <td>450</td> </tr> <tr> <td>N: 6.50</td> <td>160</td> <td>Y: 20.00</td> <td>500</td> </tr> <tr> <td>P: 6.75</td> <td>170</td> <td>X:</td> <td>Special</td> </tr> </table> Toolholder Length	ANSI (in)	ISO (mm)	ANSI (in)	ISO (mm)	F : 3.00	80	Q : 7.00	180	G : 3.50	90	R : 8.00	200	H : 4.00	100	S : 10.00	250	J : 4.50	110	T : 12.00	300	K : 5.00	125	U : 14.00	350	L : 5.50	140	V : 16.00	400	M : 6.00	150	W : 18.00	450	N : 6.50	160	Y : 20.00	500	P : 6.75	170	X :	Special	S : Screw Clamp Clamping System	C : 80° Rhombic D : 55° Rhombic V : 35° Rhombic Insert Shape	L : Left-Hand Hand of Tool
ANSI (in)	ISO (mm)	ANSI (in)	ISO (mm)																																									
F : 3.00	80	Q : 7.00	180																																									
G : 3.50	90	R : 8.00	200																																									
H : 4.00	100	S : 10.00	250																																									
J : 4.50	110	T : 12.00	300																																									
K : 5.00	125	U : 14.00	350																																									
L : 5.50	140	V : 16.00	400																																									
M : 6.00	150	W : 18.00	450																																									
N : 6.50	160	Y : 20.00	500																																									
P : 6.75	170	X :	Special																																									

ANSI (inch) **S 19 K - S C L C L 09**

ISO (metric) **S 20 K - S C L C L 09**

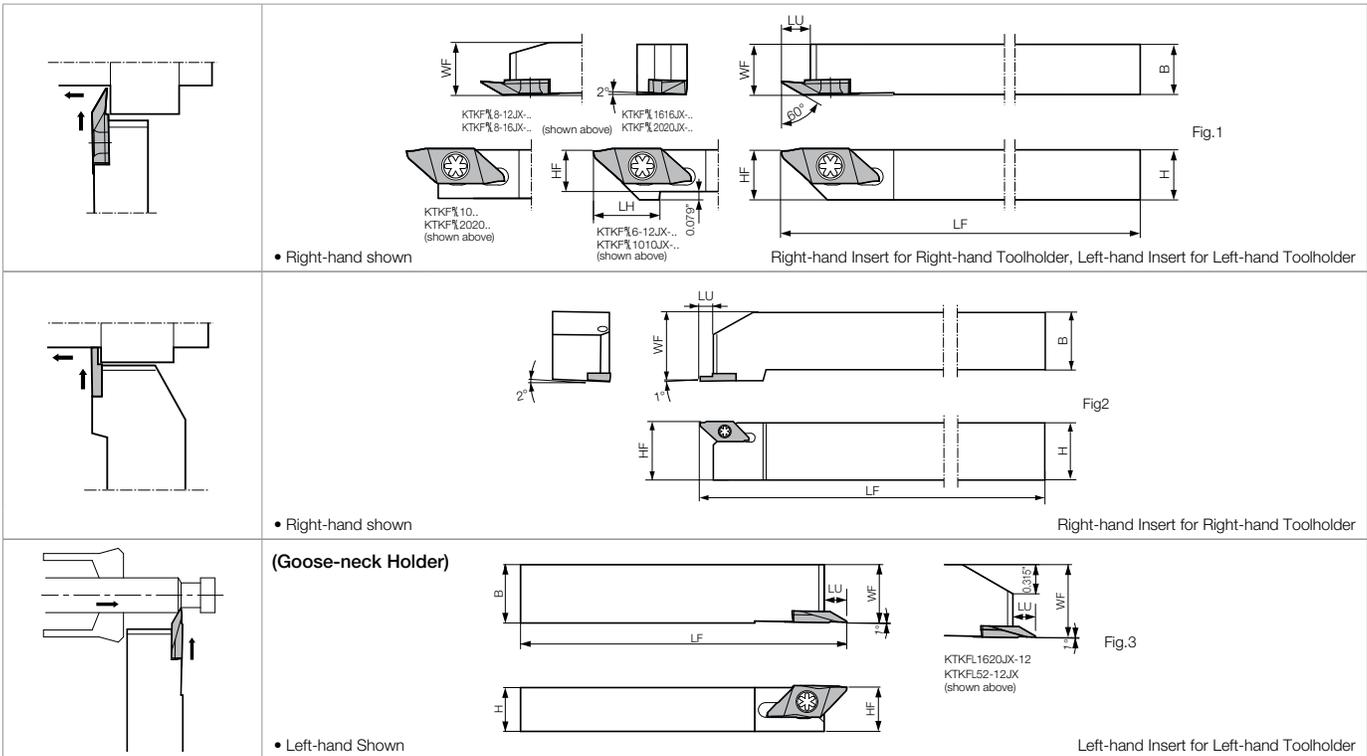
Shank Diameter	Cutting Edge Angle	Insert Relief Angle	Insert Size (mm)
ANSI A two-digit number that indicates the shank diameter in 1/16" increments. ISO Shank diameter in mm	L U 	 B : 5° Positive C : 7° Positive	

• The dimensions and specifications are subject to change for improvement without notice.

• Depending on the machine specifications such as attachment Dimensions, the symbol may not match the actual toolholder length.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KTKF / KTKF Goose-neck Holder



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Drawing	Spare Parts		Applicable Inserts	
	R	L		H	HF	B	LF	LH	WF	LU		Clamp Screw	Wrench		
KTKF% 6-12JX	●	●	inch	0.375	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFB12%... TKF12%...	
8-12JX	●	●		0.500	0.500	0.500	4.750	-	0.500	0.236					
10-12JX	●	●		0.625	0.625	0.625	4.750	-	0.625	0.236					
KTKF% 6-16JX	●	●		0.375	0.375	0.375	4.750	0.787	0.375	0.315	Fig.1	SB-4590TRWN	LTW-10S	TKFB16%... TKF16%...	
8-16JX	●	●		0.500	0.500	0.500	4.750	-	0.500	0.315					
10-16JX	●	●		0.625	0.625	0.625	4.750	-	0.625	0.315					
KTKF% 1010JX-12	●	●		mm	10	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFB12%... TKF12%...
1212JX-12	●	●			12	12	12	120	-	12	6				
1616JX-12	●	●			16	16	16	120	-	16	6				
2020JX-12	●	●	20		20	20	120	-	20	6					
KTKF% 1010JX-16	●	●	mm	10	10	10	120	20	10	8	Fig.1	SB-4590TRWN	LTW-10S	TKFB16%... TKF16%...	
1212JX-16	●	●		12	12	12	120	-	12	8					
1616JX-16	●	●		16	16	16	120	-	16	8					
2020JX-16	●	●		20	20	20	120	-	20	8					
KTKFR 1212F-12	●		mm	12	12	12	85	-	12	6	Fig.1	SB-4590TRWN	LTW-10S	TKFB12R... TKF12R...	
1212F-16	●			12	12	12	85	-	12	8					
KTKFR 2525M-12	●		mm	25	25	25	150	-	30	6	Fig.2	SB-4590TRWN	LTW-10S	TKFB12R... TKF12R...	
2525M-16	●			25	25	25	150	-	30	8					
KTKFL 52-12JX		●	inch	0.500	0.500	0.625	4.750	-	0.625	0.236	Fig.3	SB-4590TRWN	LTW-10S	TKFB12L... TKF12L...	
62.5-12JX		●		0.625	0.625	0.750	4.750	-	0.750	0.236					
KTKFL 1216JX-12		●	mm	12	12	16	120	-	16	6	Fig.3	SB-4590TRWN	LTW-10S	TKFB12L... TKF12L...	
1620JX-12		●		16	16	20	120	-	20	6					

• Dimensions LU shows the distance from the toolholder to the cutting edge

Recommended Cutting Conditions E52

GTP Chipbreaker

KTKF Insert for Small Parts Machining

Reduce Cycle Time with Grooving and Traversing Capabilities

Dots for Grooving

Dots utilized for each machining application
Maintains good chip control in small D.O.C.

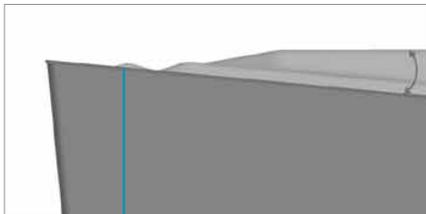
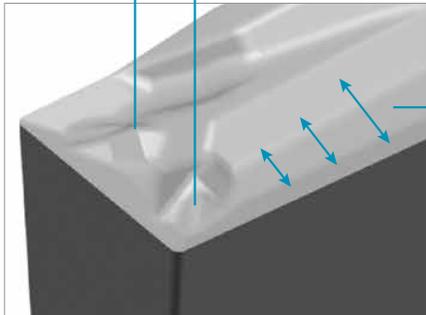
Dots for Traversing

Side Cutting Edge (Back)

Side Cutting Edge (Front)

Chipbreaker Width

Width is optimized for depth of cut
Maintains good chip control for a wide range of machining applications

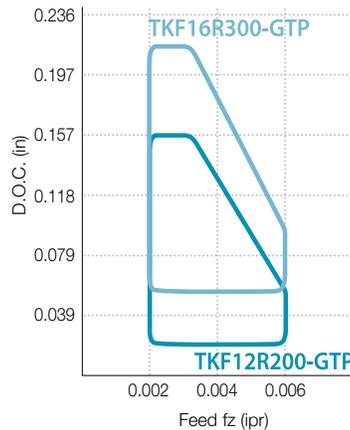


Sloped Cutting Edge

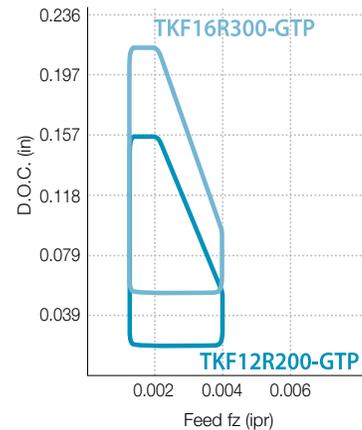
Sloped cutting edge reduces radial force
Great chattering resistance



Chipbreaker Range (Steel)



Chipbreaker Range (Stainless Steel)



KTKF Applicable Back Turning Inserts ➔ **B100-B101**

TKFB

Insert Photo Shows Right-Hand	Part Number	Corner-R (RE) : mm (inch)
<p>• Right-Hand Shown</p>	TKFB 12R15005M	<0.05 (<0.002)
	12R28005M	<0.05 (<0.002)
	12R28010M	<0.10 (<0.004)
	TKFB 16R38005M	<0.05 (<0.002)
	16R38010M	<0.10 (<0.004)
	<p>• Left-Hand Shown</p>	TKFB 12L28005MR	<0.05 (<0.002)
12L28010MR		<0.10 (<0.004)
TKFB 16L38005MR		<0.05 (<0.002)
16L38010MR		<0.10 (<0.004)

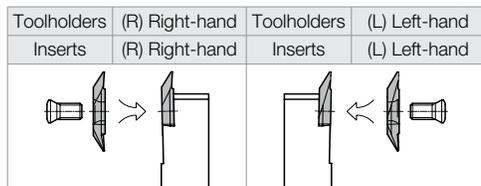
TKFB-GQ

Insert Photo Shows Right-Hand	Part Number	Corner-R (RE) : mm (inch)
<p>Polished</p>	TKFB 12R28005P-GQ	0.05 (<0.002)
	12R28015P-GQ	0.15 (<0.006)
	TKFB 16R38005P-GQ	0.05 (<0.002)
	16R38015P-GQ	0.15 (<0.006)
	TKFB 12R28005-GQ	0.05 (<0.002)
	12R28015-GQ	0.15 (<0.006)
	TKFB 16R38005-GQ	0.05 (<0.002)
	16R38015-GQ	0.15 (<0.006)

TKF-GTP

Insert Photo Shows Right-Hand	Part Number	Corner-R (RE) : mm (inch)
	TKF 12R200-GTP	0.08 (0.003)
	TKF 16R300-GTP	0.08 (0.003)

Combination of Toolholders & Inserts (See Fig Below)



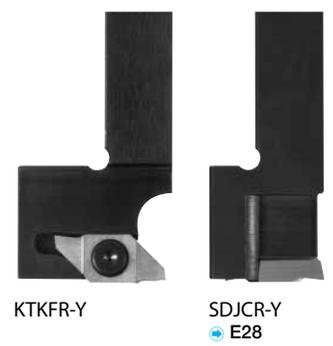
Recommended Cutting Conditions ➔ E52

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Y-axis Toolholders NEW

Improved Chip Control

New Toolholder Designs for Better Chip Evacuation in Small Parts Machining

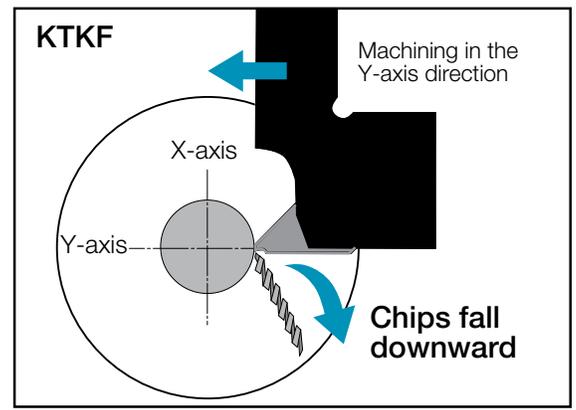


KTKFR-Y

SDJCR-Y
E28

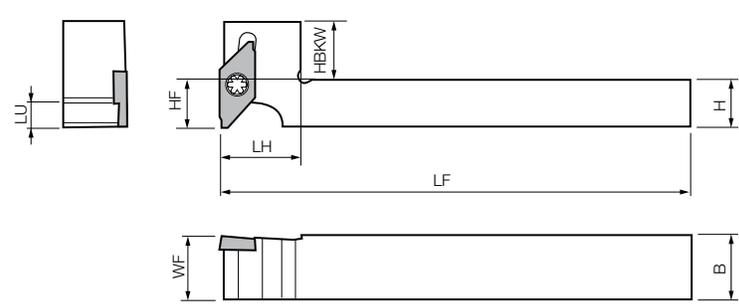
1 Controlled Chip Evacuation for Stable Machining

E SMALL TOOLS



The Y-axis machining direction allows the chips to fall down and away from the workpiece, improving chip evacuation.

KTKF-Y (Y-axis Holder) NEW



• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

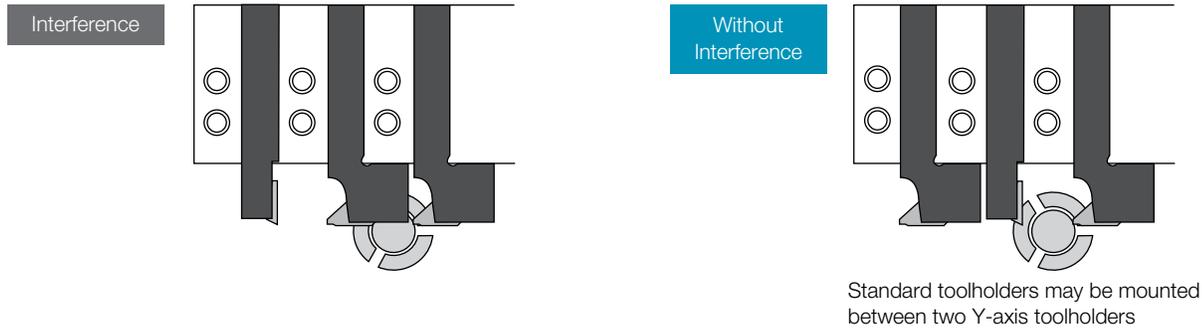
Part Number	Stock		Dimensions (mm)								Spare Parts		Applicable Inserts
	R	L	H	HF	B	LF	LH	WF	LU	HBKW	 Clamp Screw	 Wrench	
KTKFR 1216JX-12-Y	●		12	12	16	120	20	16	6	15	SB-4590TRWN	FT-10	TKFB12R...
1616JX-12-Y	●		16	16	16		25	16						11

• Dimensions LU shows the distance from the toolholder to the cutting edge

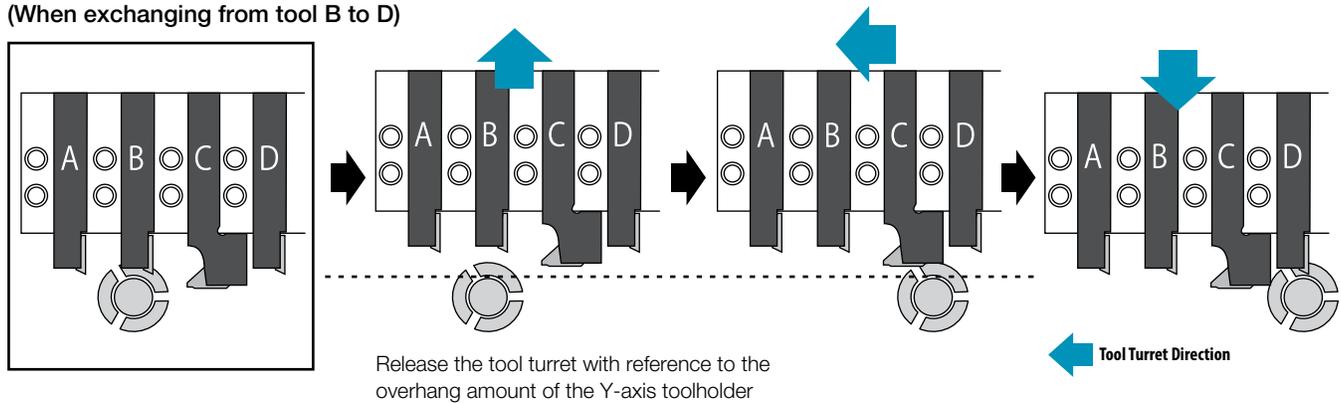
Recommended Cutting Conditions E52

Precautions

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)



When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder (When exchanging from tool B to D)



Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L			
		Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

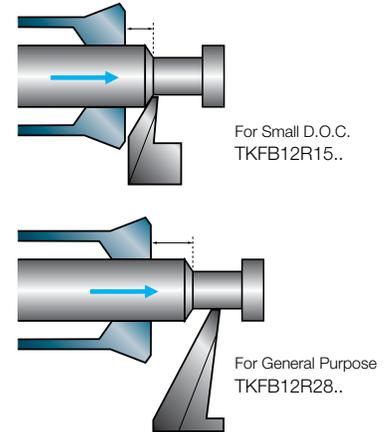
- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

Edge Tips Details and Selection Guide

Cutting Edge Shape

For Small D.O.C.		For General Purpose		For Large D.O.C.	
Part Number	Cutting Edge Length L	Part Number	Cutting Edge Length L	Part Number	Cutting Edge Length L
TKFB12R15..	0.083"	TKFB12R28..	0.165"	TKFB16R38..	0.228"
-	-	TKFB12L28..	0.173"	TKFB16L38..	0.244"
For small diameter workpieces or short length Minimum overhang length of toolholder, stable machining		For general purpose Good chip control		D.O.C. per pass is large.	

How to Select



In case D.O.C. is same, if insert with narrower edge width is used, overhang length from guide bushing is shorter, which enables better stability due to less workpiece vibration.

Choosing Hand of Back Turning Toolholder

(R) Right-hand		<p>Cutting close to guide bushing is possible Since TKFB12R15005M has a narrow cutting edge (width=0.059"), cutting close to guide bushing is possible</p> <p>◆ Good for small parts and high precision cutting</p>
(L) Left-hand	<p>Even if burrs occur, they will not return into the guide bush.</p>	<p>Cutting with distance from guide bushing Good chip control due to large space between the guide bushing and the tool.</p> <p>◆ How to improve chip control for roughing to finishing In case of using a left-hand toolholder in finishing, the burred portions of workpiece do not return into the guide bushing, which enables stability of external diameter. Also, a Left-hand toolholder prevents wear of guide bushing due to chip biting.</p>

◆ High Precision Cutting

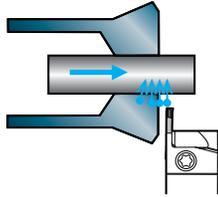
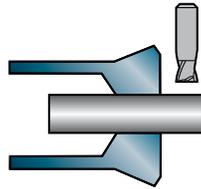
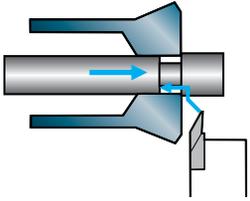
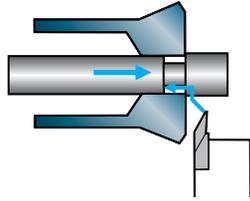
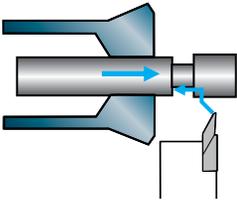
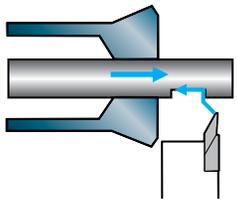
Workpiece Material Motion & How to Select Hand of Tool

When Roughing, Medium, & Finishing

	Roughing	Workpiece position after roughing	Finishing
(R) Right-hand			
(L) Left-hand			

※ Good dimensional accuracy: If a Left-hand toolholder is used, burrs on workpiece generated during roughing do not damage the guide bushing during finishing.

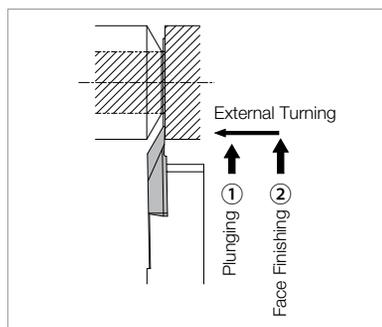
Chip Control Improvement During Back Turning

	① Chip control improvement by tool pass changes	② Chip control improvement by tool pass changes
Roughing / Pre-Stage Machining 	<ul style="list-style-type: none"> ● Roughing (1) GMM2420-020MW (Grooving) 	<ul style="list-style-type: none"> ● Pre-stage Machining is Processed with Solid End Mill (1) 2FESW040-040-04 (Solid End Mill) 
Finishing (Countermeasure 1) Use Right-Hand Toolholder	(1) When Using TKFB12R28010M (Back Turning / Right-hand)  <p>Advantages : Smooth Surface Finish Disadvantages : If machining pass is long, the guide bushing can not support the workiece</p>	(1) When Using TKFB12R28010M (Back Turning / Right-hand)  <p>Advantages : 1. Minimal deflection during long machining passes 2. Chips are broken into small pieces, though the workpiece material is elastic. Disadvantages : The pre-stage machining may cause fractures, because of interruption</p>
Finishing (Countermeasure 2) Use Left-Hand Toolholder	(2) When Using TKFB12L28010M (Back Turning / Left-hand)  <p>Advantages : 1. Smooth Surface Finish 2. High precision cutting if the machined portion does not contact the guide bushing Disadvantages : If machining pass is long, the guide bushing can not support the workiece</p>	(2) When Using TKFB12L28010M (Back Turning / Left-hand)  <p>Advantages : 1. Minimal deflection during long machining passes 2. Chips are broken into small pieces, though the workpiece material is elastic 3. High precision cutting if the machined portion does not contact the guide bushing Disadvantages : The pre-stage machining may cause fractures, because of interruption</p>

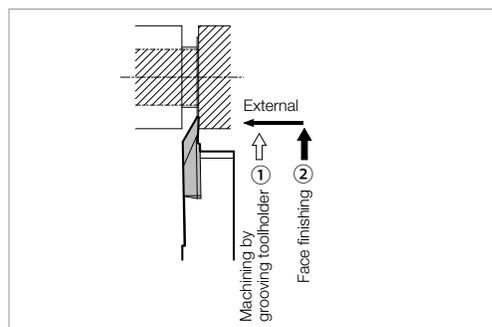
Peeled Surface Countermeasures During Face Back Turning

When peeled surface occurs on the workpiece face, please apply the countermeasures below.

● Countermeasure 1 (Face Finishing)

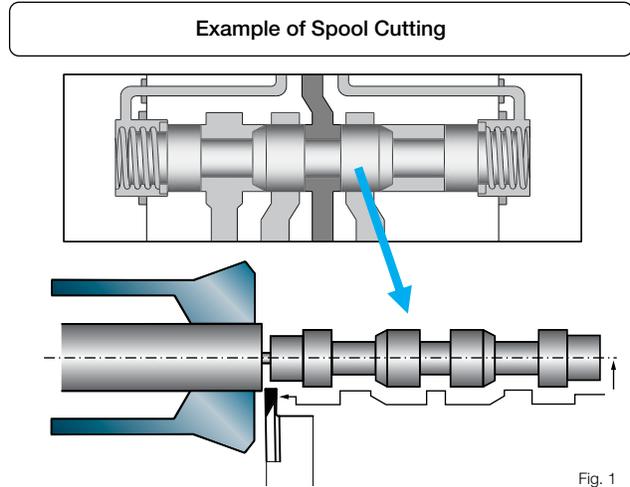
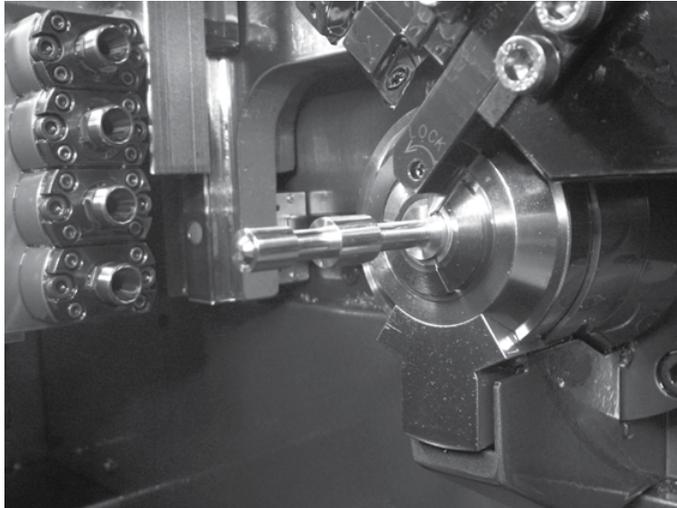


● Countermeasure 2 (Face Finishing After Grooving)



TKF PCD Inserts for Non-Ferrous

The KTKF toolholder can be used as multi-functional tooling for non-ferrous and non-metal when combined with a TKF-AGT and TKF-AS insert. (See Fig. 1)



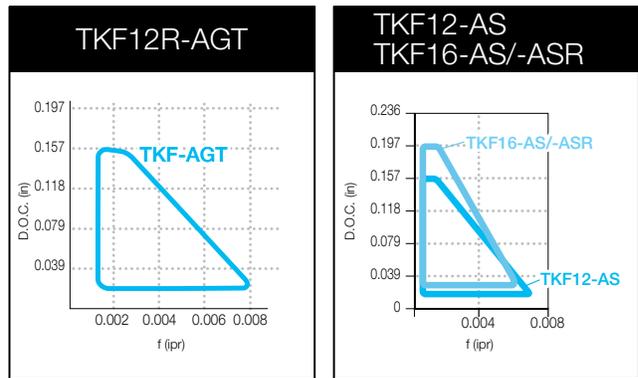
Example of the pass of KTKF toolholder + TKF-AS insert

Fig. 1

Applicable Inserts C32

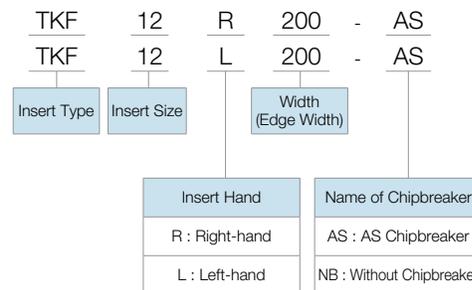
Inserts (Photo Shows Right-hand)	Part Number
 <p>Traversing / Grooving</p> <p>• Right-hand Shown</p>	<p>TKF12R 200-AGT</p> <p>250-AGT</p>
 <p>Traversing / Grooving</p> <p>• Right-hand Shown</p>	<p>TKF12^L 200-AS</p> <p>TKF16^L 250-AS</p>
 <p>Grooving Inserts (Traversing possible)</p> <p>• Right-hand Shown</p>	<p>TKF12^L 150-NB</p> <p>200-NB</p> <p>250-NB</p> <p>250-NB4.5</p>

Applicable Range



- TKF PCD inserts are only for turning and grooving
- Cut-off is not recommended

Insert Identification System



Applicable Toolholder E12, E14

Recommended Cutting Conditions E52

Note 1) When using TKF-AS insert with KTKF toolholder, the edge position is 1.0mm below the center. (See Fig.2) Please adjust the edge height at the parameter of the NC lathe or using soleplates.

2) When the edge height can not be adjusted, please use TKF-AGT or TKF-NB insert. (Fig.3)

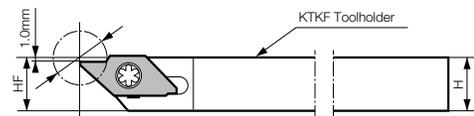


Fig.2 When TKF-AS/-ASR installed (the edge position: 1.0mm below the center)

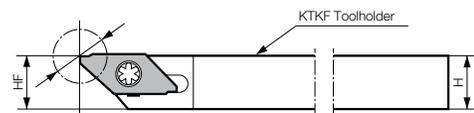
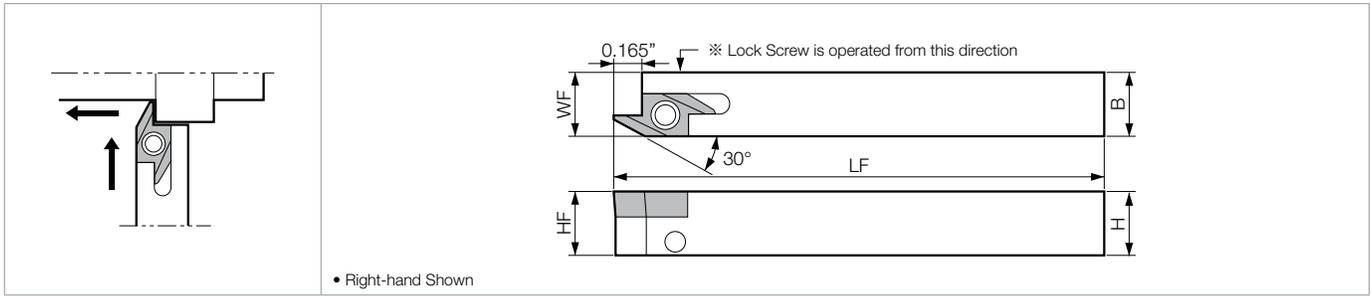
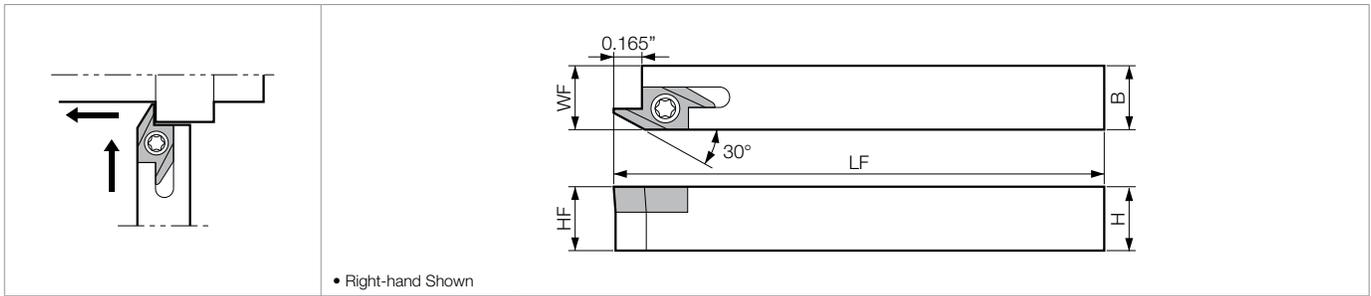


Fig.3 When TKF-NB / TKF-AGT installed

AABS Back Clamp (Edge Width: 0.110" • Depth 0.158" MAX)



SABS Screw Clamp (Edge Width: 0.110" • Depth 0.158" MAX)

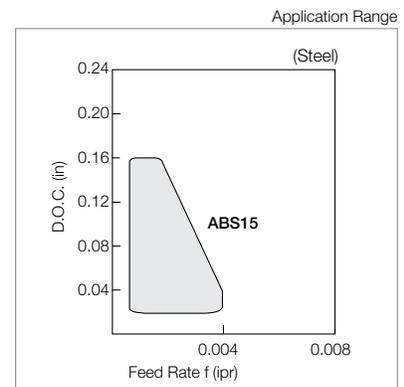


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions					Standard Corner-R (RE)	Spare Parts			
			H	HF	B	LF	WF		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABSR 6-15JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	-	FH-2
8-15JXF	●		0.500	0.500	0.500	4.750	0.508	0.006	LPA-13			
10-15JXF	●		0.625	0.625	0.625	4.750	0.633	0.006	LPA-17			
AABSR 1010JX-40F	●	mm	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
1212JX-40F	●		12	12	12	120	12.2	0.15	LPA-13			
1616JX-40F	●		16	16	16	120	16.2	0.15	LPA-17			
SABSR 6-15JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	-	-	SB-3080TR	FT-10
8-15JXF	●		0.500	0.500	0.500	4.750	0.508		-	-	SB-3080TR	FT-10
10-15JXF	●		0.625	0.625	0.625	4.750	0.633		-	-	SB-3080TR	FT-10
SABSR 1010JX-40F	●	mm	10	10	10	120	10.2	0.15	-	-	SB-3080TR	FT-10
1212JX-40F	●		12	12	12	120	12.2		-	-	SB-3080TR	FT-10
1616JX-40F	●		16	16	16	120	16.2		-	-	SB-3080TR	FT-10
SABSR 1212F-40F	●	mm	12	12	12	85	12.2	0.15	-	-	SB-3080TR	FT-10
2020K-40F	●		20	20	20	125	20.2		-	-	SB-3080TR	FT-10

Applicable Inserts

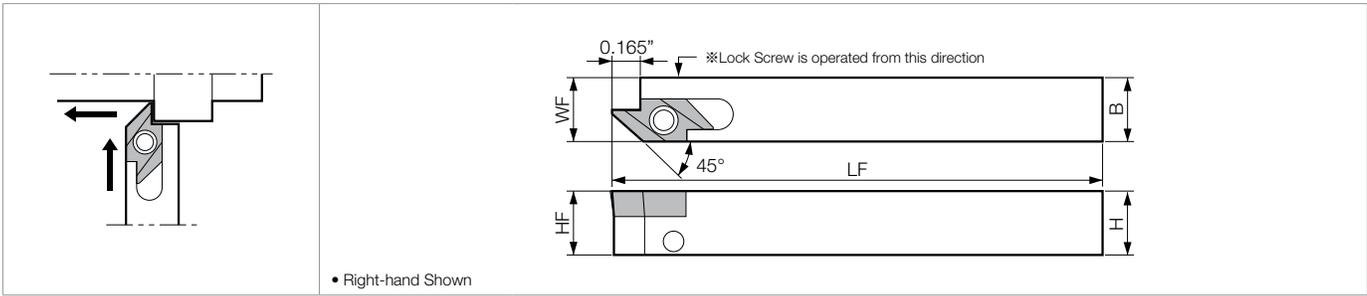
Insert	Part Number	Corner-R (RE) : mm (inch)	Reference Page
	ABS 15R4005	0.05 (0.002)	B102
	15R4015	0.15 (0.006)	
	ABS 15R4005M	<0.05 (<0.002)	
	15R4015M	<0.15 (<0.006)	



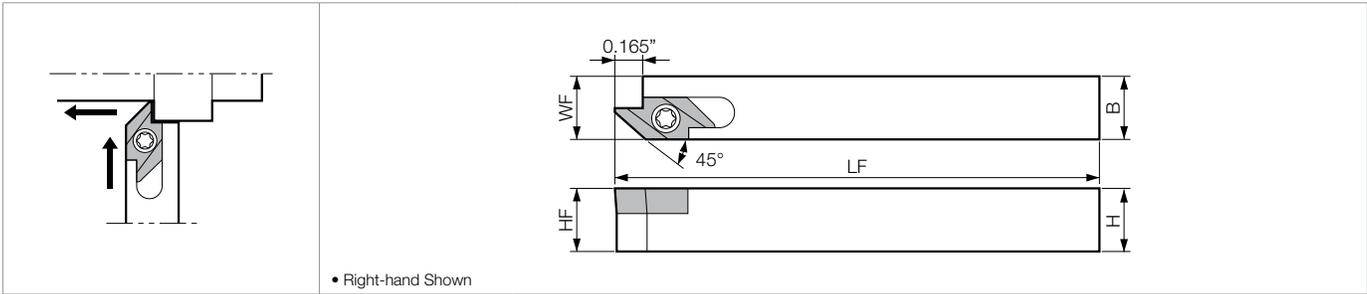
Recommended Cutting Conditions ➔ E52

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

AABW Back Clamp (Edge Width: 0.185" • Depth 0.158" MAX)



SABW Screw Clamp (Edge Width: 0.185" • Depth 0.158" MAX)

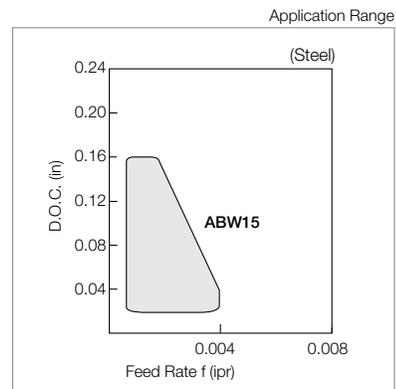


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions					Standard Corner-R (RE)	Spare Parts			
			H	HF	B	LF	WF		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABWR 6-15JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	-	FH-2
8-15JXF	●		0.500	0.500	0.500	4.750	0.508	0.006	LPA-13			
10-15JXF	●		0.625	0.625	0.625	4.750	0.633	0.006	LPA-17			
AABWR 1010JX-40F	●	mm	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
1212JX-40F	●		12	12	12	120	12.2	0.15	LPA-13			
1616JX-40F	●		16	16	16	120	16.2	0.15	LPA-17			
SABWR 6-15JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	-	-	SB-3080TR	FT-10
8-15JXF	●		0.500	0.500	0.500	4.750	0.508					
10-15JXF	●		0.625	0.625	0.625	4.750	0.633					
SABWR 1010JX-40F	●	mm	10	10	10	120	10.2	0.15	-	-	SB-3080TR	FT-10
1212JX-40F	●		12	12	12	120	12.2					
1616JX-40F	●		16	16	16	120	16.2					
SABWR 2020K-40F	●		20	20	20	125	20.2	0.15	-	-	SB-3080TR	FT-10

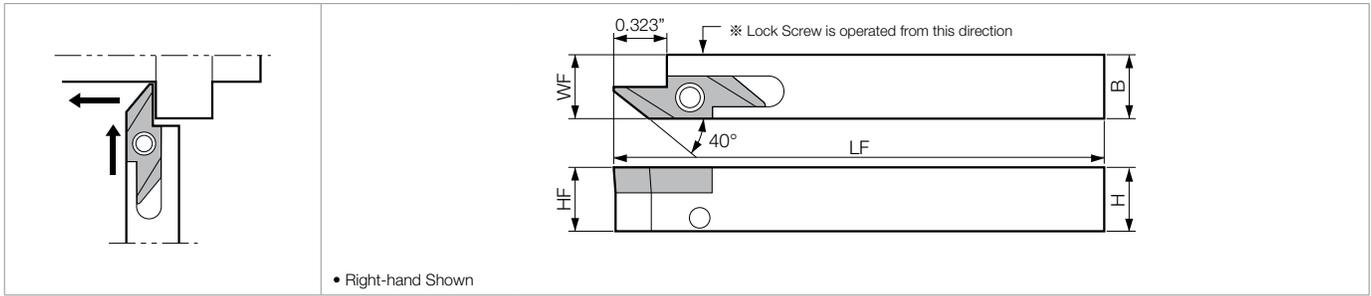
Applicable Inserts

Insert	Part Number	Corner-R (RE) : mm (inch)	Reference Page
	ABW 15R4005	0.05 (0.002)	● B102
	15R4015	0.15 (0.006)	
	ABW 15R4005M	<0.05 (<0.002)	
	15R4015M	<0.15 (<0.006)	

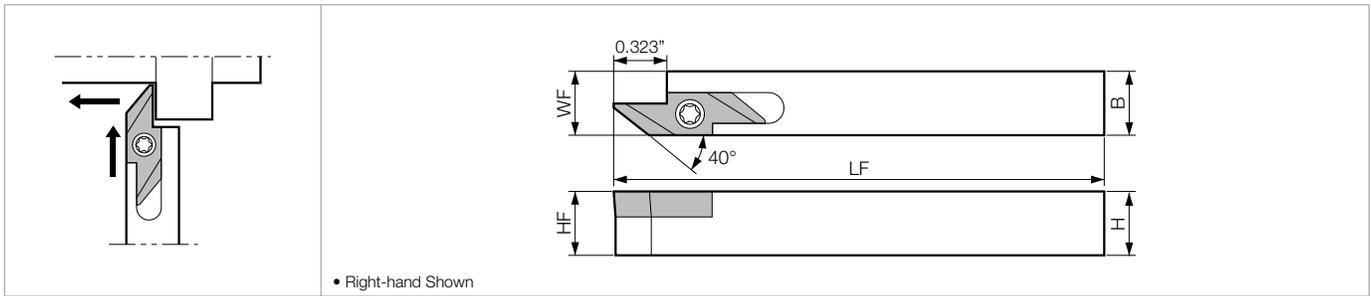


Recommended Cutting Conditions ● E52

AABW Back Clamp (Edge Width: 0.185" • Depth 0.197" MAX)



SABW Screw Clamp (Edge Width: 0.185" • Depth 0.197" MAX)

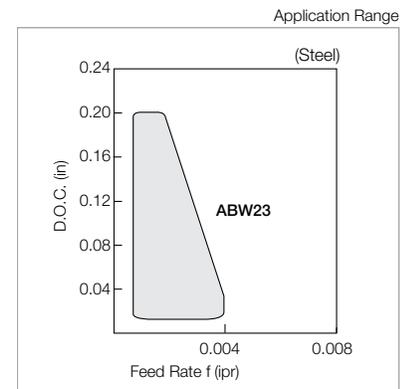


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions					Standard Corner-R (RE)	Spare Parts			
			H	HF	B	LF	WF		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABWR 6-23JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	LPA-11	HSB4X8R	-	FH-2
8-23JXF	●		0.500	0.500	0.500	4.750	0.508	0.006	LPA-13			
10-23JXF	●		0.625	0.625	0.625	4.750	0.633	0.006	LPA-17			
AABWR 1010JX-50F	●	mm	10	10	10	120	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
1212JX-50F	●		12	12	12	120	12.2	0.15	LPA-13			
1616JX-50F	●		16	16	16	120	16.2	0.15	LPA-17			
SABWR 6-23JXF	●	inch	0.375	0.375	0.375	4.750	0.383	0.006	-	-	SB-3080TR	FT-10
8-23JXF	●		0.500	0.500	0.500	4.750	0.508					
10-23JXF	●		0.625	0.625	0.625	4.750	0.633					
SABWR 1010JX-50F	●	mm	10	10	10	120	10.2	0.15	-	-	SB-3080TR	FT-10
1212JX-50F	●		12	12	12	120	12.2					
1616JX-50F	●		16	16	16	120	16.2					
SABWR 2020K-50F	●		20	20	20	125	20.2	0.15	-	-	SB-3080TR	FT-10

Applicable Inserts

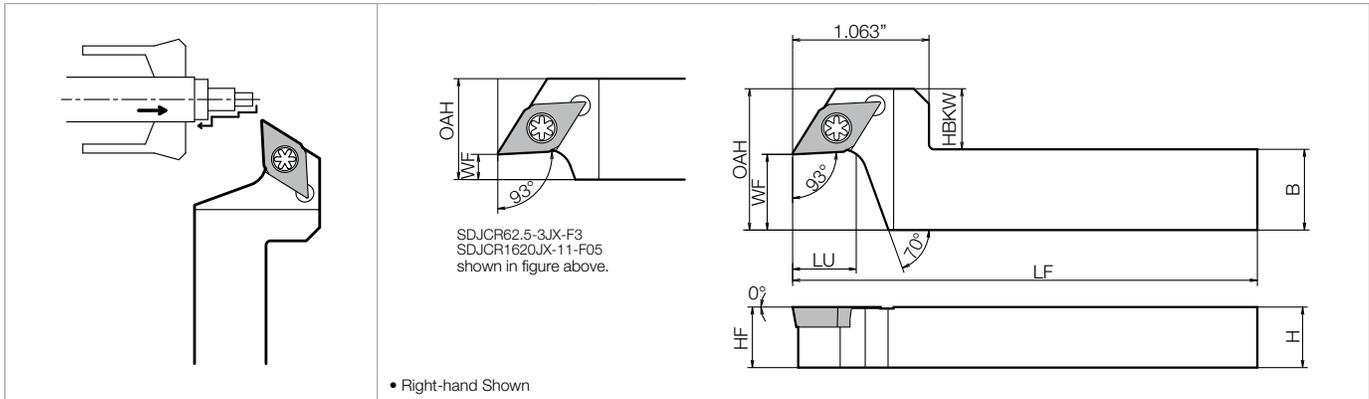
Insert	Part Number	Corner-R (RE) : mm (inch)	Reference Page
	ABW 23R5005	0.05 (0.002)	B102
	23R5015	0.15 (0.006)	
	ABW 23R5005M	<0.05 (<0.002)	
	23R5015M	<0.15 (<0.006)	



Recommended Cutting Conditions → E52

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SDJC (External / Copying)



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions									Standard Corner-R (RE)	Spare Parts	
			H	HF	B	LF	LU	OAH	HBKW	WF	Clamp Screw		Wrench	
SDJCR 52-3JX-F3	●	inch	0.500	0.500	0.625	4.750	0.488	0.687	0.062	0.187	0.008	SB-4085TR	FT-15	
52-3JX-F9	●		0.500	0.500	0.625	4.750	0.488	1.125	0.500	0.562				
62.5-3JX-F3	●		0.625	0.625	0.750	4.750	0.488	0.750	-	0.187				
62.5-3JX-F9	●		0.625	0.625	0.750	4.750	0.488	1.125	0.375	0.562				
SDJCR 1216JX-11-F05	●	mm	12	12	16	120	12.6	18	2	5	0.2	SB-4085TR	FT-15	
1216JX-11-F15	●		12	12	16	120	12.6	28	12	15				
1620JX-11-F05	●		16	16	20	120	12.6	20	-	5				
1620JX-11-F15	●		16	16	20	120	12.6	28	8	15				

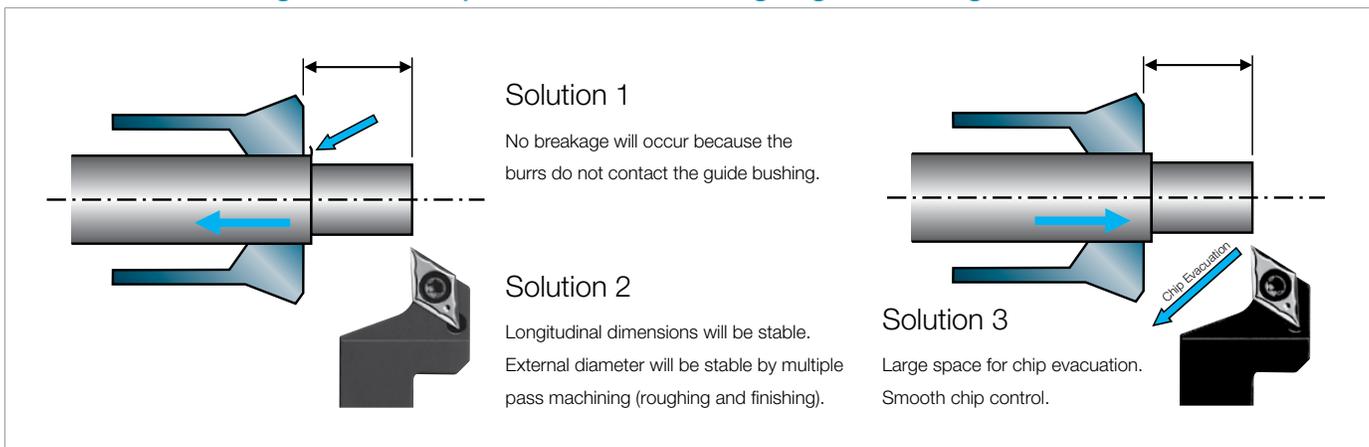
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B62	● B62	● B63	● B63	● B64	● B63	● B67	● B66	● B68, B69	● B68
Insert	CF	GF	SKS	SK	WP (Wiper)	PP	GK	GQ	R-F	R-FSF	(E/F) R-U	FR-USF
Toolholder												
Application	Low Feed	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
Ref. Page	● B70, B71	● B70	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C25	● C15	
Insert	(E/F)R-J	FR-JSF	XP	XQ	MQ	No Chipbreaker	AH	R-A3	PCD	APD	CBN	
Toolholder												
SDJCR...3JX-F.. SDJCR...11-F..	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCMW325..	

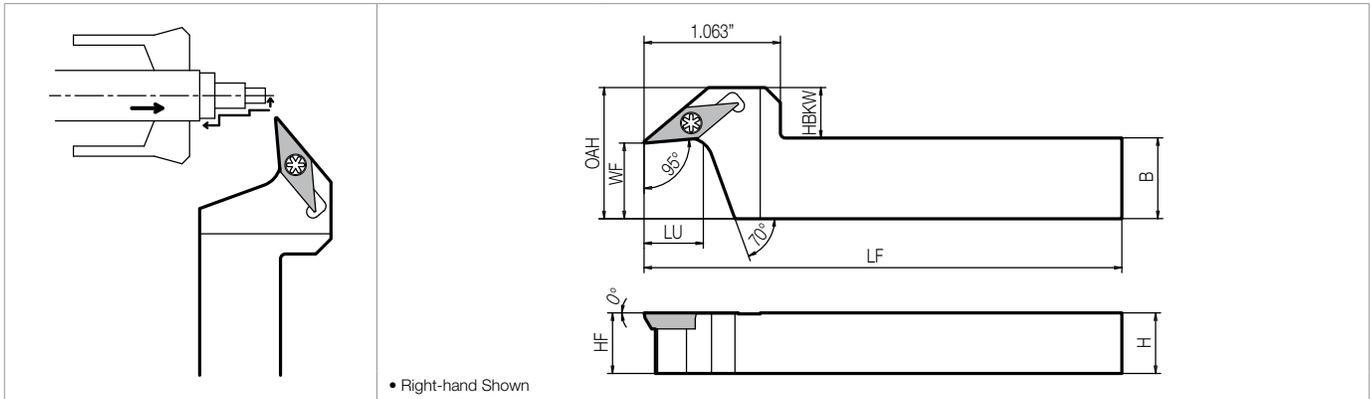
When using WP chipbreaker, program corrections are required. ● R51

Recommended Cutting Conditions ● E51

Goose-neck Designed for Multiple Passes, Both Roughing & Finishing!



SVLP (External / Copying)



Toolholder Dimensions

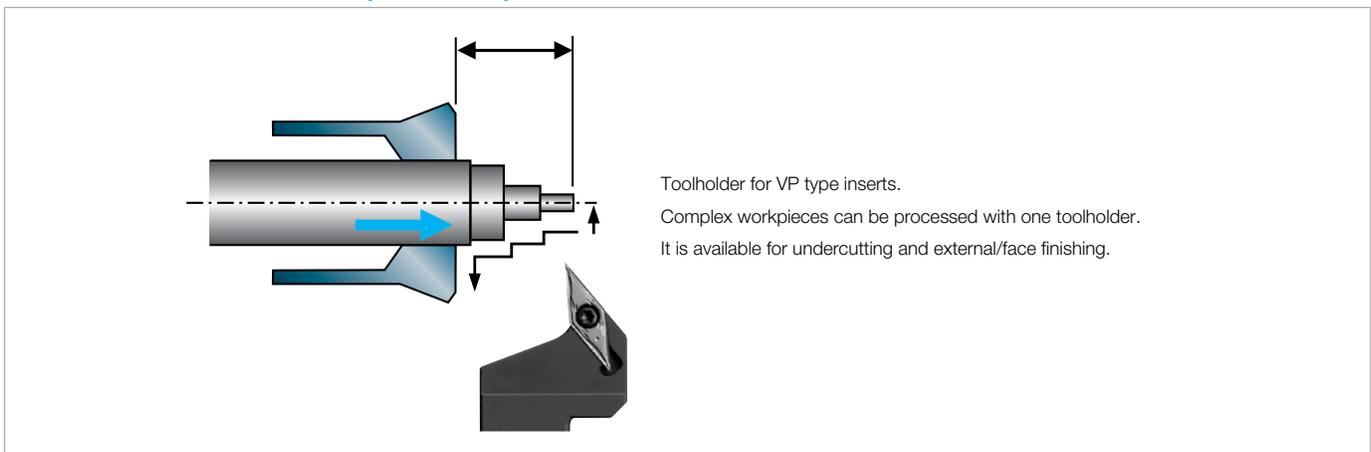
Part Number	Stock	Unit	Dimensions									Standard Corner-R (RE)	Spare Parts	
			H	HF	B	LF	LU	OAH	HBKW	WF	Clamp Screw		Wrench	
SVLPR 52-2JX-F9	●	inch	0.500	0.500	0.625	4.750	0.472	1.000	0.375	0.562	0.008	SB-2570TR	FT-15	
62.5-2JX-F9	●		0.625	0.625	0.750	4.750	0.472	1.000	0.250	0.562				
SVLPR 1216JX-11-F15	●	mm	12	12	16	120	12	26	10	15	0.2	SB-2570TR	FT-8	
1620JX-11-F15	●		16	16	20	120	12	26	6	15				

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	➡ B94	➡ B94	➡ B94	➡ B95	➡ B96	➡ B96
Insert	CF	CK	GF	R-FSF	FR-U	FR-USF
Toolholder						
SVLPR..-2JX-F.. SVLPR..-11-F..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPET22..	VPET22..

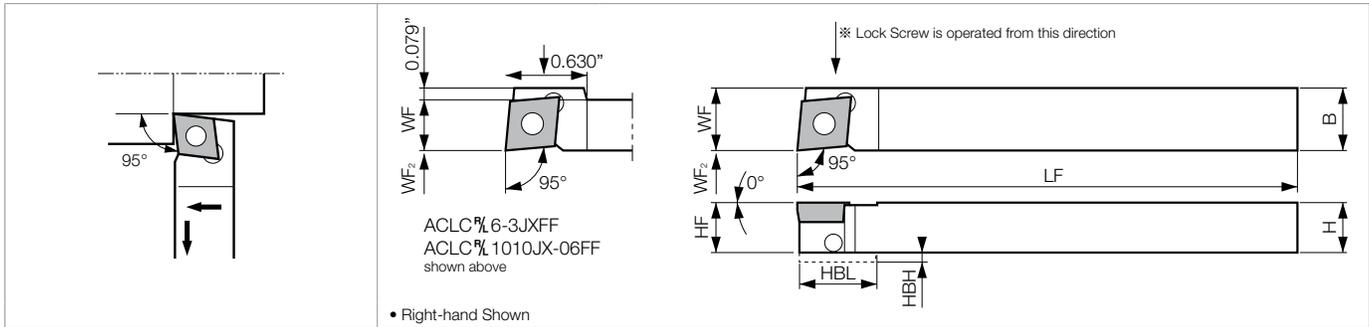
Recommended Cutting Conditions ➡ E51

One Toolholder for Complex Workpieces



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

ACLFF (Without Offset • External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	HBH	B	LF	HBL	WF		WF ₂	Anchor Pin	Lock Screw	Wrench
ACLFF 6-2JXFF	●	●	inch	0.375	0.375	-	0.375	4.750	-	0.375	0	0.008	LPF-11	HSB4X8%	FH-2
ACLFF 6-3JXFF	●	●		0.375	0.375	0.097	0.375	4.750	0.630	0.375	0	0.008	LPF-13		
ACLFF 8-3JXFF	●	●		0.500	0.500	-	0.500	4.750	-	0.500	0	0.008	LPF-17		
ACLFF 10-3JXFF	●	●		0.625	0.625	-	0.625	4.750	-	0.625	0	0.008	LPF-17		
ACLFF 1010JX-06FF	●	●	mm	10	10	-	10	120	-	10	0	0.2	LPF-11	HSB4X8%	FH-2
ACLFF 1010JX-09FF	●	●		10	10	2	10	120	16	10	0	0.2	LPF-13		
ACLFF 1212JX-09FF	●	●		12	12	-	12	120	-	12	0	0.2	LPF-13		
ACLFF 1616JX-09FF	●	●		16	16	-	16	120	-	16	0	0.2	LPF-17		

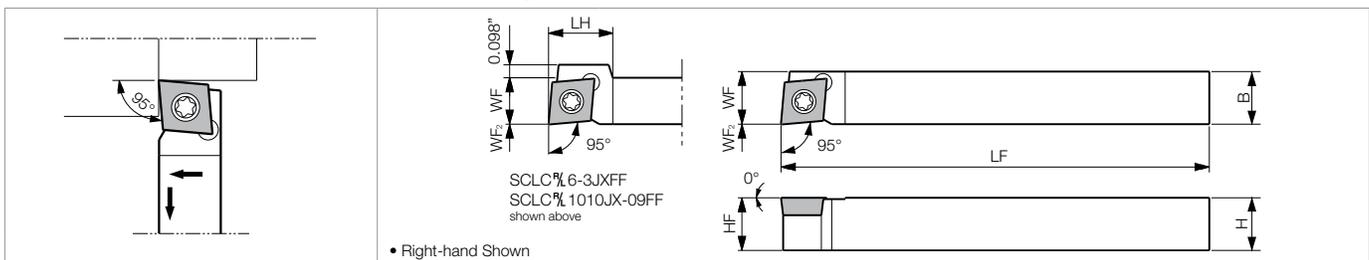
• Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Material
Ref. Page	● B53	● B53	● B54	● B58, B59	● B55	● B60	● B60	● B60	● C24	● C14
Toolholder	SKS	SK	GK	(E/F)%-U	MQ	No Chipbreaker	AH	%-A3	PCD	CBN
ACLFF 6-2JXFF ACLFF 6-3JXFF	CCGT215..	CCGT215..	CCMT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
ACLFF 8-3JXFF ACLFF 10-3JXFF	CCGT325..	CCGT325..	CCMT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

Recommended Cutting Conditions ● E51

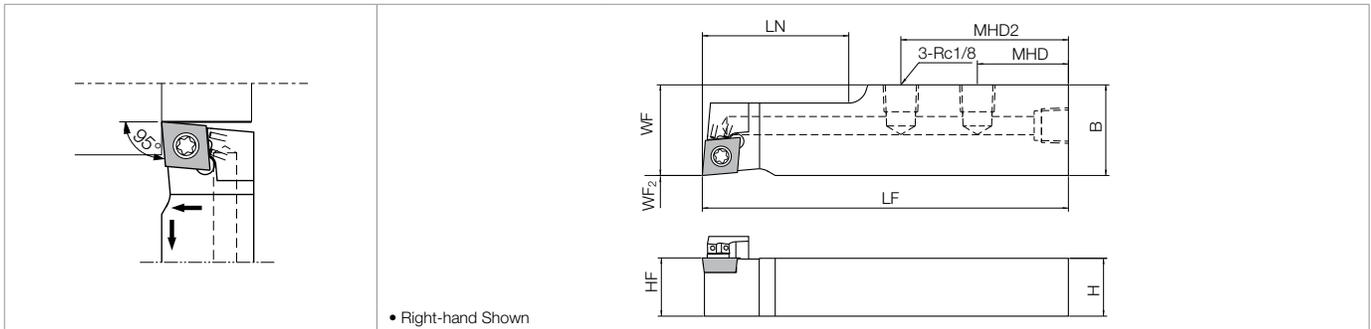
SCLFF (Without Offset • External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts	
	R	L		H	HF	B	LF	LH	WF	WF ₂		Clamp Screw	Wrench
SCLFF 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	-	0.375	0	0.008	SB-2570TR	FT-8
SCLFF 6-3JXFF	●	●		0.375	0.375	0.375	4.750	0.590	0.375	0	0.008	SB-4085TR	FT-15
SCLFF 8-3JXFF	●	●		0.500	0.500	0.500	4.750	-	0.500	0	0.008	SB-4085TR	FT-15
SCLFF 10-3JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	0	0.008	SB-4085TR	FT-15
SCLFF 0808F-06FF	●	●	mm	8	8	8	85	-	8	0	0.2	SB-2570TR	FT-8
SCLFF 1212F-09FF	●	●		12	12	12	85	-	12	0	0.2	SB-4085TR	FT-15
SCLFF 1010JX-06FF	●	●		10	10	10	120	-	10	0	0.2	SB-2570TR	FT-8
SCLFF 1010JX-09FF	●	●		10	10	10	120	15	10	0	0.2	SB-4085TR	FT-15
SCLFF 1212JX-09FF	●	●	12	12	12	120	-	12	0	0.2	SB-4085TR	FT-15	
SCLFF 1616JX-09FF	●	●	16	16	16	120	-	16	0	0.2	SB-4085TR	FT-15	
SCLFF 2020JX-09FF	●	●	20	20	20	120	-	20	0	0.2	SB-4085TR	FT-15	

SCLC-FFJCT (Without Offset • External / Copying, Jet Coolant-Through) NEW

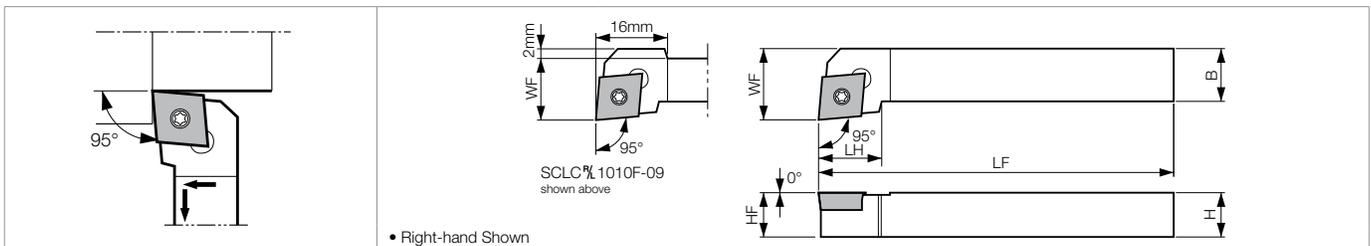


Toolholder Dimensions

Coolant Connections and Pipe Parts H14-H15

Part Number	Stock		Unit	Dimensions									Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	B	LF	LN	WF	WF ₂	MHD	MHD2		Clamp Screw	Wrench	Plug
SCLCR 62-3FFJCT	●		inch	0.500	0.500	0.750	4.750	1.110	0.750	0	1.378	-	0.008	SB-4085TR	FT-15	GP-1
82.5-3FFJCT	●			0.625	0.625	1.000	4.750	1.582	1.000		0.984	1.811				
SCLCR 1220H-09FFJCT	●		mm	12	12	20	100	28	20	0	35	-	0.2	SB-4085TR	FT-15	GP-1
1625H-09FFJCT	●			16	16	25	100	40	25		25	46				
2025H-09FFJCT	●			20	20	25	100	40	25		25	46				

SCLC (External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	B	LF	LH	WF	Clamp Screw		Wrench	Wrench	
SCLC% 6-2X	●	●	inch	0.375	0.375	0.375	3.000	0.354	0.500	0.004	SB-2570TR	FT-8	-	
SCLC% 8-3A	●	●		0.500	0.500	0.500	4.000	0.551	0.625					
10-3C	●	●		0.625	0.625	0.625	5.000	0.572	0.750					
12-3C	●	●		0.750	0.750	0.750	5.000	0.572	0.875					
16-3D	●	●		1.000	1.000	1.000	6.000	0.790	1.250					
SCLC% 1010F-06	●	●	mm	10	10	10	80	9	12	0.2	SB-2570TR	FT-8	-	
1010F-09	●	●		10	10	10	80	14	14					
1212H-09	●	●		12	12	12	100	14	16					
1616H-09	●	●		16	16	16	100	15	20					
2020K-09	●	●		20	20	20	125	20	25					
2525M-09	●	●		25	25	25	150	22	32					
SCLC% 1616H-12	●	●		0.4	16	16	16	100	20					20	SB-5090TR	-	LTW-20
2020K-12	●	●	20		20	20	125	22	25					
2525M-12	●	●	25		25	25	150	22	32					

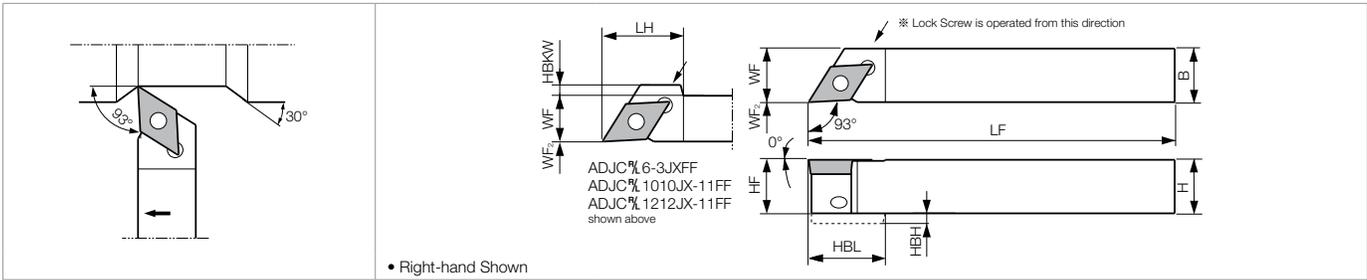
Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Material
Ref. Page	● B53	● B53	● B54	● B58, B59	● B55	● B60	● B60	● B60	● C24	● C14
Insert	SKS	SK	GK	(E/F)%-U	MQ	No Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
SCLC%...-2.. SCLC%...-2JXFF SCLC%...-06FF/-06	CCGT215..	CCGT215..	CCMT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
SCLC%...-3..(JCT) SCLC%...-3JXFF SCLC%...-09FF(JCT)/-09	CCGT325..	CCGT325..	CCMT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..
SCLC%...-12	-	-	CCMT43..	-	-	-	-	CCGT43..	-	-

Recommended Cutting Conditions E51

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

ADJC-FF (Without Offset • External / Copying)

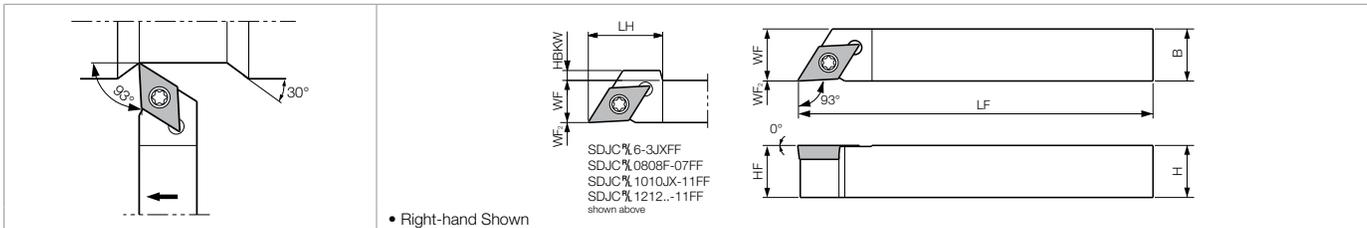


Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	HBH	B	LF	LH HBL	WF	HBKW	WF ₂		Anchor Pin	Lock Screw	Wrench
ADJC% 6-2JXFF	●	●	inch	0.375	0.375	-	0.375	4.750	-	0.375	-	0	0.008	LPF-11	HSB4X8%	FH-2
ADJC% 6-3JXFF	●	●		0.375	0.375	0.097	0.375	4.750	0.787	0.375	0.137	0	0.008	LPF-13		
ADJC% 8-3JXFF	●	●		0.500	0.500	-	0.500	4.750	-	0.500	-	0	0.008	LPF-17		
ADJC% 10-3JXFF	●	●		0.625	0.625	-	0.625	4.750	-	0.625	-	0	0.008	LPF-17		
ADJC% 1010JX-07FF	●	●	mm	10	10	-	10	120	-	10	-	0	0.2	LPF-11	HSB4X8%	FH-2
ADJC% 1010JX-11FF	●	●		10	10	2	10	120	20	10	3	0	0.2	LPF-13		
ADJC% 1212JX-11FF	●	●		12	12	-	12	120	20	12	1	0	0.2	LPF-13		
ADJC% 1616JX-11FF	●	●		16	16	-	16	120	-	16	-	0	0.2	LPF-17		

• Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder

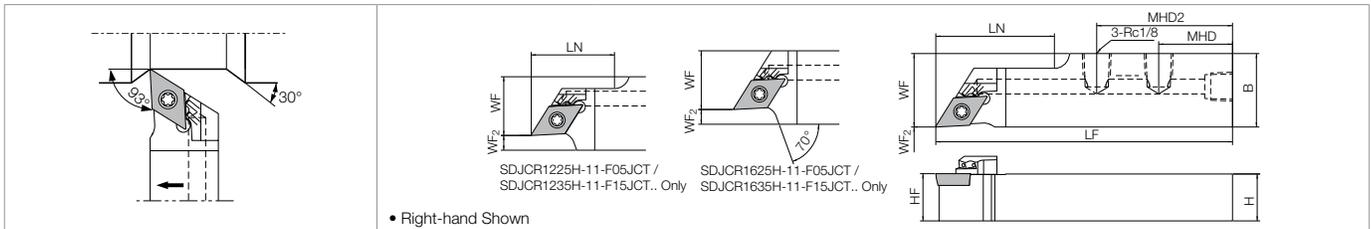
SDJC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Standard Corner-R (RE)	Drawing	Spare Parts	
	R	L		H	HF	B	LF	LH HBL	WF	HBKW	WF ₂	Clamp Screw			Wrench	
SDJC% 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	-	0.375	-	0	0.008	Fig.1	SB-2570TR	FT-8	
SDJC% 6-3JXFF	●	●		0.375	0.375	0.375	4.750	0.787	0.375	0.137						
SDJC% 8-3JXFF	●	●		0.500	0.500	0.500	4.750	-	0.500	-						
SDJC% 10-3JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	-						
SDJC% 0808F-07FF	●	●	mm	8	8	8	85	14	8	0.5	0	0.2	Fig.1	SB-2570TR	FT-8	
SDJC% 1212F-11FF	●	●		12	12	12	85	20	12	1.0						
SDJC% 1010JX-07FF	●	●		10	10	10	120	-	10	-						
SDJC% 1010JX-11FF	●	●		10	10	10	120	20	10	3.0						
SDJC% 1212JX-11FF	●	●	mm	12	12	12	120	20	12	1.0	0	0.2	Fig.1	SB-4085TR	FT-15	
SDJC% 1616JX-11FF	●	●		16	16	16	120	-	16	-						
SDJC% 2020JX-11FF	●	●		20	20	20	120	-	20	-						

SDJC-JCT (Without Offset • External / Copying, Jet Coolant-Through) NEW

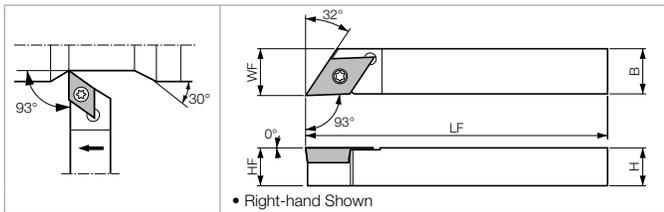


Toolholder Dimensions

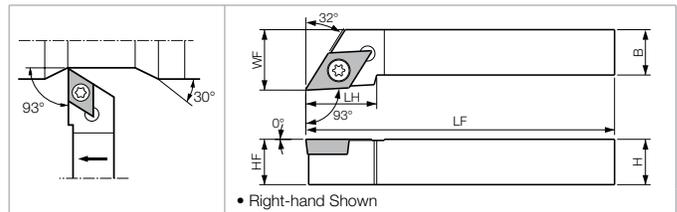
Coolant Connections and Pipe Parts H14-H15

Part Number	Stock		Unit	Dimensions								Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	B	LF	LN	WF	WF ₂	MHD		MHD2	Clamp Screw	Wrench	Plug
NEW SDJCR 62-3FFJCT	●		in	0.500	0.500	0.750	4.750	1.110	0.750		1.378	-	0.008	SB-4085TR	FT-15	GP-1
82.5-3FFJCT	●			0.625	0.625	1.000	4.750	1.582	1.000	0	0.984	1.811				
SDJCR 1220H-11FFJCT	●		mm	12	12	20	100	28	20		35	-	0.2	SB-4085TR	FT-15	GP-1
1625H-11FFJCT	●			16	16	25		40	25	0	25	46				
2025H-11FFJCT	●			20	20	25		40	25		25	46				
SDJCR 1225H-11-F05JCT	●		mm	12	12	25	100	28	20	5	35	-	0.2	SB-4085TR	FT-15	GP-1
1235H-11-F15JCT	●			12	12	35		28	20	15	35	-				
1625H-11-F05JCT	●			16	16	25		-	20	5	25	46				
1635H-11-F15JCT	●		mm	16	16	35	100	-	20	15	25	46	0.2			

SDJC-F (External / Copying)



SDJC (External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	B	LF	LH	WF	HBKW	WF ₂		Clamp Screw	Wrench	
SDJC% 6-2CF	●	●	inch	0.375	0.375	0.375	5.000		0.395	-	-	0.004	SB-2570TR	FT-8	
SDJC% 8-3DF	●	●		0.500	0.500	0.500	6.000	-	0.520	-	-	1/32	SB-4085TR	FT-15	
SDJC% 6-2X	●	●		0.375	0.375	0.375	3.000	0.472	0.500	-	-	0.004	SB-2570TR	FT-8	
SDJC% 8-3A	●	●		0.500	0.500	0.500	4.000	0.709	0.625						
10-3C	●	●		0.625	0.625	0.625	5.000	0.709	0.750						
12-3C	●	●		0.750	0.750	0.750			0.875						
16-3D	●	●		1.000	1.000	1.000	6.000	0.810	1.250			0.008	SB-2570TR	FT-8	
SDJC% 1010F-07	●	●		mm	10	10	10	80	12	12	-	-			0.2
SDJC% 1010F-11	●	●		mm	10	10	10	80	18	12	-	-	0.2	SB-4085TR	FT-15
1212H-11	●	●		12	12	12	100	18	16	-	-				
1616H-11	●	●	16	16	16	100	18	20	-	-					
2020K-11	●	●	20	20	20	125	18	25	-	-					
2525M-11	●	●	mm	25	25	25	150	23	32	-	-				

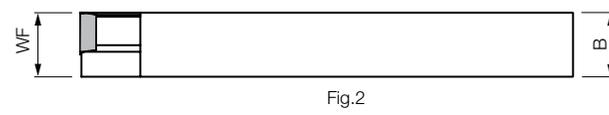
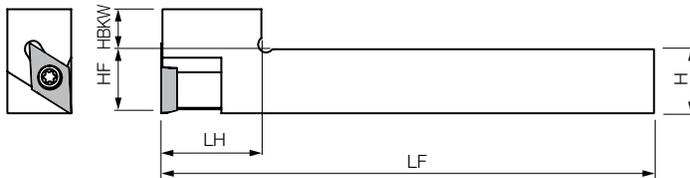
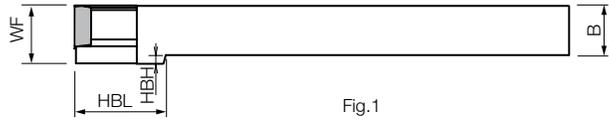
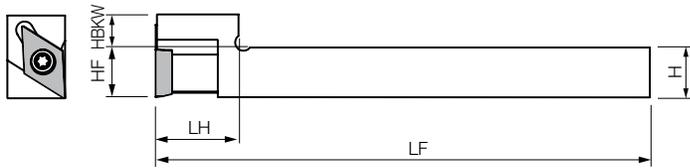
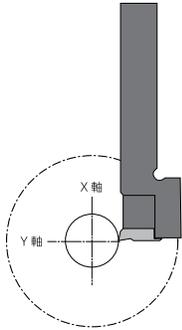
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed
Ref. Page	● B62	● B62	● B62	● B63	● B63	● B64	● B63	● B67	● B66	● B68, B69
Insert	CF	SKS	SK	WP (Wiper)	PP	GK	GQ	%-F	%-FSF	(E/F) %-U
Toolholder										
Application	Low Feed / Precision	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard materials
Ref. Page	● B68	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C15
Insert	F%-USF	(E/F) %-J	XP	XQ	MQ	No Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
Application	Low Feed / Precision	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard materials
Ref. Page	● B68	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C15
Insert	F%-USF	(E/F) %-J	XP	XQ	MQ	No Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
Application	Low Feed / Precision	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard materials
Ref. Page	● B68	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C15
Insert	F%-USF	(E/F) %-J	XP	XQ	MQ	No Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										

When using WP chipbreaker, program corrections are required. R51

Recommended Cutting Conditions E51

SDJC-FF-Y (Y-axis External / Copying) NEW



• Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions										Standard Corner-R (RE)	Drawing	Spare Parts	
	R	L		H	HF	B	LF	LH	WF	HBKW	HBL	HBH	WF ₂			Clamp Screw	Wrench
SDJCR 1212JX-11FF-Y	●		mm	12	12	12	120	20	14	8	22	2	0	0.2	Fig.1	SB-4085TR	FT-15
1616JX-11FF-Y	●			16	16	16	120	25	16	10	-	-						Fig.2

Applicable Inserts

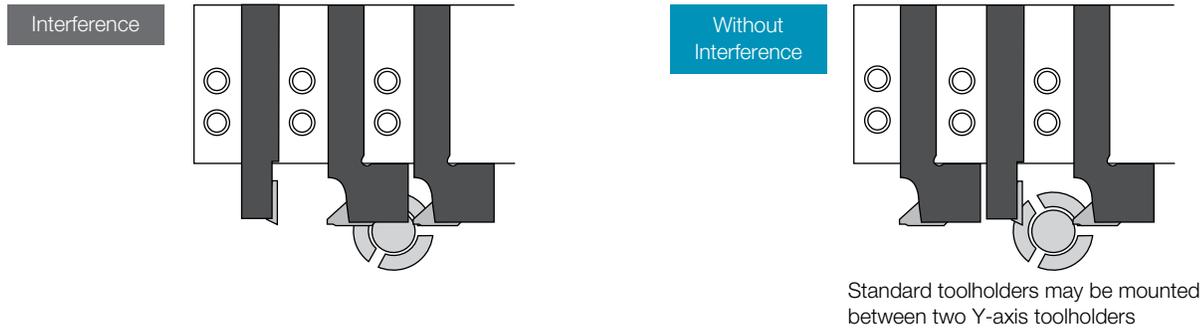
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B62	● B62	● B63	● B63	● B64	● B63	● B67	● B66	● B68, B69	● B68
Insert	CF	GF	SKS	SK	WP (Wiper)	PP	GK	GQ	R-F	R-FSF	(E/F) R-U	FR-USF
Toolholder												
Application	Low Feed	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
Ref. Page	● B70, B71	● B70	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C25	● C15	
Insert	(E/F)R-J	FR-JSF	XP	XQ	MQ	No Chipbreaker	AH	R-A3	PCD	APD	CBN	
Toolholder												
SDJCR...3JX-F... SDJCR...11-F...	DCGT325..	DCGT325..	DCGT325..	DCGT325..	DCMX325..	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..	DCET325..
SDJCR...3JX-F... SDJCR...11-F...	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCMW325..	

When using WP chipbreaker, program corrections are required. ● R51

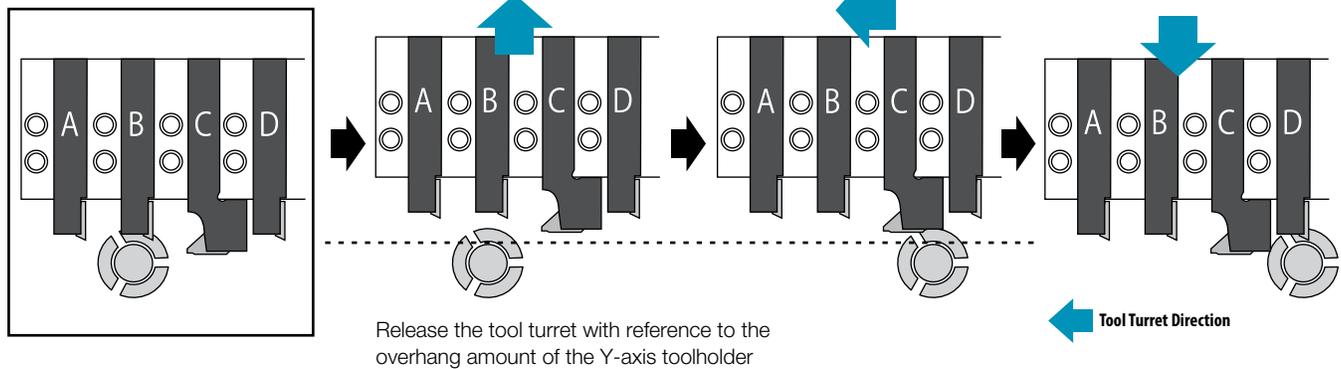
Recommended Cutting Conditions ● E51

Precautions

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)



When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder (When exchanging from tool B to D)



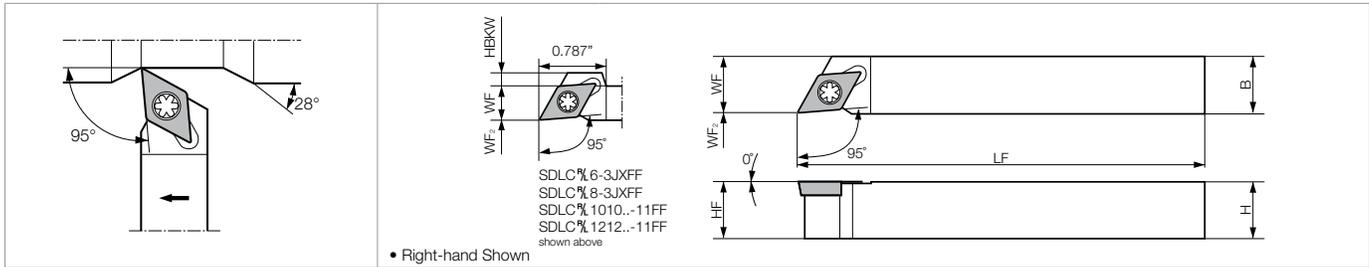
Note that using other toolholder styles together will result in different outside diameters

(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L			
		Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

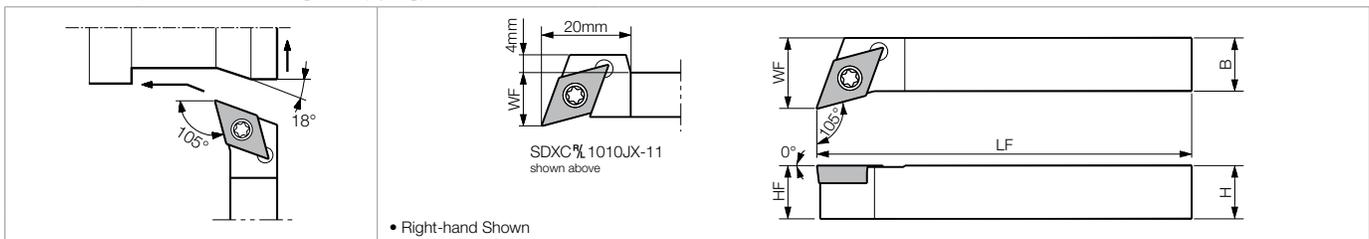
SDLC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (FE)	Spare Parts	
	R	L		H	HF	B	LF	WF	HBKW	WF ₂		Clamp Screw	Wrench
SDLC% 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	0.375	-	0	0.008	SB-2570TR	FT-8
SDLC% 6-3JXFF	●	●		0.375	0.375	0.375	4.750	0.375	0.176	0			
SDLC% 8-3JXFF	●	●		0.500	0.500	0.500	4.750	0.500	0.051	0			
SDLC% 10-3JXFF	●	●		0.625	0.625	0.625	4.750	0.625	-	0			
SDLC% 1010JX-07FF	●	●	mm	10	10	10	120	10	-	0	0.2	SB-2570TR	FT-8
SDLC% 1212JX-07FF	●	●		12	12	12	120	12	-	0			
SDLC% 1616JX-07FF	●	●		16	16	16	120	16	-	0			
SDLC% 1010JX-11FF	●	●		10	10	10	120	10	4	0			
SDLC% 1212JX-11FF	●	●		12	12	12	120	12	2	0	0.2	SB-4085TR	FT-15
SDLC% 1616JX-11FF	●	●		16	16	16	120	16	-	0			
SDLC% 1212F-07FF	●			12	12	12	85	12	-	0	0.2	SB-2570TR	FT-8
SDLC% 1010F-11FF	●	△		10	10	10	80	10	4	0	0.2	SB-4085TR	FT-15
SDLC% 1212F-11FF	●		12	12	12	85	12	2	0				
SDLC% 1616H-11FF	●		16	16	16	100	16	-	0				

SDXC (External / Facing / Copying)



Toolholder Dimensions

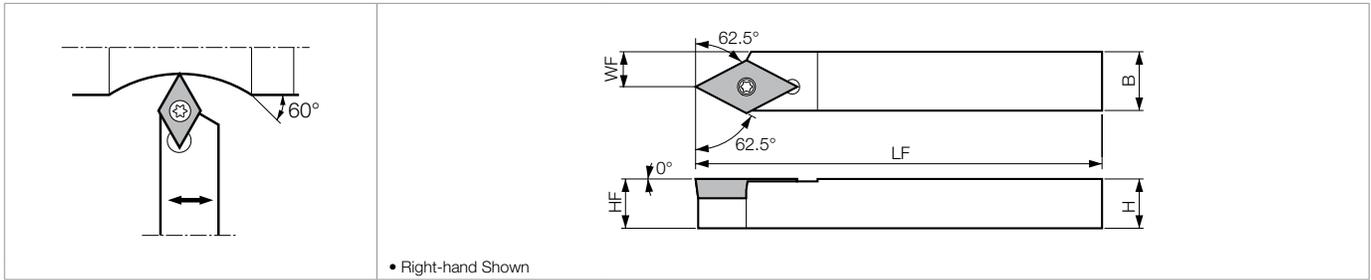
Part Number	Stock		Dimensions (mm)					Standard Corner-R (FE)	Spare Parts	
	R	L	H	HF	B	LF	WF		Clamp Screw	Wrench
SDXC% 1010JX-07	●	●	10	10	10	120	12	0.2	SB-2570TR	FT-8
SDXC% 1010JX-11	●	●	10	10	10	120	12	0.2		
SDXC% 1212JX-11	●	●	12	12	12	120	16	0.2	SB-4085TR	FT-15
SDXC% 1616JX-11	●	●	16	16	16	120	20	0.2		

Applicable Inserts

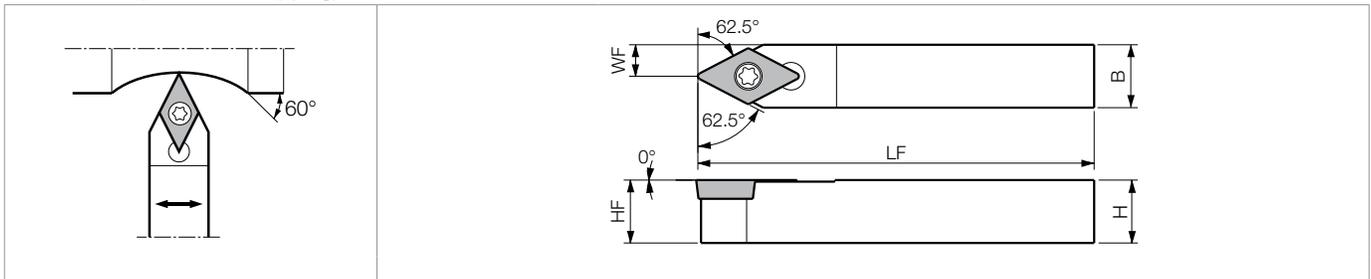
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B62	● B62	-	● B63	● B64	● B63	● B67	● B66	● B68, B69	● B68
Insert	CF	GF	SKS	SK	WP (Wiper)	PP	GK	GQ	R-F	R-FSF	(E/F) R-U	FR-USF
Toolholder												
SDLC%...2... / -07... SDXC%...-07	DCGT215..	DCGT215..	DCGT215..	DCGT215..	-	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDLC%...3... / -11... SDXC%...-11	DCGT325..	DCGT325..	DCGT325..	DCGT325..	-	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..	DCET325..
Application	Low Feed	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
Ref. Page	● B70, B71	● B70	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C25	● C15	
Insert	(E/F)R-J	FR-JSF	XP	XQ	MQ	No Chipbreaker	AH	R-A3	PCD	APD	CBN	
Toolholder												
SDLC%...2... / -07... SDXC%...-07	DCET215..	DCET215..	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMT215..	DCMW215..	
SDLC%...3... / -11... SDXC%...-11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCMW325..	

Recommended Cutting Conditions ● E51

SDNC-F (External / Copying)



SDNC (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions					Standard Corner-R (RE)	Spare Parts	
	R	N	L		H	HF	B	LF	WF		Clamp Screw	Wrench
SDNC% 6-2JXF	●		●	inch	0.375	0.375	0.375	4.750	0.257	0.008	SB-2570TR	FT-8
SDNC% 1010JX-07F	●		●	mm	10	10	10	120	7	0.2	SB-2570TR	FT-8
SDNCN 6-2JX		●		inch	0.375	0.375	0.375	4.750	0.187	0.008	SB-2570TR	FT-8
8-2JX		●			0.500	0.500	0.500	4.750	0.250			
6-3JX		●			0.375	0.375	0.375	4.750	0.187			
8-3JX		●			0.500	0.500	0.500	4.750	0.250			
10-3JX		●			0.625	0.625	0.625	4.750	0.312			
SDNCN 1010JX-07		●		mm	10	10	10	120	5	0.2	SB-2570TR	FT-8
1212JX-07		●			12	12	12	120	6			
SDNCN 1010JX-11		●		mm	10	10	10	120	5	0.2	SB-4085TR	FT-15
1212JX-11		●			12	12	12	120	6			
1616JX-11		●			16	16	16	120	8			
SDNCN 1010F-11		●		mm	10	10	10	80	5	0.2	SB-4085TR	FT-15
1616H-11		●			16	16	16	100	8			

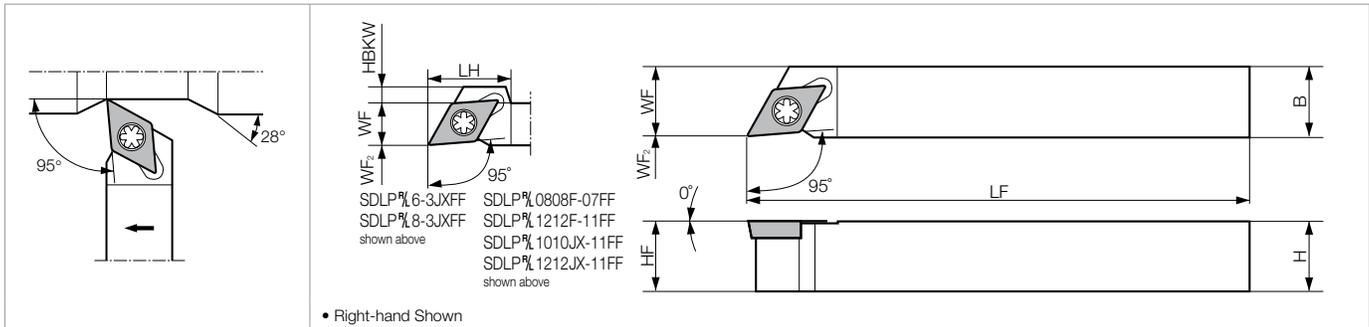
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B62	● B62	-	● B63	● B64	● B63	● B67	● B66	● B68, B69	● B68
Insert	CF	GF	SKS	SK	WP (Wiper)	PP	GK	GQ	R-F	R-FSF	(E/F) R-U	FR-USF
Toolholder												
SDNC%...-2... / -07... SDNCN...-07	DCGT215..	DCGT215..	DCGT215..	DCGT215..	-	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDNCN...-... / -11	DCGT325..	DCGT325..	DCGT325..	DCGT325..	-	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..	DCET325..
Application	Low Feed	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	
Ref. Page	● B70, B71	● B70	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C25	● C15	
Insert	(E/F)R-J	FR-JSF	XP	XQ	MQ	No Chipbreaker	AH	R-A3	PCD	APD	CBN	
Toolholder												
SDNC%...-2... / -07... SDNCN...-07	DCET215..	DCET215..	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMT215..	DCMW215..	
SDNCN...-... / -11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCMW325..	

Recommended Cutting Conditions ● E51

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SDLP-FF (Without Offset • External / Copying)



Toolholder Dimensions

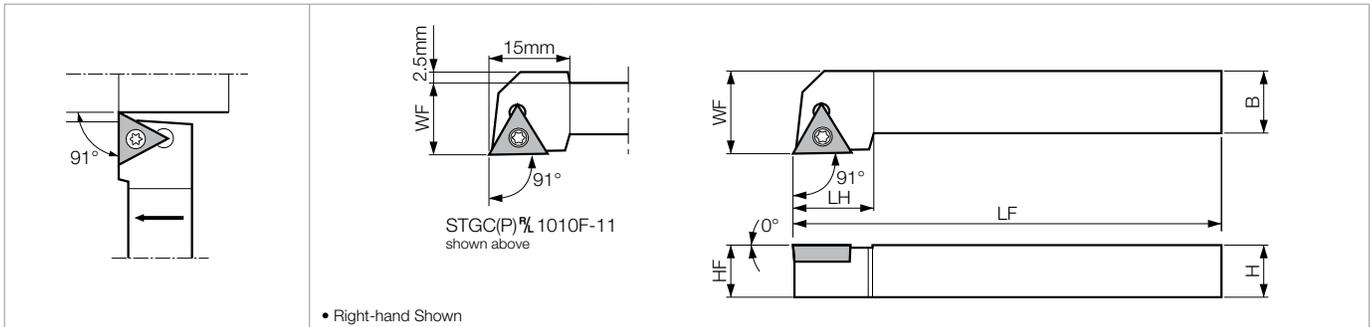
Part Number	Stock		Unit	Dimensions								Standard Corner-R(RE)	Spare Parts	
	R	L		H	HF	B	LF	LH	WF	HBKW	WF ₂		Clamp Screw	Wrench
SDLP% 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	-	0.375	-	0	0.008	SB-2570TR	FT-8
SDLP% 6-3JXFF	●	●		0.375	0.375	0.375	4.750	-	0.375	0.176	0			
SDLP% 8-3JXFF	●	●		0.500	0.500	0.500	4.750	0.375	0.500	0.051	0			
SDLP% 10-3JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	-	0			
SDLP% 0808F-07FF	●	●	mm	8	8	8	85	14	8	0.5	0	0.2	SB-2570TR	FT-8
SDLP% 1010JX-07FF	●	●		10	10	10	120	-	10	-	0			
SDLP% 1010JX-11FF	●	●		10	10	10	120	20	10	4.0	0			
SDLP% 1212JX-11FF	●	●		12	12	12	120	20	12	2.0	0			
SDLP% 1616JX-11FF	●	●		16	16	16	120	-	16	-	0			

Applicable Inserts

Application	Finishing / Precision	Low Feed / Precision
Ref. Page	● B72	● B72
Insert	● FFSF	● F-USF
Toolholder		
SDLP% ...-2JXFF SDLP% ...-07FF	DPET215..	DPET215..
SDLP% ...-3JXFF SDLP% ...-11FF	DPET325..	DPET325..

Recommended Cutting Conditions ● E51

STGC(P) (External)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(RE)	Spare Parts	
	R	L		H	HF	B	LF	LH	WF		Clamp Screw	Wrench
STGC% 6-1.5X	●		inch	0.375	0.375	0.375	3.00	0.453	0.500	0.008	SB-2060TR	FT-8
8-2A	●	●		0.500	0.500	0.500	4.00	0.590	0.625	1/64	SB-2570TR	
STGC% 0808E-08	●		mm	8	8	8	70	12	10	0.2	SB-2050TR	FT-6
1010F-08	●	●		10	10	10	80	12	12			
STGC% 1010F-11	●	●		10	10	10	80	15	14	0.4	SB-2570TR	FT-8
1212H-11	●	●		12	12	12	100	15	16			
1616H-11	●	●		16	16	16	100	15	20			
2020K-11	●	●		20	20	20	125	15	25			
2525M-11	●	●		25	25	25	150	20	32			
STGP% 0808E-08	●			8	8	8	70	12	10				0.2	SB-2050TR	FT-6
STGP% 1010F-11	●	●	10	10	10	80	15	14	0.2	SB-3080TR	FT-10	
1212H-11	●	●	12	12	12	100	15	16				
1616H-11	●	●	16	16	16	100	15	20				

Applicable Inserts (STGC)

Application	Low Feed	Low Feed / Precision	Cast Iron	Non-ferrous Metals	Non-ferrous Metals
Ref. Page	● B78	● B77	● B79	● B79	● C26
Insert	(E/F) %-U	F%-USF	Without Chipbreaker	%-A3	PCD
Toolholder					
STGC%...-1.5X STGC%...-08	TCGT1515..	TCET1515..	TCGW1515..	-	TCMT1515..
STGC%...-2A STGC%...-11	TCGT22..	TCET22..	TCGW22..	TCGT22..	TCMT22.. TCGW22..

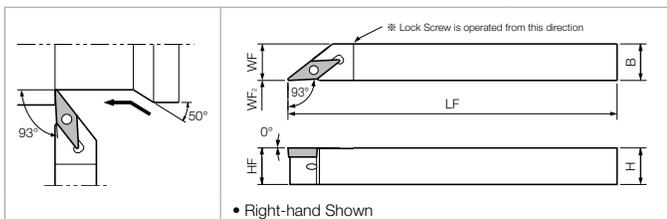
Applicable Inserts (STGP)

Application	Minute D.O.C.	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Medium	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Cast Iron
Ref. Page	● B80	● B80	● B81	● B82, B83	● B85	● B86	● B84	● B81	● B81	● B86
Insert	CF	PP	HQ	%	%-FSF	F%-USF	%-H	XP	XQ	No Chipbreaker
Toolholder										
STGP%...-08	TPGT1515..	-	-	TPGH1515..	TPET1515..	TPET1515..	-	-	-	TPGB1515..
STGP%...-11	-	TPMT22..	TPMT22..	TPGH22..	TPET22..	TPET22..	TPGH22..	TPMT22..	TPMT22..	TPGB22..
Application	Non-ferrous Metals	Non-ferrous Metals	Hard Materials							
Ref. Page	● C26 ~ C28	● C27	● C16							
Insert	PCD	APD	CBN							
Toolholder										
STGP%...-08	TPMH1515.. TPGB1515..	-	TPGB1515..							
STGP%...-11	TPMH22.. TPGB22..	TPMT22..	TPGB22..							

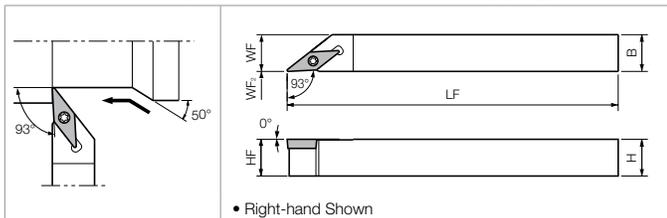
Recommended Cutting Conditions ● E51

INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

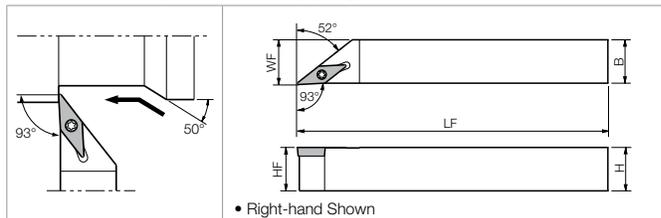
AVJB-FF (Without Offset • External / Copying)



SVJB-FF (Without Offset • External / Copying)



SVJB-F (External / Copying)

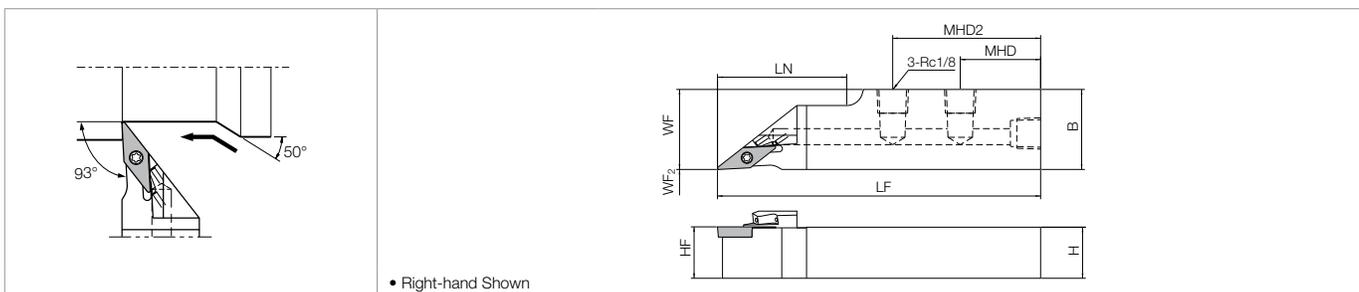


Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	B	LF	WF	WF ₂		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AVJB% 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	0.375	0	1/64	LPF-11	HSB4X8%	-	FH-2
8-2JXFF	●	●		0.500	0.500	0.500	4.750	0.500						
10-2JXFF	●	●		0.625	0.625	0.625	4.750	0.625						
AVJB% 1010JX-11FF	●	●	mm	10	10	10	120	10	0	0.4	LPF-11	HSB4X8%	-	FH-2
1212JX-11FF	●	●		12	12	12	120	12						
1616JX-11FF	●	●		16	16	16	120	16						
SVJB% 6-2JXFF	●	●	inch	0.375	0.375	0.375	4.750	0.375	0	1/64	-	-	SB-2570TR	FT-8
8-2JXFF	●	●		0.500	0.500	0.500	4.750	0.500						
10-2JXFF	●	●		0.625	0.625	0.625	4.750	0.625						
SVJB% 1010JX-11FF	●	●	mm	10	10	10	120	10	0	0.4	-	-	SB-2570TR	FT-8
1212JX-11FF	●	●		12	12	12	120	12						
1616JX-11FF	●	●		16	16	16	120	16						
SVJB% 2020JX-11FF	●	●		20	20	20	120	20						
SVJB% 6-2CF	●	●	inch	0.375	0.375	0.375	5.000	0.395	-	1/64	-	-	SB-2570TR	FT-8
8-2DF	●	●		0.500	0.500	0.500	6.000	0.520						

• Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder

SVJB-FFJCT (Without Offset • External / Copying, Jet Coolant-Through) NEW

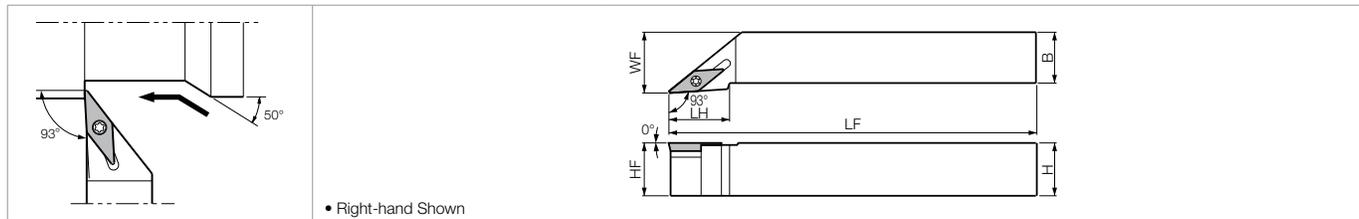


Toolholder Dimensions

Coolant Connections and Pipe Parts H14-H15

Part Number	Stock		Unit	Dimensions								Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	B	LF	LN	WF	WF ₂	MHD		MHD2	Clamp Screw	Wrench	Plug
SVJBR 62-2FFJCT	●	●	inch	0.500	0.500	0.750	4.750	1.110	0.750	0	1.378	-	1/64	SB-2570TR	FT-8	GP-1
82.5-2FFJCT	●	●		0.625	0.625	1.000	4.750	1.110	1.000		0.984	1.811				
SVJBR 1220H-11FFJCT	●	●	mm	12	12	20	100	28	20	0	35	-	0.4	SB-2570TR	FT-8	GP-1
1625H-11FFJCT	●	●		16	16	25		40	25		25	46				
2025H-11FFJCT	●	●		20	20	25		40	25		25	46				

SVJB (External / Copying)

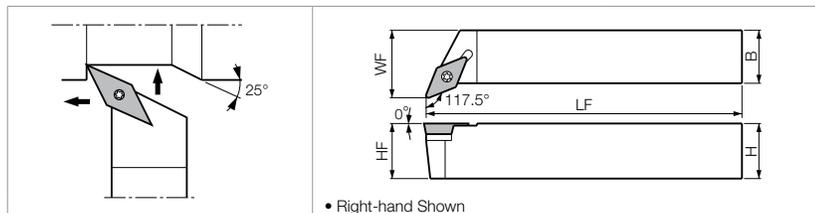


Toolholder Dimensions

Part Number	Stock		Dimensions							Standard Corner-R (RE)	Clamp Screw	Wrench	Shim	Shim Screw	Wrench
	R	L	H	HF	B	LF	WF	WF ₂							
SVJB% 6-2X	●	●	0.375	0.375	0.375	3.000	0.500	-	1/64	SB-2570TR	FT-8	-	-	-	
SVJB% 8-2A	●	●	0.500	0.500	0.500	4.000	0.625	-	1/64	SB-2570TR	FT-8	-	-	-	
	●	●	0.750	0.750	0.750	5.000	0.875	-	1/32	SB-4085TR	T-15	-	-	-	
	●	●	1.000	1.000	1.000	6.000	1.250	-	1/32	-	-	-	-	-	
SVJB% 2020K-11	●	●	20	20	20	125	25	-	0.4	SB-2570TR	FT-8	-	-	-	
	●	●	25	25	25	150	32	-	0.4	-	-	-	-	-	
SVJB% 2020K-16N	●	●	20	20	20	125	25	-	0.8	SB-40125TRN	FT-15	SVN-32N (SVN-32S)	SS-4N	LW-4	
	●	●	25	25	25	150	32	-	0.8	-	-	-	-	-	

• For insert with corner-R (RE) = 0.008" or 1/64", shim in parentheses is recommended (sold separately)

SVPB (External / Facing / Copying / Undercutting)



Undercutting Diameter of SVPB

Corner-R (RE)	D.O.C.	DCN (MIN)
0.016	0.020	Ø0.984
	0.039	Ø1.181
0.032	0.020	Ø1.772
	0.039	Ø2.165

Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R (RE)	Spare Parts				
	R	L	H	HF	B	LF	WF		Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB% 1010JX-11	●	●	10	10	10	120	14.5	0.4					
	●	●	12	12	12	120	16.5						
	●	●	16	16	16	120	20.5						
SVPB% 2020K-11	●	●	20	20	20	125	25.0	0.4	SB-2570TR	FT-8	-	-	-
	●	●	25	25	25	150	32.0						
SVPB% 2020K-16N	●	●	20	20	20	125	25.0	0.8	SB-40125TRN	FT-15	SVN-32N (SVN-32S)	SS-4N	LW-4
	●	●	25	25	25	150	32.0						

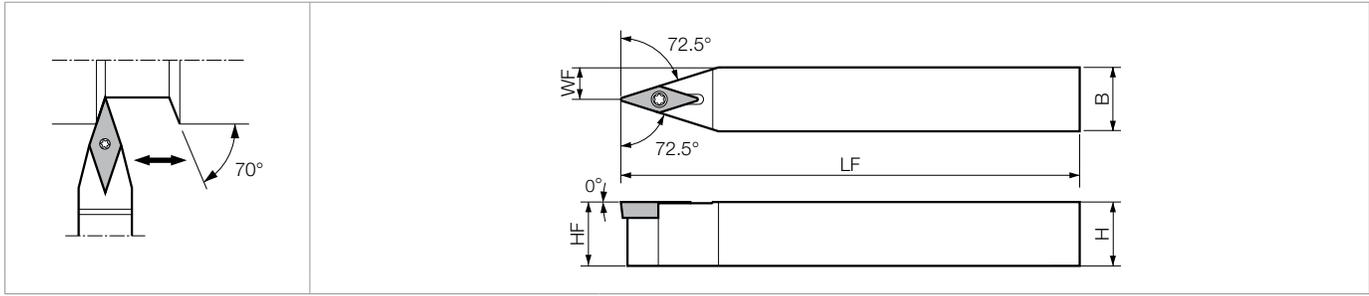
• For insert with corner-R (RE) = 0.008" or 1/64", shim in parentheses is recommended (sold separately)

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	● B89	● B89	● B89	● B90	● B89	● B91	● B93	● B93	● C28	● C17
Insert	GP	VF	HQ	%-F	%-FSF	%-Y	AH	%-A3	PCD	CBN
Toolholder										
□VJB%...-2... □VJB%...-11... SVPB%...-11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
SVJB%...-3... SVJB%...-16N SVPB%...-16N	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33..

Recommended Cutting Conditions ● E51

SVVB (External / Copying)



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions					Standard Corner-R(RE)	Spare Parts				
			H	HF	B	LF	WF		Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVBN 6-2JX	●	inch	0.375	0.375	0.375	4.750	0.187	0.016			-	-	-
8-2JX	●		0.500	0.500	0.500	4.750	0.250						
10-2JX	●		0.625	0.625	0.625	4.750	0.312						
SVBN 1010JX-11	●	mm	10	10	10	120	5.0	0.4	SB-2570TR	FT-8	-	-	-
1212JX-11	●		12	12	12	120	6.0						
1616JX-11	●		16	16	16	120	8.0						
SVBN 1010F-11	●	mm	10	10	10	80	5.0	0.4	SB-2570TR	FT-8	-	-	-
1616H-11	●		16	16	16	100	8.0						
2020K-11	●		20	20	20	125	10.0						
2525M-11	●		25	25	25	150	12.5						
SVBN 2020K-16N	●	mm	20	20	20	125	10.0	0.8	SB-40125TRN	FT-15	SVN-32N (SVN-32S)	SS-4N	LW-4
2525M-16N	●		25	25	25	150	12.5						

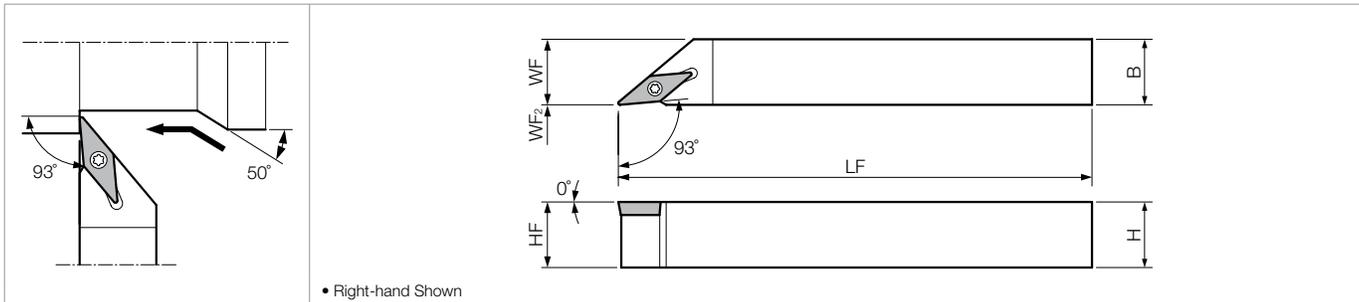
● For insert with corner-R (RE) = 0.008" or 1/64", shim in parentheses is recommended (sold separately)

Applicable Inserts

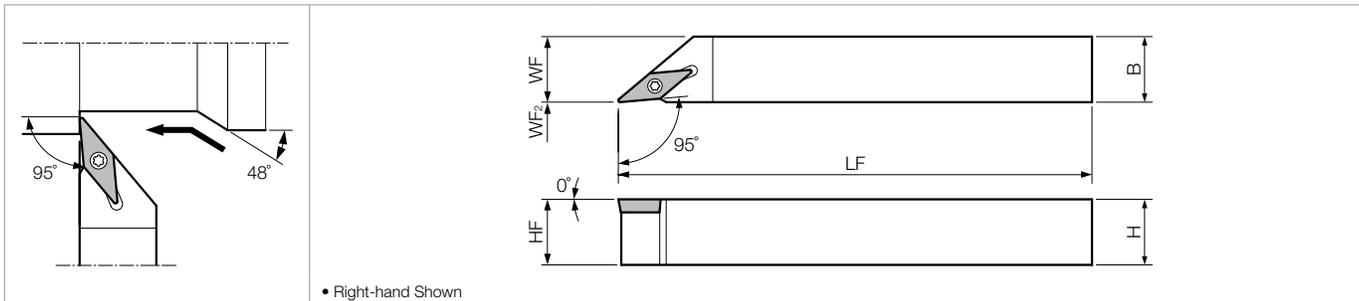
Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	● B89	● B89	● B89	● B90	● B89	● B91	● B93	● B93	● C28	● C17
Insert	GP	VF	HQ	%-F	%-FSF	%-Y	AH	%-A3	PCD	CBN
Toolholder										
SVBN...-2JXFF SVBN...-11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
SVBN...-16N	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33..

Recommended Cutting Conditions ● E51

SVJC-FF (Without Offset • External / Copying)



SVLC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts	
	R	L		H	HF	B	LF	WF	WF ₂		Clamp Screw	Wrench
SVJC% 1010JX-11FF	●	●	mm	10	10	10	120	10	0	0.2	SB-2570TR	FT-8
	●	●		12	12	12	85	12				
	●	●		12	12	12	120	12				
	●	●		16	16	16		16				
	●	●		20	20	20	20					
SVLC% 1212F-11FF	●	●	mm	12	12	12	85	12	0	0.2	SB-2570TR	FT-8
	●	●		12	12	12	120	12				
	●	●		16	16	16	120	16				

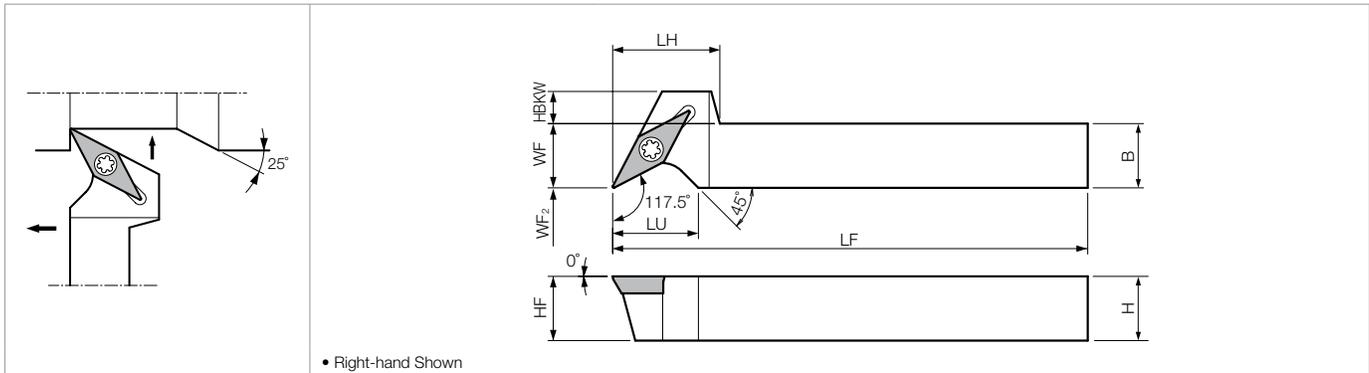
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium
Ref. Page	➔ B92	➔ B92	➔ B92	➔ B93	➔ B93
Insert	CF	GF	SKS	%-F	%-Y
Toolholder					
SVJC%...11FF	VCGT22..	VCGT22..	VCGT22..	VCET22..	VCET22..
SVLC%...11FF					

Recommended Cutting Conditions ➔ E51

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

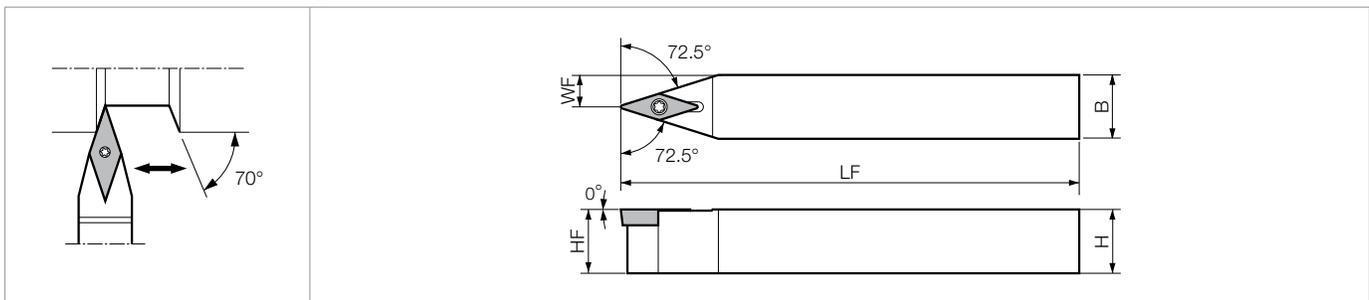
SVPC-FF (Without Offset • External / Facing / Copying / Undercutting)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	B	LF	LU	LH	WF	HBKW		WF ₂	Clamp Screw	Wrench
SVPCR 1010JX-11FF	●		mm	10	10	10	120	16	20	10	8	0	0.2	SB-2570TR	FT-8
1212F-11FF	●			12	12	12	85	16		12	6				
1212JX-11FF	●			12	12	12	120	16		12	6				
1616JX-11FF	●			16	16	16	120	20		16	2				

SVVC (External / Copying)



Toolholder Dimensions

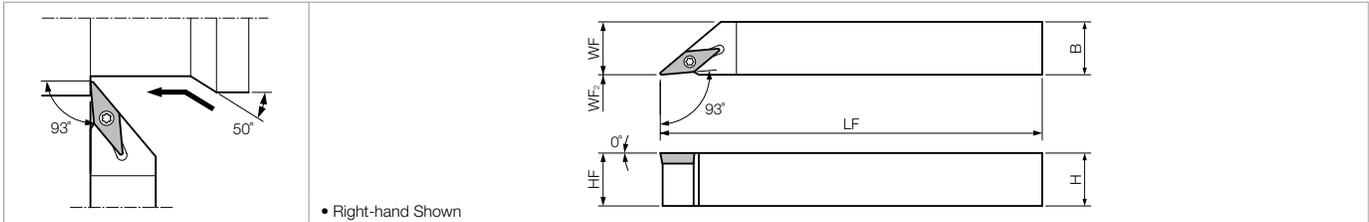
Part Number	Stock	Unit	Dimensions					Standard Corner-R (RE)	Spare Parts	
			H	HF	B	LF	WF		Clamp Screw	Wrench
SVVCN 1010JX-11	●	mm	10	10	10	120	5	0.2	SB-2570TR	FT-8
1212JX-11	●		12	12	12		6			
1616JX-11	●		16	16	16		8			

Applicable Inserts

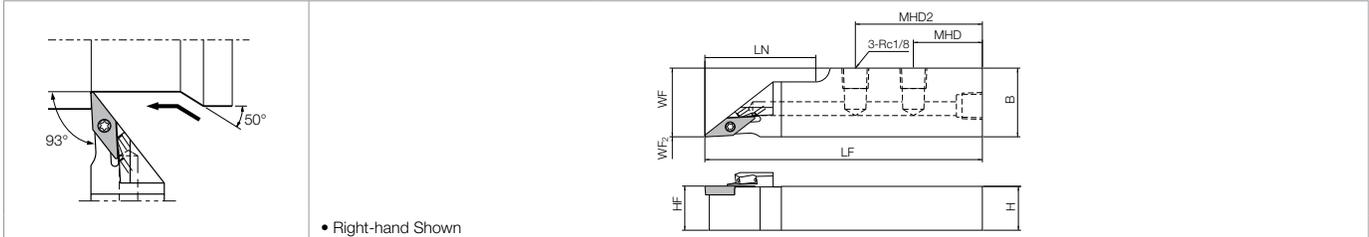
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium
Ref. Page	● B92	● B92	● B92	● B93	● B93
Insert	CF	GF	SKS	ℓ-F	ℓ-Y
Toolholder					
SVPCR...11FF	VCGT22..	VCGT22..	VCGT22..	VCET22..R-F	VCET22..R-Y
SVVCN...11				VCET22.. ℓ-F	VCET22.. ℓ-Y

Recommended Cutting Conditions ● E51

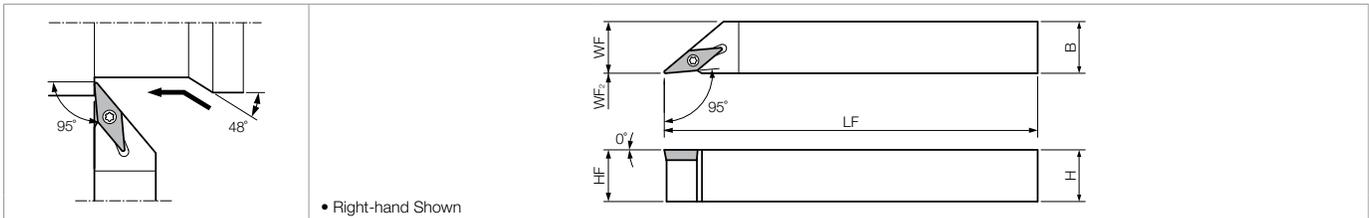
SVJP-FF (Without Offset • External / Copying)



SVJP-FFJCT (Without Offset • External / Copying, Jet Coolant-Through) NEW



SVLP-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions										Standard Corner-R (RE)	Spare Parts		
	R	L		H	HF	B	LF	LN	WF	WF ₂	MHD	MHD2	Clamp Screw		Wrench	Plug	
SVJP% 8-2JXFF	●	●	inch	0.500	0.500	0.500	4.750	-	0.500	0	-	-	0.008	SB-2570TR	FT-8	-	
10-2JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	0	-	-	0.008				
SVJP% 1212F-11FF	●	●	mm	12	12	12	85	-	12	0	-	-	0.2	SB-2570TR	FT-8	-	
1212JX-11FF	●	●		12	12	12	120	-	12	0	-	-	0.2				
1616JX-11FF	●	●		16	16	16	120	-	16	0	-	-	0.2				
2020JX-11FF	●	●		20	20	20	120	-	20	0	-	-	0.2				
SVJPR 1220H-11FFJCT	●	●	mm	12	12	20	100	28	20	0	35	-	0.2	SB-2570TR	FT-8	GP-1	
1625H-11FFJCT	●	●		16	16	25	100	40	25	0	25	46	0.2				
2025H-11FFJCT	●	●		20	20	25	100	40	25	0	25	46	0.2				
SVLP% 6-15JXFF	●	●	inch	0.375	0.375	0.375	4.750	-	0.375	0	-	-	0.004	SB-2550TR	FT-6	-	
8-15JXFF	●	●		0.500	0.500	0.500	4.750	-	0.500	0	-	-	0.004				
10-15JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	0	-	-	0.008				
8-2JXFF	●	●		0.500	0.500	0.500	4.750	-	0.500	0	-	-	0.008				
10-2JXFF	●	●		0.625	0.625	0.625	4.750	-	0.625	0	-	-	0.008				
SVLP% 1010JX-08FF	●	●		10	10	10	120	-	10	0	-	-	0.1				SB-2050TR	FT-6	-
1212JX-08FF	●	●	12	12	12	120	-	12	0	-	-	0.1					
1616JX-08FF	●	●	16	16	16	120	-	16	0	-	-	0.1					
SVLP% 1212JX-11FF	●	●	mm	12	12	12	120	-	12	0	-	-	0.2	SB-2570TR	FT-8	-	
1616JX-11FF	●	●		16	16	16	120	-	16	0	-	-	0.2				
SVLP% 1212F-08FF	●	●		12	12	12	85	-	12	0	-	-	0.1				
SVLP% 1212F-11FF	●	●	12	12	12	85	-	12	0	-	-	0.2	SB-2570TR	FT-8	-		

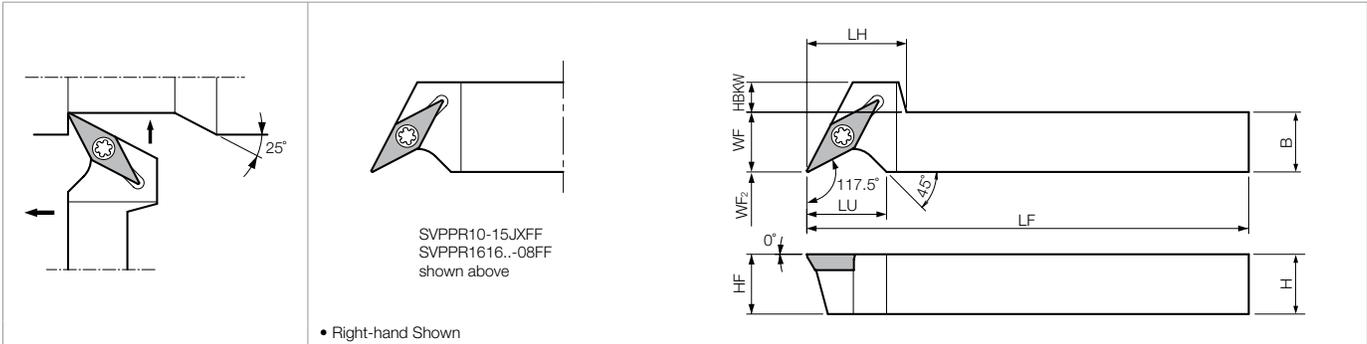
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B94	● B94	● B94	● B94	● B95	● B96	● B96
Insert	CF	SKS	CK	GF	%-FSF	F%-U	F%-USF
Toolholder							
SVLP%...-15JXFF	-	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SVLP%...-08FF	-	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SV□P%...-2JXFF	VPGT22..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPET22..	VPET22..
SV□P%...-11FF(JCT)	VPGT22..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPET22..	VPET22..

Recommended Cutting Conditions ● E51

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SVPP-FF (Without Offset • External / Facing / Copying / Undercutting)



Toolholder Dimensions

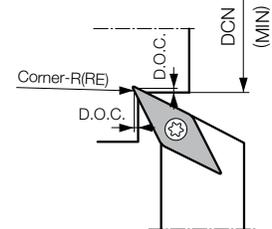
Part Number	Stock	Unit	Dimensions									Standard Corner-R(RE)	Spare Parts	
			H	HF	B	LF	LU	LH	WF	HBKW	WF ₂		Clamp Screw	Wrench
SVPPR 6-15JXFF	●	inch	0.375	0.375	0.375	4.750	0.472	0.630	0.375	0.176	0	0.004	SB-2050TR	FT-6
8-15JXFF	●		0.500	0.500	0.500	4.750	0.551	0.630	0.500	0.051	0			
10-15JXFF	●		0.625	0.625	0.625	4.750	0.787	-	0.625	-	0			
SVPPR 6-2JXFF	●	inch	0.375	0.375	0.375	4.750	0.630	0.787	0.375	0.334	0	0.008	SB-2570TR	FT-8
8-2JXFF	●		0.500	0.500	0.500	4.750	0.630	0.787	0.500	0.209	0			
10-2JXFF	●		0.625	0.625	0.625	4.750	0.787	0.787	0.625	0.084	0			
SVPPR 1010JX-08FF	●	mm	10	10	10	120	12	16	10.0	4	0	0.1	SB-2050TR	FT-6
1212JX-08FF	●		12	12	12	120	12	16	12.0	2	0			
1616JX-08FF	●		16	16	16	120	12	-	16.0	-	0			
SVPPR 1010JX-11FF	●	mm	10	10	10	120	16	20	10.0	8	0	0.2	SB-2570TR	FT-8
1212JX-11FF	●		12	12	12	120	16	20	12.0	6	0			
1616JX-11FF	●		16	16	16	120	16	20	16.0	2	0			
SVPPR 1212F-08FF	●	mm	12	12	12	85	12	16	12.0	2	0	0.1	SB-2050TR	FT-6
1212F-11FF	●		12	12	12	85	16	20	12.0	6	0			

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B94	● B94	● B94	● B94	● B95	● B96	● B96
Insert	CF	SKS	CK	GF	%-FSF	F%-U	F%-USF
Toolholder							
SVPPR...-15JXFF SVPPR...-08FF	-	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SVPPR...-2JXFF SVPPR...-11FF	VPGT22..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPET22..	VPET22..

Recommended Cutting Conditions ● E51

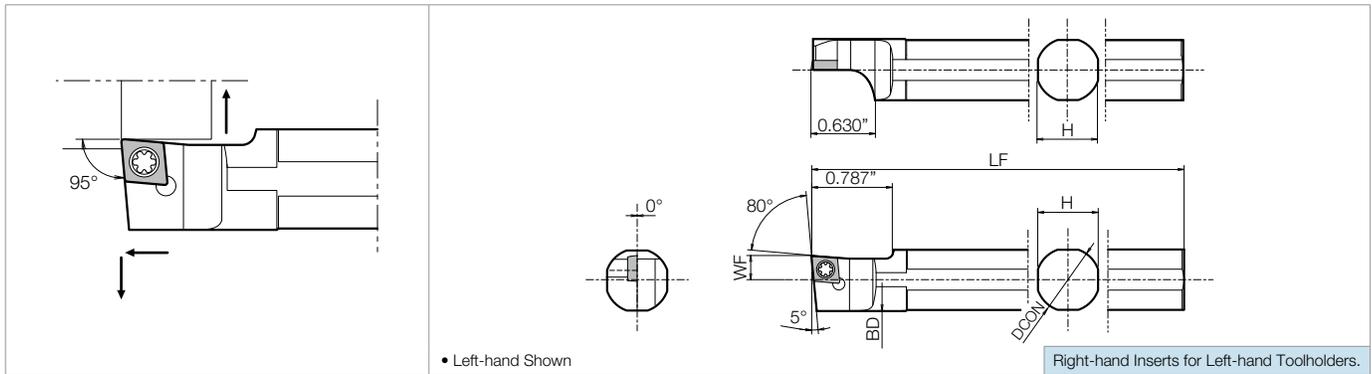
Undercutting Diameter of SVPP-FF



(in)

Corner-R (RE)	D.O.C.	D.C.N. (MIN)
0.008	0.020	Ø0.787
	0.039	Ø0.984

S...SCLC (External / Facing)



Toolholder Dimensions

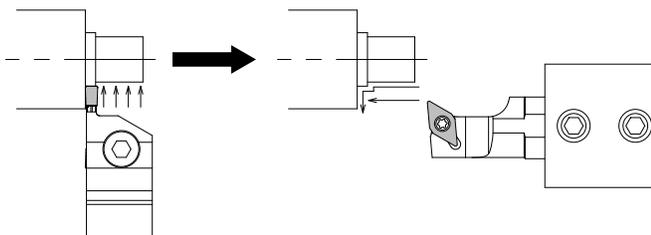
Part Number	Stock	Unit	Dimensions					Standard Corner-R(RE)	Spare Parts					
			DCON	LF	WF	BD	H		Clamp Screw	Wrench				
S15F -SCLCL06	●	inch	0.625	3.346	0.236	0.606	0.590	0.016	SB-2570TR	FT-8				
S19G -SCLCL06	●		0.750	3.543	0.236	0.724	0.669							
S19K -SCLCL06	●		0.750	4.724	0.236	0.724	0.669							
S19G -SCLCL09	●		0.750	3.543	0.393	0.724	0.669							
S19K -SCLCL09	●		0.750	4.724	0.393	0.724	0.669							
S25K -SCLCL09	●		1.000	4.724	0.393	0.976	0.905	0.016	SB-4065TR	FT-5				
S12F -SCLCL06	●	mm	12	80	6	13.4	11				0.4	SB-2560TR	FT-8	
S14H -SCLCL06	●		14	100	6	13.4	13							
S16F -SCLCL06	●		16	85	6	15.4	15							
S20G -SCLCL06	●		20	90	6	19.4	18							
S20K -SCLCL06	●		20	120	6	19.4	18							
S20G -SCLCL09	●		20	90	10	19.4	18							
S20K -SCLCL09	●		20	120	10	19.4	18							
S25.0H -SCLCL09	●			25	100	10	24.4	23	0.4	SB-4065TR				FT-15

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	● B53	● B53	● B54	● B58, B59	● B55	● B60	● B60	● B60	● C24	● C14
Insert	SKS	SK	GK	(E/F)R-U	MQ	No Chipbreaker	AH	R-A3	PCD	CBN
Toolholder										
S...SCLCL06	CCGT215..	CCGT215..	CCMT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
S...SCLCL09	CCGT325..	CCGT325..	CCMT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

Recommended Cutting Conditions ● E51

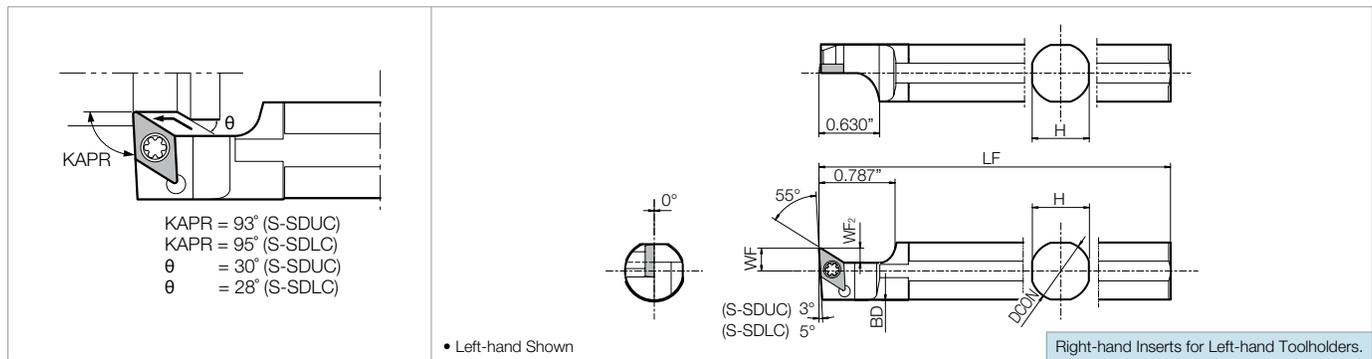
Finishing with Sleeve Holder



- 1) Roughing by grooving toolholder
- 2) Finishing by Sleeve Holder improves chip control and reduces cutting time

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

S...SDUC (External / Copying) / S...SDLC (External / Copying)



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions						Standard Corner-R (RE)	Spare Parts		
			DCON	LF	WF	BD	H	WF ₂		Clamp Screw	Wrench	
S15F -SDUCL07	●	inch	0.625	3.346	0.236	0.606	0.590	0.150	1/64	SB-2560TR	FT-8	
S19G -SDUCL07	●		0.750	3.543	0.236	0.724	0.669	0.150				
S19K -SDUCL07	●		0.750	4.724	0.236	0.724	0.669	0.150				
S19G -SDUCL11	●		0.750	3.543	0.393	0.724	0.669	0.228				
S19K -SDUCL11	●		0.750	4.724	0.393	0.724	0.669	0.228				
S25K -SDUCL11	●		1.000	4.724	0.393	0.976	0.905	0.228				
S15F -SDLCL07	●		mm	0.625	3.346	0.236	0.606	0.590	0.150	1/64	SB-2560TR	FT-8
S19G -SDLCL07	●			0.750	3.543	0.236	0.724	0.669	0.150			
S19K -SDLCL07	●			0.750	4.724	0.236	0.724	0.669	0.150			
S19G -SDLCL11	●			0.750	3.543	0.393	0.724	0.669	0.228			
S19K -SDLCL11	●			0.750	4.724	0.393	0.724	0.669	0.228			
S25K -SDLCL11	●			1.000	4.724	0.393	0.976	0.905	0.228			
S14H -SDUCL07	●	mm		14	100	6	13.4	13	3.8	0.4	SB-2560TR	FT-8
S20G -SDUCL07	●			20	90	6	19.4	18	3.8			
S20K -SDUCL07	●			20	120	6	19.4	18	3.8			
S20G -SDUCL11	●			20	90	10	19.4	18	5.8			
S20K -SDUCL11	●			20	120	10	19.4	18	5.8			
S22K -SDUCL11	●			22	120	10	21.4	20	5.8			
S25.0H -SDUCL11	●		mm	25	100	10	24.4	23	5.8	0.4	SB-4085TR	FT-15
S12F -SDLCL07	●			12	80	6	13.4	11	3.8			
S14H -SDLCL07	●			14	100	6	13.4	13	3.8			
S16F -SDLCL07	●			16	85	6	15.4	15	3.8			
S20G -SDLCL07	●			20	90	6	19.4	18	3.8			
S20K -SDLCL07	●			20	120	6	19.4	18	3.8			
S20G -SDLCL11	●	mm	20	90	10	19.4	18	5.8	0.4	SB-4085TR	FT-15	
S20K -SDLCL11	●		20	120	10	19.4	18	5.8				
S22K -SDLCL11	●		22	120	10	21.4	20	5.8				
S25.0H -SDLCL11	●		25	100	10	24.4	23	5.8				

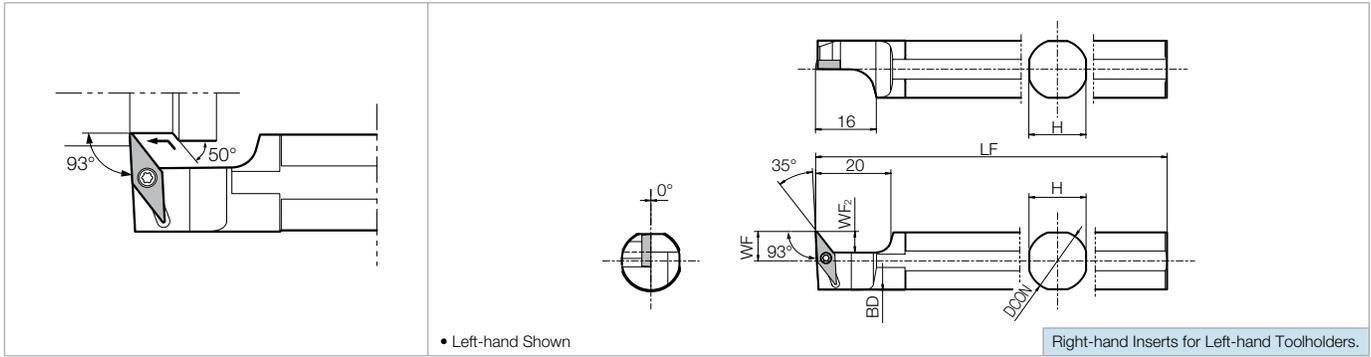
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed
Ref. Page	● B62	● B63	● B63	● B63	● B63	● B64	● B63	● B67	● B66	● B68, B69
Insert	CF	SKS	SK	WP (Wiper)	PP	GK	GQ	R-F	R-FSF	(E/F) R-U
Toolholder										
S...SD□CL07	DCGT215..	DCGT215..	DCGT215..	DCMX215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..
S...SD□CL11	DCGT325..	DCGT325..	DCGT325..	DCMX325..	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..
Application	Low Feed / Precision	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard materials
Ref. Page	● B68	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● C25	● C15
Insert	FR-USF	(E/F)R-J	XP	XQ	MQ	Without Chipbreaker	AH	R-A3	PCD	CBN
Toolholder										
S...SD□CL07	DCET215..	DCET215..	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
S...SD□CL11	DCET325..	DC_T325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

When using WP chipbreaker, program corrections are required. (S...SDLC type cannot be used) ● R51

Recommended Cutting Conditions ● E51

S...SVUB(C) (External / Copying)



Toolholder Dimensions

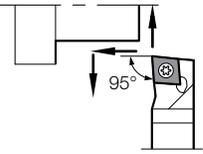
Part Number	Stock	Unit	Dimensions							Standard Corner-R (RE)	Spare Parts	
			DCON	LF	WF	BD	H	WF ₂	Clamp Screw		Wrench	
S15F -SVUCL08	●	inch	0.625	3.346	0.315	0.606	0.591	0.217	1/64	SB-2050TR	FT-6	
S19G -SVUCL11	●		0.750	3.543	0.413	0.724	0.669	0.315	0.008	SB-2570TR	FT-8	
S19K -SVUCL11	●		0.750	4.724	0.413	0.724	0.669	0.315				
S25K -SVUCL11	●		1.000	4.724	0.413	0.976	0.906	0.315	1/64	SB-2570TR	FT-8	
S19K -SVUBL11	●		0.750	4.724	0.413	0.724	0.669	0.315				
S25K -SVUBL11	●		1.000	4.724	0.413	0.976	0.906	0.315				
S12F -SVUCL08	●	mm	12	80	7.5	13.4	11	5.5	0.4	SB-2050TR	FT-6	
S14H -SVUCL08	●		14	100	7.5	13.4	13	5.5				
S16F -SVUCL08	●		16	85	8	15.4	15	5.5				
S20G -SVUCL11	●		20	90	10.5	19.4	18	8	0.2	SB-2570TR	FT-8	
S20K -SVUCL11	●		20	120	10.5	19.4	18	8				
S25.0H -SVUCL11	●		25	100	10.5	24.4	23	8	0.4	SB-2570TR	FT-8	
S20G -SVUBL11	●		20	90	10.5	19.4	18	8				
S20K -SVUBL11	●		20	120	10.5	19.4	18	8				
S25.0H -SVUBL11	●		25	100	10.5	24.4	23	8				

Applicable Inserts

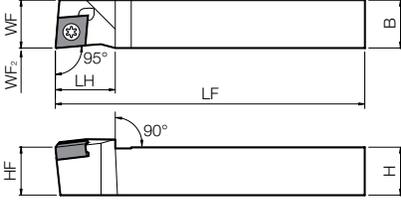
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium
Ref. Page	● B92	● B92	● B92	● B89	● B89, B92	● B89, B92	● B90, B93	● B89	● B91, B93
Insert	CF	GF	SKS	GP	VF	HQ	R-F	R-FSF	R-Y
Toolholder									
S...SVUCL08	-	-	-	-	VCMT1515..	VCMT1515..	-	-	-
S...SVUBL11	-	-	-	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..
S...SVUCL11	VCGT22..	VCGT22..	VCGT22..	-	-	-	VCET22..	-	VCET22..
Application	Non-ferrous Metals	Hard Materials							
Ref. Page	● C28	● C17							
Insert	PCD	CBN							
Toolholder									
S...SVUCL08	VCMT1515..	VCGW1515..							
S...SVUBL11	VBMT22..	VBGW22..							
S...SVUCL11	-	-							

Recommended Cutting Conditions ● E51

SCLN (Without Offset • External / Facing)



• Right-hand Shown



Side Rake Angle : - 6°
Inclination Angle : - 6°

Toolholder Dimensions

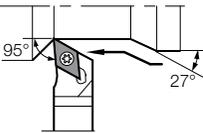
Part Number	Stock	Unit	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			H	HF	B	LF	LH	WF	WF ₂	Clamp Screw		Wrench		
SCLNR 6-2.4FF	●	inch	0.375	0.375	0.375	6.00	0.590	0.375	0	0.008			CNGU242.. CNMU242..	
8-2.4DF	●		0.500	0.500	0.500	6.00	0.590	0.500	0					
10-2.4CF	●		0.625	0.625	0.625	5.00	0.590	0.625	0					
SCLNR 1010K-07FF	●	mm	10	10	10	120	15	10	0	0.2			CNGU242.. CNMU242..	
1212F-07FF	●		12	12	12	85	15	12	0					
1212K-07FF	●		12	12	12	120	15	12	0					
1616K-07FF	●		16	16	16	120	15	16	0					

Applicable Inserts

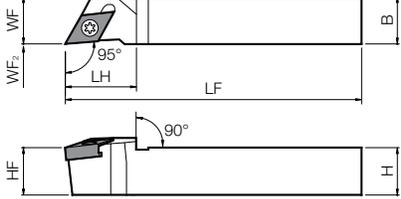
Application	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	● B50	● B50	● B50	● B50
Insert	SK 	GK 	FR-F 	(F/E)R-U 
Toolholder				
SCLNR...-2.4... SCLNR...-07FF	CNGU242..	CNMU242..	CNGU242..	CNGU242..

Recommended Cutting Conditions ● E45

SDLN (Without Offset • External / Copying)



• Right-hand Shown



Side Rake Angle : - 6°
Inclination Angle : - 7°

Toolholder Dimensions

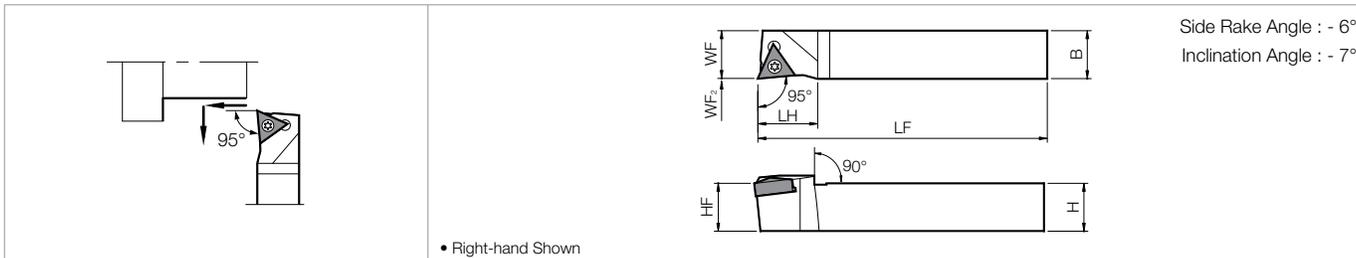
Part Number	Stock	Unit	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			H	HF	B	LF	LH	WF	WF ₂	Clamp Screw		Wrench		
SDLNR 6-2.2FF	●	inch	0.375	0.375	0.375	6.00	0.708	0.375	0	0.008			DNGU222.. DNMU222..	
8-2.2DF	●		0.500	0.500	0.500	6.00	0.708	0.500	0					
10-2.2CF	●		0.625	0.625	0.625	5.00	0.708	0.625	0					
SDLNR 1010K-08FF	●	mm	10	10	10	120	18	10	0	0.2			DNGU222.. DNMU222..	
1212F-08FF	●		12	12	12	85	18	12	0					
1212K-08FF	●		12	12	12	120	18	12	0					
1616K-08FF	●		16	16	16	120	18	16	0					

Applicable Inserts

Application	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	● B51	● B51	● B51	● B51
Insert	SK 	GK 	FR-F 	(F/E)R-U 
Toolholder				
SDLNR...2.2... SDLNR...-08FF	DNGU222..	DNMU222..	DNGU222..	DNGU222..

Recommended Cutting Conditions ● E45

STLN (Without Offset • External / Up Facing)



Toolholder Dimensions

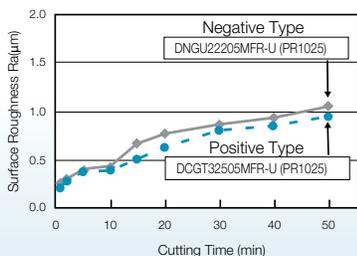
Part Number	Stock	Unit	Dimensions								Standard Corner-R (RE)	Spare Parts		Applicable Inserts
			H	HF	B	LF	LH	WF	WF ₂	Clamp Screw		Wrench		
STLNR 6-1.8FF	●	inch	0.375	0.375	0.375	6.00	0.590	0.375	0	0.008	SB-2570TR	LTW-8SS	TNGU182..	
8-1.8DF	●		0.500	0.500	0.500	6.00	0.590	0.500	0					
10-1.8CF	●		0.625	0.625	0.625	5.00	0.590	0.625	0					
STLNR 1010K-09FF	●	mm	10	10	10	120	15	10	0	0.2	SB-2570TR	LTW-8SS	TNGU182..	
1212F-09FF	●		12	12	12	85	15	12	0					
1212K-09FF	●		12	12	12	120	15	12	0					
1616K-09FF	●		16	16	16	120	15	16	0					

Applicable Inserts

Application	Finishing	Low Feed
Ref. Page	● B52	● B52
Insert	FR-F	(E)FR-U
Toolholder		
STLNR...1.8... STLNR...-09FF	TNGU182..	TNGU182..

Double-sided design allows both edges to be used. Compared to the positive type, the double-sided design offers less cost per insert and more stability.

Surface roughness comparison (Sharp edge)



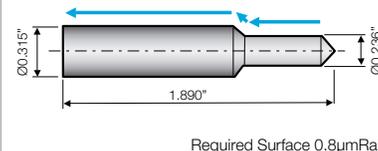
<Cutting Conditions>
Workpiece Material : 1045 Steel Vc = 325 sfm, D.O.C. = 0.059", f = 0.0012 ipr, Wet

(Internal Evaluation)

Case Studies

303 Stainless Steel

- Spool <0.236" Dia. portion>
- Vc = 225 sfm
- D.O.C. = 0.049"
- f = 0.001 ipr
- Wet
- <0.315" Dia. portion>
- Vc = 425 sfm
- D.O.C. = 0.001"
- f = 0.001 ipr
- Wet



Required Surface 0.8µmRa

DNGU22205MF-SK (PR1025)

60,000 pcs/Insert (4 edges)

Competitor D (DCGT)

20,000 pcs/Insert (2 edges)

Competitor D (DCGT) machined 10,000 pcs/edge. PR1025 machined 15,000 pcs/edge resulting in 3 times longer tool life per insert.

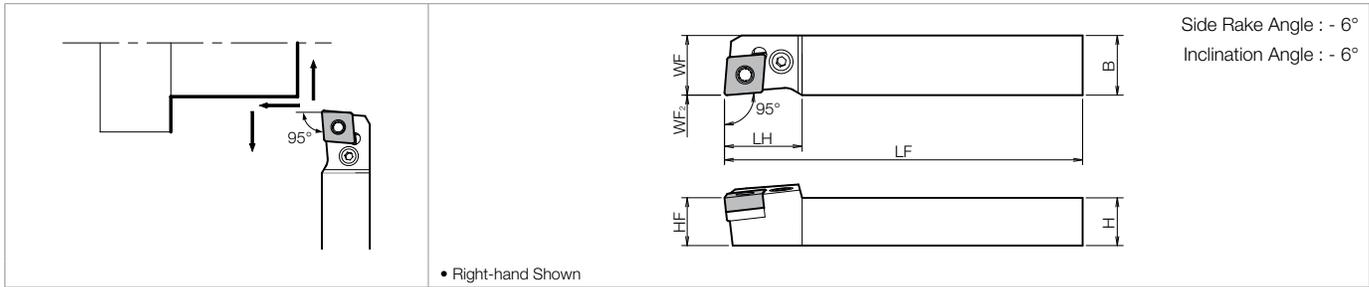
(User Evaluation)

Recommended Cutting Conditions

Workpiece Material	PR1225 PR1535 PR1705 PR1725			
	Free-Cutting Steel	-	-	● Vc=330sfm (200-490)	☺ Vc=330sfm (200-490)
Carbon Steel / Alloy Steel	☺ Vc=330sfm (200-500)	☺ Vc=330sfm (200-490)	☺ Vc=430sfm (200-720)	● Vc=430sfm (200-660)
Stainless Steel	☺ Vc=260sfm (160-490)	☺ Vc=330sfm (200-590)	-	☺ Vc=330sfm (260-490)

● : Continuous to Light interruption / 1st Recommendation
☺ : Continuous to Light interruption / 2nd Recommendation

PCLN-FF (Without Offset • External / Facing)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Standard Corner-R (RE)	Spare Parts					
		H	HF	B	LF	LH	WF	WF ₂	Lever		Lock Screw	Shim	Shim Pin	Punch	Wrench	
PCLNR 1620JX-12FF 2020JX-12FF	●	16	16	20	120	26	20	0	0.8							
	●	20	20													LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3

Applicable Inserts (1st Recommendation)

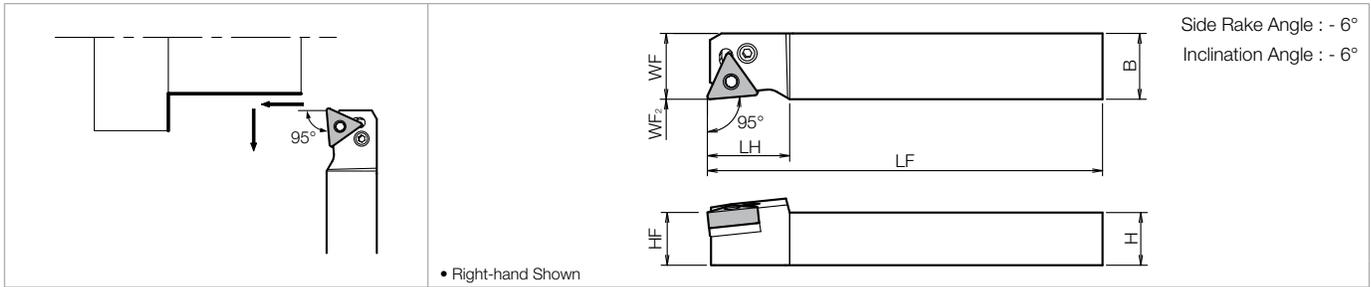
Application	Finishing-Medium	Medium-Roughing
Ref. Page	● B19	● B19
Insert		
Toolholder		
PCLNR...-12FF	CNGG43..FP-SK	CNGG43..FP-TK

Recommended Cutting Conditions ● E45

Applicable Inserts (CN□□ Optional)

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Insert										
Size	43..	43..	43..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B16	● B16	● B16	● B16	● B17	● B17	● B17	● B17	● B17	● B18
Application	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing
Insert										
Size	43..	43..	43..	-	43..	43..	43..	43..	43..	43..
Ref. Page	● B18	● B18	● B19	-	● B22	● B19	● B19	● B19	● B19	● B20
Application	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert										
Size	43..	43..	43..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B20	● B20	● B21	● B21	● B21	● B21	● B21	● B21	● B21	● B106
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloy Roughing	Heat-Resistant Alloy Roughing	Hard Materials			
Insert										
Size	43..	43..	43..	43..	43..	43..	43..			
Ref. Page	● B22	● B22	● C23	● B20	● B20	● B21	● C6, C7			

PTLN-FF (Without Offset • External / Up Facing)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Standard Corner-R (RE)	Spare Parts					
		H	HF	B	LF	LH	WF	WF ₂		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PTLNR 1620JX-16FF 2020JX-16FF	●	16	16	20	120	24	20	0	0.8						
	●	20	20													LT-32N ※LT-32N-20	LSP-1	PC-1	FH-2.5

※ When using inserts whose corner R (RE) is greater than 1.6mm, please purchase and use **LT-32N-20** shim to prevent workpiece and shim interference

Applicable Inserts (1st Recommendation)

Application	Finishing-Medium	Medium-Roughing	Large D.O.C.
Ref. Page	● B38	● B39	● B38
Insert			
Toolholder			
PTLNR...-16FF	TNGG33..FP-SK	TNGG33..FP-TK	TNMG33..R-LD

Recommended Cutting Conditions ● E45

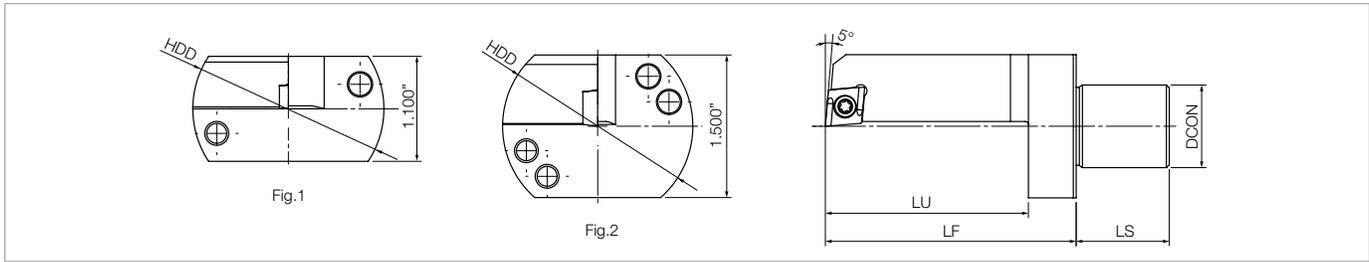
Applicable Inserts (TN□□ Optional)

Application	Finishing	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Medium-Roughing / High Feed Rate	Medium-Roughing	Single Sided / Roughing / High Feed	Roughing
Insert											
Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..
Ref. Page	● B36	● B36	● B36	● B36	● B36	● B37	● B37	● B37	● B37	● B38	● B37
Application	Finishing	Finishing-Roughing	Medium-Roughing Low Cutting Force	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing
Insert											
Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..
Ref. Page	● B42	● B42, B43	● B43	● B38	● B38	● B38	● B38	● B39	● B39	● B39	● B39
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials		
Insert											
Size	33..	33..	33..	33..	33..	33..	33..	33..	33..		
Ref. Page	● B40	● B40	● B40	● B40	● B111	● B41	● B41	● C23	● C10, C11		

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

SUB-SPINDLE TOOLS FOR STAR™ MACHINES

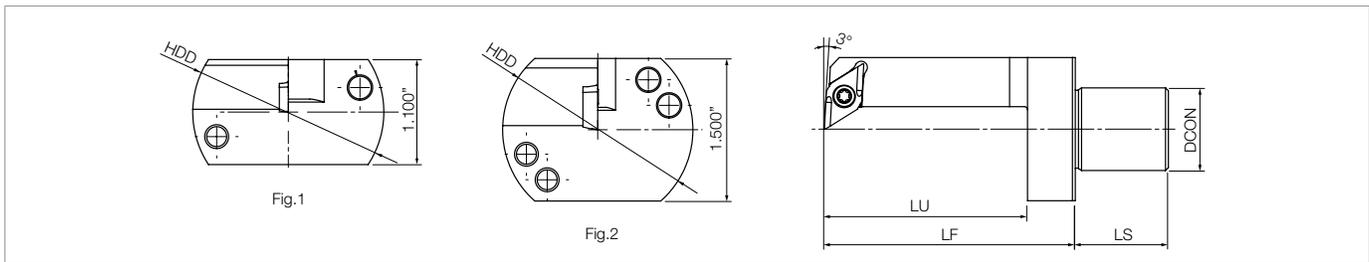
KSTB...CCET



Toolholder Dimensions

Part Number	Stock	Dimensions (in)					Drawing	Spare Parts		Applicable Inserts ● B53-B60	Reference Machine	
		DCON	HDD	LF	LU	LS		Clamp Screw	Wrench			
KSTB SR16/20 CCET215	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-2560TR	FT-8	CCET	215	SR16, SR20
KSTB SR16/20 CCET325	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-4085TR	FT-15	CCGT	325	SR16, SR20
KSTB SR32J CCET325	●	0.866	2.000	2.625	2.125	0.980	Fig.2	SB-4085TR	FT-15	CCGT	325	SR32J

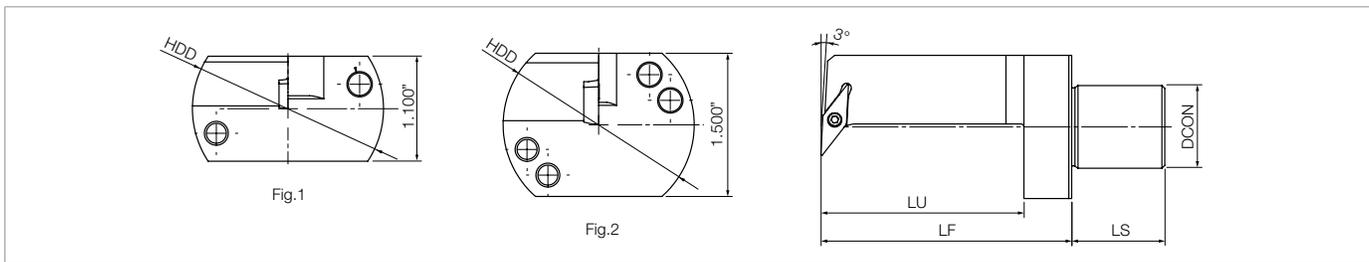
KSTB...DCET



Toolholder Dimensions

Part Number	Stock	Dimensions (in)					Drawing	Spare Parts		Applicable Inserts ● B62-B71	Reference Machine	
		DCON	HDD	LF	LU	LS		Clamp Screw	Wrench			
KSTB SR16/20 DCET215	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-2560TR	FT-8	DCET	215	SR16, SR20
KSTB SR16/20 DCET325	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-4085TR	FT-15	DCGT	325	SR16, SR20
KSTB SR32J DCET325	●	0.866	2.000	2.625	2.125	0.980	Fig.2	SB-4085TR	FT-15	DCGT	325	SR32J

KSTB...VBET



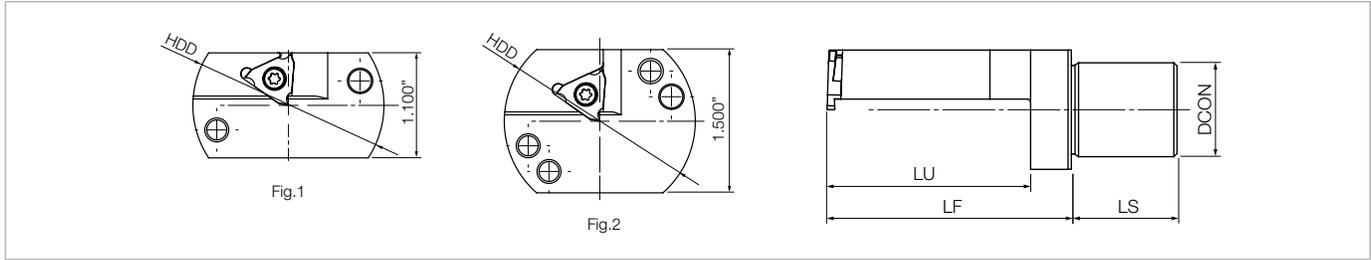
Toolholder Dimensions

Part Number	Stock	Dimensions (in)					Drawing	Spare Parts		Applicable Inserts ● B89-B90	Reference Machine	
		DCON	HDD	LF	LU	LS		Clamp Screw	Wrench			
KSTB SR16/20 VBET22	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-2570TR	FT-8	VBET	22	SR16, SR20
KSTB SR32J VBET22	●	0.866	2.000	2.625	2.125	0.980	Fig.2	SB-2570TR	FT-8	VBET	22	SR32J

Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

SUB-SPINDLE TOOLS FOR STAR™ MACHINES

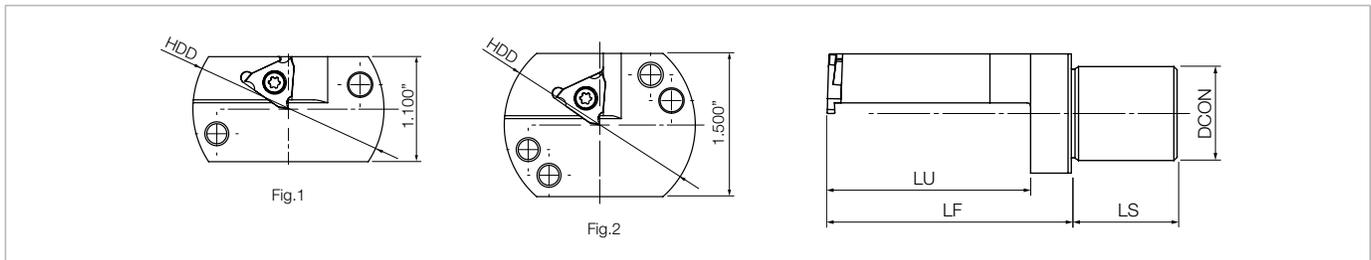
KSTB...TGF



Toolholder Dimensions

Part Number	Stock	Dimensions (in)					Drawing	Spare Parts		Applicable Inserts ● G21 ● C30	Reference Machine
		DCON	HDD	LF	LU	LS		Clamp Screw	Wrench		
KSTB SR16/20 TGF32	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-4070TRS	FT-10	TGF32L..	SR16, SR20
KSTB SR32J TGF32	●	0.866	2.000	2.625	2.125	0.980	Fig.2	SB-4070TRS	FT-10		SR32J

KSTB...TT



Toolholder Dimensions

Part Number	Stock	Dimensions (in)					Drawing	Spare Parts		Applicable Inserts ● J30	Reference Machine
		DCON	HDD	LF	LU	LS		Clamp Screw	Wrench		
KSTB SR16/20 TT32	●	0.866	2.000	2.250	1.875	1.073	Fig.1	SB-4070TRS	FT-10	TT32..	SR16, SR20
KSTB SR32J TT32	●	0.866	2.000	2.625	2.125	0.980	Fig.2	SB-4070TRS	FT-10		SR32J

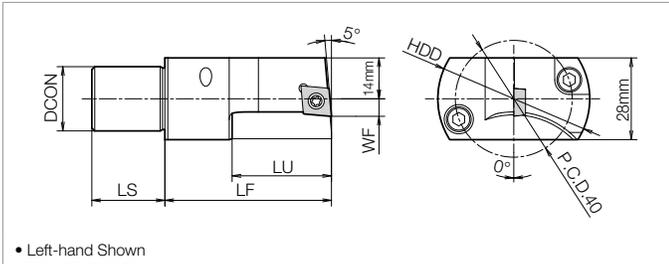
Note: All KSTB holders are right-hand, which require neutral or left-hand inserts

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

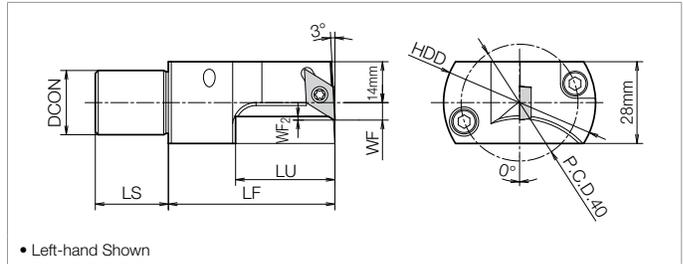
SUB-SPINDLE TOOLS FOR STAR™ MACHINES

F
SMALL
TOOLS

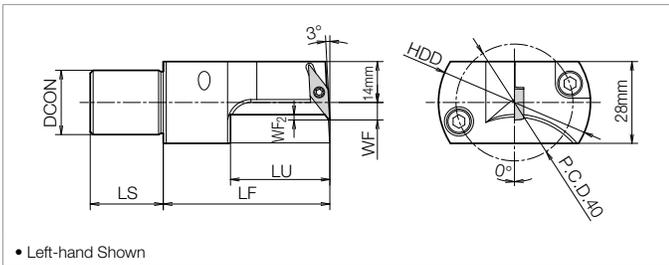
SF22F-SCLC (External / Facing) [for CC..32.. Inserts • B53~B60]



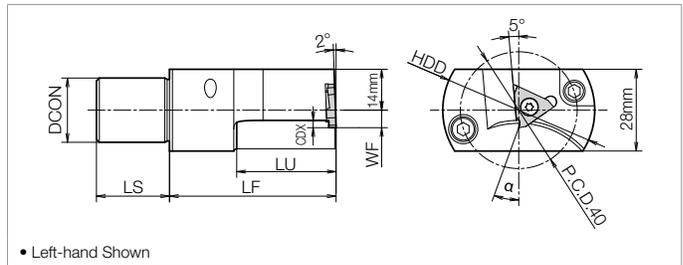
SF22F-SDUC (External / Facing) [for DC..32.. Inserts • B62~B71]



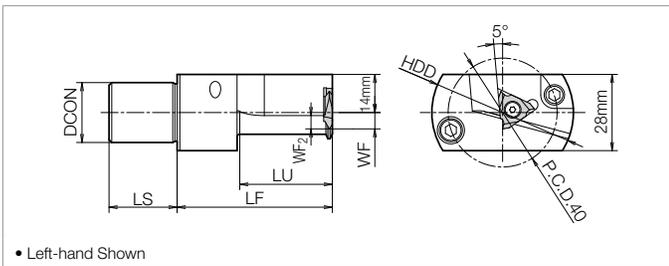
SF22F-SVUB (External / Copying) [for VB..22.. Inserts • B89~B91]



SF22F-KTGF (External Grooving) [for TGF32R... Inserts • G21]



SF22F-KTTX (External Threading) [for TTX32R... Inserts • J29]



*Dimension CDX shows the available grooving depth

α (°)	Insert Grade
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Standard Corner-R (RE)	Spare Parts					
		DCON	HDD	LF	LS	LU	WF	WF ₂ CDX		Insert Screw	Wrench	Mounting Bolt	Wrench	Adjustment Screw	Wrench
SF22F-SCLCL09-40P	△							-	0.2	SB-4085TR	FT-15				
SF22F-SDUCL11-40P	△							1.5	0.2						
SF22F-SVUBL11-40P	△	22	52	57	25	34	6	3.0	0.2	SB-2570TR	FT-8	HH5X30	LW-4	HS3X4	LW-1.5
SF22F-KTGFL16-40P	△							2.5	-	SB-4070TRS	FT-10				
SF22F-KTTXL16-40P	△							4.0	-	SB-4070TRW	FT-8				

Note: All SF22F holders are left-hand, which require neutral or right-hand inserts

Recommended Cutting Conditions - External Turning (Positive Insert) [D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit			INSERT GRADES			
								Vc (sfm)	D.O.C. (in)	Feed Rate f (ipr)		A		
													TURNING INSERTS	B
GEN/PCD INSERTS	C													
		TURNING HOLDERS	D											
SMALL TOOLS				E										
	BORING	F												
GROOVING			G											
	CUT-OFF			H										
THREADING		J												
	DRILLING		K											
MILLING				M										
	QUICK CHANGE TOOLING	N												
SPARE PARTS			P											
	TECHNICAL			R										
INDEX		T												
	*P		Low-carbon Steel Low-carbon Alloy		HB ≤ 300	Precision Finishing	Continuous Interrupted	F	PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004	A
Precision Finishing (Molded Chipbreaker)				Continuous		CF	PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006	B		
Finishing		Continuous Interrupted		GF		PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008	C			
Finishing-Medium		Continuous Interrupted		GQ		PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008			D	
Low Feed & Large D.O.C.		Continuous		J, U		PR1725	0.008	200 - 330 - 460	0.031 - 0.079 - 0.118	0.001 - 0.002 - 0.004					E
Medium-carbon Steel Medium-carbon Alloy		HB ≤ 330	Precision Finishing	Continuous Interrupted	F	PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004				F
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006		G		
			Finishing	Continuous Interrupted	GF	PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008	H			
			Finishing-Medium	Continuous Interrupted	GQ	PR1725	1/64	260 - 390 - 520	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008			J	
			Low Feed & Large D.O.C.	Continuous	J, U	PR1725	0.008	200 - 330 - 460	0.031 - 0.079 - 0.118	0.001 - 0.002 - 0.004					K
High-carbon Alloy		HB ≤ 280	Precision Finishing	Continuous Interrupted	F	PR1725	0.002	330 - 490 - 660	0.002 - 0.003 - 0.006	0.001 - 0.002 - 0.004				M
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1725	0.008	260 - 390 - 520	0.002 - 0.004 - 0.008	0.001 - 0.004 - 0.006		N		
	Finishing		Continuous Interrupted	GF	PR1725	0.008	330 - 460 - 590	0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008	P				
	Finishing-Medium		Continuous Interrupted	GQ	PR1725	1/64	260 - 390 - 520	0.012 - 0.059 - 0.118	0.001 - 0.002 - 0.004		R			
	Low Feed & Large D.O.C.		Continuous	J, U	PR1725	0.008	200 - 330 - 460	0.012 - 0.039 - 0.079	0.001 - 0.002 - 0.004				T	
M	Stainless Steel (Austenitic)	HB ≤ 220	Finishing	Continuous Interrupted	GF	PR1225 PR1535	0.008 1/64	260 - 330 - 390 200 - 260 - 330	0.004 - 0.012 - 0.020 0.012 - 0.020 - 0.039					0.001 - 0.002 - 0.004 0.002 - 0.004 - 0.006	A
			Medium	Continuous Interrupted	GQ	PR1225 PR1535	0.008 1/64	260 - 330 - 390 200 - 260 - 330	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079			0.001 - 0.003 - 0.005 0.002 - 0.004 - 0.006		B
	Stainless Steel (Precipitation Hardend)	HB ≤ 300	Finishing	Continuous Interrupted	GF	PR1225 PR1535	0.008 1/64	130 - 200 - 260 100 - 160 - 230	0.004 - 0.012 - 0.020 0.012 - 0.020 - 0.039	0.001 - 0.002 - 0.004 0.002 - 0.004 - 0.006		C		
			Medium	Continuous Interrupted	GQ	PR1225 PR1535	0.008 1/64	130 - 200 - 260 100 - 160 - 230	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.059	0.001 - 0.003 - 0.005 0.002 - 0.004 - 0.006	D			
K	Gray Cast Iron	HB ≤ 250	Finishing	Continuous Interrupted	Standard	CA310 CA315	1/64 1/64	330 - 390 - 490 260 - 330 - 390	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.004 - 0.006 - 0.008 0.002 - 0.004 - 0.006			E	
			Medium	Continuous Interrupted	Standard	CA310 CA315	1/64 1/32	330 - 390 - 490 260 - 330 - 390	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.004 - 0.006 - 0.008 0.002 - 0.004 - 0.006				F
	Nodular Cast Iron	HB ≤ 270	Finishing	Continuous Interrupted	Standard	CA310 CA315	1/64 1/64	260 - 330 - 390 200 - 260 - 330	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.004 - 0.006 - 0.008 0.002 - 0.004 - 0.006		G		
			Medium	Continuous Interrupted	Standard	CA315 CA320	1/64 1/32	260 - 330 - 390 200 - 260 - 330	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.004 - 0.006 - 0.008 0.002 - 0.004 - 0.006	H			
N	Non-ferrous Metals Copper Alloy Aluminum Alloy (Si 10% Under) etc.	HB ≤ 100	High Speed Finishing (Glossy Surface Finish)	Continuous	Without Chipbreaker	KPD001	0.008	490 - 820 - 1150	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006			I	
			Finishing (Long Tool Life)	Continuous Interrupted	F	PDL025 PDL025	0.008 1/64	330 - 490 - 660 330 - 490 - 660	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004				J
			Finishing	Continuous Interrupted	F	KW10 KW10	0.008 1/64	330 - 490 - 660 330 - 490 - 660	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004		K		
			Medium	Continuous Interrupted	U	KW10 KW10	0.008 1/64	330 - 490 - 660 330 - 490 - 660	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008	L			
S	Titanium Alloys	HB ≤ 400	Precision Finishing (Glossy Surface Finish)	Continuous Interrupted	Without Chipbreaker	KPD001 KPD001	0.008 1/64	330 - 390 - 490 230 - 330 - 390	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004			M	
			Medium	Continuous Interrupted	F, U	KW10 KW10	1/64 1/64	100 - 160 - 230 100 - 160 - 230	0.004 - 0.020 - 0.039 0.004 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008				N
	Heat-resistant Alloys	HB ≤ 350	Finishing	Continuous Interrupted	F, U Without Chipbreaker	KW10 KW10	1/64 1/32	30 - 100 - 160 30 - 100 - 160	0.004 - 0.012 - 0.020 0.008 - 0.020 - 0.028	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.004		O		
			Finishing	Continuous Interrupted	MQ	PR1535 PR1535	1/64 1/32	130 - 200 - 260 130 - 200 - 260	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.004	P			
H	Hardened Steel Hard Materials	40 ~ 50 HRC 50 ~ 68 HRC	Finishing	Continuous Interrupted	GK	PR1425 PR1425	0.008 1/64	130 - 200 - 260 130 - 200 - 260	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004			Q	
			Finishing	Continuous Interrupted	ME MET	KBN05M KBN05M	0.008 1/64	260 - 390 - 490 200 - 330 - 390	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004				R

* For machining free-cutting steels, use PR1005 at Vc=650sfm or less. For D.O.C. and feed rate (f), refer to specs for low carbon steels.

Recommended Cutting Conditions - Back Turning

● KTKF E12

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO				MEGACOAT		Notes
		PR1725		PR1535		PR1425		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 660		☆ 200 ~ 500		☆ 250 ~ 650		☆ 200 ~ 500		Wet
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 425		☆ 200 ~ 500		☆ 200 ~ 425		
	Feed (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	

Workpiece Material		PVD Coated Carbide		Carbide		PCD		Notes
		PR1025		KW10		KPD001		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	☆ 200 ~ 500		-		-		Wet
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	-		-		
Stainless Steel	Vc (sfm)	☆ 175 ~ 400		-		-		
	Feed (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	-		-		
Cast Iron	Vc (sfm)	-		175 ~ 325		-		
	Feed (ipr)	-		0.0004 ~ 0.0012	0.0008 ~ 0.00395	-		
Aluminum	Vc (sfm)	-		650 ~ 1475		200 ~ 500		
	Feed (ipr)	-		0.0004 ~ 0.0012	0.0008 ~ 0.00395	0.0004 ~ 0.0012	0.0008 ~ 0.00395	
Brass	Vc (sfm)	-		325 ~ 650		200 ~ 425		
	Feed (ipr)	-		0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039	

● KTKF (GTP Chipbreaker) E12

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		Notes
		PR1725		PR1535		
		Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 660		☆ 200 ~ 490		Wet
	Feed (ipr)	0.001 ~ 0.003	0.002 ~ 0.006	0.001 ~ 0.003	0.002 ~ 0.006	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 430		
	Feed (ipr)	0.001 ~ 0.002	0.001 ~ 0.004	0.001 ~ 0.002	0.001 ~ 0.004	

● KTKF (GQ Chipbreaker) E12

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO				MEGACOAT		Notes
		PR1725		PR1535		PR1425		PR1225		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 660		☆ 200 ~ 500		☆ 250 ~ 650		☆ 200 ~ 500		Wet
	Feed (ipr)	0.0004 ~ 0.0016	0.0008 ~ 0.0059	0.0004 ~ 0.0015	0.0008 ~ 0.0059	0.0004 ~ 0.0015	0.0008 ~ 0.0059	0.0004 ~ 0.0015	0.0008 ~ 0.0059	
Stainless Steel	Vc (sfm)	☆ 200 ~ 490		★ 200 ~ 425		☆ 200 ~ 500		☆ 200 ~ 425		
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	

● KTKF (AGT Chipbreaker) E12

Workpiece Material		PCD		Notes
		KPD001		
		Grooving	Turning	
Aluminum	Vc (sfm)	660 ~ 1,640		Wet
	Feed (ipr)	0.001 ~ 0.006	0.001 ~ 0.008	
Brass	Vc (sfm)	330 ~ 1,150		
	Feed (ipr)	0.001 ~ 0.006	0.001 ~ 0.008	

● ABS15, ABW15, ABW23 E19~E21

Workpiece Material		MEGACOAT NANO PLUS		MEGACOAT NANO		MEGACOAT		PVD Coated Carbide		Notes		
		PR1725		PR1705		PR1425		PR1225			PR930	
		Grooving	Turning	Grooving	Turning	Grooving	Turning	Grooving	Turning		Grooving	Turning
Carbon Steel / Alloy Steel	Vc (sfm)	★ 200 ~ 590		☆ 260 ~ 660		☆ 250 ~ 600		☆ 200 ~ 500		☆ 250 ~ 325		Wet
	Feed (ipr)	0.0008	0.0008-0.0028	0.0008	0.0008-0.0028	0.0008	0.0008-0.0028	0.0008	0.0008-0.0028	0.0008	0.0008-0.0028	
Stainless Steel	Vc (sfm)	☆ 100 ~ 430		☆ 130 ~ 490		☆ 125 ~ 425		★ 125 ~ 400		☆ 100 ~ 175		
	Feed (ipr)	0.0008	0.0008-0.0020	0.0008	0.0008-0.0020	0.0008	0.0008-0.0020	0.0008	0.0008-0.0020	0.0008	0.0008-0.0020	

Workpiece Material		Carbide		Notes
		KW10		
		Grooving	Turning	
Aluminum	Vc (sfm)	500 ~ 650		Wet
	Feed (ipr)	0.0008	0.0008 ~ 0.0039	
Brass	Vc (sfm)	325 ~ 525		
	Feed (ipr)	0.0012	0.0008 ~ 0.0059	

★ : 1st Recommendation
☆ : 2nd Recommendation

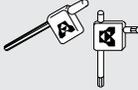
■ New Part Description (Change in Overall Length) Reference Table for Small Tools (Back Clamp)

Insert Shape	Conventional Toolholder					New Swiss Length Toolholder			Ref. to Page
	Part Number	Overall Length	Spare Parts			Part Number	Overall Length	Notes	
			Anchor Pin	Lock Screw	Wrench				
									
ABS15	AABSR6-15CF	5.00"	LPA-11	HSB4X8R	FH-2	AABSR6-15JXF	4.75"	No Alternative	E19
	AABSR8-15DF	6.00"	LPA-13			AABSR8-15JXF	4.75"		
	-	-	LPA-17			AABSR10-15JXF	4.75"		
	AABSR0810K-40F	125mm	LPA-11	HSB4x8R	FH-2	-	-		
	AABSR1010K-40F	125mm	LPA-11			AABSR1010JX-40F	120mm		
AABSR1212M-40F	150mm	LPA-13	AABSR1212JX-40F			120mm			
AABSR1616M-40F	150mm	LPA-17	AABSR1616JX-40F			120mm			
ABW15	AABWR6-15CF	5.00"	LPA-11	HSB4X8R	FH-2	AABWR6-15JXF	4.75"	No Alternative	E20
	AABWR8-15DF	6.00"	LPA-13			AABWR8-15JXF	4.75"		
	-	-	LPA-17			AABWR10-15JXF	4.75"		
	AABWR0810K-40F	125mm	LPA-11	HSB4x8R	FH-2	-	-		
	AABWR1010K-40F	125mm	LPA-11			AABWR1010JX-40F	120mm		
AABWR1212M-40F	150mm	LPA-13	AABWR1212JX-40F			120mm			
AABWR1616M-40F	150mm	LPA-17	AABWR1616JX-40F			120mm			
ABW23	AABWR6-23CF	5.00"	LPA-11	HSB4X8R	FH-2	AABWR6-23JXF	4.75"	No Alternative	E21
	AABWR8-23DF	6.00"	LPA-13			AABWR8-23JXF	4.75"		
	-	-	LPA-17			AABWR10-23JXF	4.75"		
	AABWR0810K-50F	125mm	LPA-11	HSB4x8R	FH-2	-	-		
	AABWR1010K-50F	125mm	LPA-11			AABWR1010JX-50F	120mm		
AABWR1212M-50F	150mm	LPA-13	AABWR1212JX-50F			120mm			
AABWR1616M-50F	150mm	LPA-17	AABWR1616JX-50F			120mm			
CC..	ACLC% 6-2CF	5.00"	LPF-11	HSB4X8%	FH-2	ACLC% 6-2JXFF	4.75"	Clamping system is different.	E24
	-	-	LPF-13			ACLC% 6-3JXFF	4.75"		
	ACLC% 8-3DF	6.00"	LPF-13			ACLC% 8-3JXFF	4.75"		
	-	-	LPF-17	ACLC% 10-3JXFF	4.75"				
	ACLC% 0810K-06F	125mm	LPF-11	HSB4x8R (Right-hand toolholder) HSB4x8L (Left-hand toolholder)	FH-2	SCLC% 0808F-06FF	120mm		
ACLC% 1010K-06F	125mm	LPF-11	ACLC% 1010JX-06FF			120mm			
ACLC% 1010K-09F	125mm	LPF-13	ACLC% 1010JX-09FF			120mm			
ACLC% 1212M-09F	150mm	LPF-13	ACLC% 1212JX-09FF			120mm			
ACLC% 1616M-09F	150mm	LPF-17	ACLC% 1616JX-09FF			120mm			
DC..	ADJC% 6-2CF	5.00"	LPF-11	HSB4X8%	FH-2	ADJC% 6-2JXFF	4.75"	Clamping system is different.	E26
	-	-	LPF-13			ADJC% 6-3JXFF	4.75"		
	ADJC% 8-3DF	6.00"	LPF-13			ADJC% 8-3JXFF	4.75"		
	-	-	LPF-17	ADJC% 10-3JXFF	4.75"				
	ADNCR6-2CF	5.00"	-	-	-	-	-		
ADNC% 8-3DF	6.00"	-	-	-	-	-	No Alternative		
DC..	ADJC% 0810K-07F	125mm	LPF-11	HSB4x8R (Right-hand toolholder) HSB4x8L (Left-hand toolholder)	FH-2	SDJC% 0808F-07FF	120mm	Clamping system is different.	E26
	ADJC% 1010K-07F	125mm	LPF-11			ADJC% 1010JX-07FF	120mm		
	ADJC% 1010K-11F	125mm	LPF-13			ADJC% 1010JX-11FF	120mm		
	ADJC% 1212M-11F	150mm	LPF-13			ADJC% 1212JX-11FF	120mm		
	ADJC% 1616M-11F	150mm	LPF-17			ADJC% 1616JX-11FF	120mm		
DC..	ADNCR0810K-07F	125mm	LPF-11	HSB4x8R	FH-2	-	-	Clamping system is different. Neutral	E31
	ADNCR1010K-07F	125mm	LPF-11			SDNCN1010JX-07	120mm		
	ADNCR1010K-11F	125mm	LPF-13			SDNCN1010JX-11	120mm		
	ADNCR1212M-11F	150mm	LPF-13			SDNCN1212JX-11	120mm		
	ADNCR1616M-11F	150mm	LPF-17			SDNCN1616JX-11	120mm		
VB..	AVJB% 6-2CF	5.00"	LPF-11	HSB4X8%	FH-2	AVJB% 6-2JXFF	4.75"	Clamping system is different. Neutral	E34
	AVJB% 8-2DF	6.00"	LPF-1113			AVJB% 8-2JXFF	4.75"		
	-	-	LPF-1117			AVJB% 10-2JXFF	4.75"		
	AVJB% 1010K-11F	125mm	LPF-11	HSB4x8R (Right-hand toolholder) HSB4x8L (Left-hand toolholder)	FH-2	AVJB% 1010JX-11FF	120mm		
	AVJB% 1212M-11F	150mm	LPF-1113			AVJB% 1212JX-11FF	120mm		
AVJB% 1616M-11F	150mm	LPF-1117	AVJB% 1616JX-11FF			120mm			
AVVB% 1010K-11F	125mm	LPF-11	HSB4x8R (Right-hand toolholder) HSB4x8L (Left-hand toolholder)			FH-2	SVVBN1010JX-11	120mm	
AVVB% 1212M-11F	150mm	LPF-1113		SVVBN1212JX-11	120mm				
AVVB% 1616M-11F	150mm	LPF-1117		SVVBN1616JX-11	120mm				

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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■ New Part Description (Change in Overall Length) Reference Table for Small Tools (Screw Clamp)

Insert Shape	Conventional Toolholder				New Swiss Length Toolholder			
	Part Number	Overall Length	Spare Parts		Part Number	Overall Length	Notes	Ref. to Page
			Clamp Screw	Wrench				
								
ABS15	SABSR6-15CF	5.00"	SB-3080TR	FT-10	SABSR6-15JXF	4.75"		E19
	SABSR8-15DF	6.00"			SABSR8-15JXF	4.75"		
	-	-			SABSR10-15JXF	4.75"		
	SABSR0810K-40F	125mm	SB-3080TR	FT-10	-	-	No Alternative	-
	SABSR1010K-40F	125mm			SABSR1010JX-40F	120mm	E19	
SABSR1212M-40F	150mm	SABSR1212JX-40F			120mm			
SABSR1616M-40F	150mm	SABSR1616JX-40F			120mm			
ABW15	SABWR6-15CF	5.00"	SB-3080TR	FH-2	SABWR6-15JXF	4.75"		E20
	SABWR8-15DF	6.00"			SABWR8-15JXF	4.75"		
	-	-			SABWR10-15JXF	4.75"		
	SABWR0810K-40F	125mm	SB-3080TR	FT-10	-	-	No Alternative	-
	SABWR1010K-40F	125mm			SABWR1010JX-40F	120mm	E20	
SABWR1212M-40F	150mm	SABWR1212JX-40F			120mm			
SABWR1616M-40F	150mm	SABWR1616JX-40F			120mm			
ABW23	SABWR6-23CF	5.00"	SB-3080TR	FT-10	SABWR6-23JXF	4.75"		E21
	SABWR8-23DF	6.00"			SABWR8-23JXF	4.75"		
	-	-			SABWR10-23JXF	4.75"		
	SABWR0810K-50F	125mm	SB-3080TR	FT-10	-	-	No Alternative	-
	SABWR1010K-50F	125mm			SABWR1010JX-50F	120mm	E21	
SABWR1212M-50F	150mm	SABWR1212JX-50F			120mm			
SABWR1616M-50F	150mm	SABWR1616JX-50F			120mm			
CC..	SCLC $\frac{1}{8}$ 6-2X	3.00"	SB-2570TR	FT-8	SCLC $\frac{1}{8}$ 6-2JXFF	4.75"		E24
	SCAC $\frac{1}{8}$ 6-2C	5.00"	-	-	-	-	Cutting edge angle is different	
	SCGCR6-2X	3.00"	-	-	-	-		
	-	-	SB-4085TR	FT-15	SCLC $\frac{1}{8}$ 6-3JXFF	4.75"		
	SCLC $\frac{1}{8}$ 8-3A	4.00"			SCLC $\frac{1}{8}$ 8-3JXFF	4.75"	No Alternative	
	SCAC $\frac{1}{8}$ 8-3D	6.00"	-	-	-	-	Cutting edge angle is different	
	SCGCR8-3A	4.00"	-	-	-	-		
	SCLC $\frac{1}{8}$ 10-3C	5.00"	SB-4085TR	FT-15	SCLC $\frac{1}{8}$ 10-3JXFF	4.75"		
	SCGCR10-3C	5.00"	-	-	-	-	Cutting edge angle is different	
	SCLC $\frac{1}{8}$ 12-3C	5.00"	-	-	-	-	No Alternative	
	SCAC $\frac{1}{8}$ 0808K-06	125mm	SB-2570TR	FT-8	SCLC $\frac{1}{8}$ 0808F-06FF	85mm	Cutting edge angle is different.	
	SCAC $\frac{1}{8}$ 1010K-06	125mm			SCLC $\frac{1}{8}$ 1010JX-06FF	120mm		
	SCAC $\frac{1}{8}$ 1010K-09	125mm	SB-4085TR	FT-15	SCLC $\frac{1}{8}$ 1010JX-09FF	120mm		
	SCAC $\frac{1}{8}$ 1212M-09	150mm			SCLC $\frac{1}{8}$ 1212JX-09FF	120mm		
	SCAC $\frac{1}{8}$ 1616M-09	150mm			SCLC $\frac{1}{8}$ 1616JX-09FF	120mm		
SCACR1212F-09FF	85mm	SB-4085TR	FT-15	SCLCR1212JX-09FF	120mm			
SCLC $\frac{1}{8}$ 0808E-06	70mm	SB-2570TR	FT-8	SCLC $\frac{1}{8}$ 0808F-06FF	85mm			
DC..	SDJC $\frac{1}{8}$ 6-2CF	5.00"	SB-2570TR	FT-8	SDJC $\frac{1}{8}$ 6-2JXFF	4.75"	E26	
	SDJC $\frac{1}{8}$ 6-2X	3.00"	-	-	-	-		
	-	-	SB-4085TR	FT-15	SDJC $\frac{1}{8}$ 6-3JXFF	4.75"		
	SDJC $\frac{1}{8}$ 8-3DF	6.00"			SDJC $\frac{1}{8}$ 8-3JXFF	4.75"		
	SDJC $\frac{1}{8}$ 8-3A	4.00"	-	-	-	-		
	SDJC $\frac{1}{8}$ 10-3C	5.00"	SB-4085TR	FT-15	SDJC $\frac{1}{8}$ 10-3JXFF	4.75"		
	SDJC $\frac{1}{8}$ 12-3C	5.00"	-	-	-	-		No Alternative
	-	-	SB-4085TR	FT-15	SDJCR52-3JX-F3	4.75"		
	-	-			SDJCR52-3JX-F9	4.75"		
	-	-			SDJCR62.5-3JX-F3	4.75"		
-	-	SDJCR62.5-3JX-F9			4.75"			
SDJC $\frac{1}{8}$ 0808F-07F	80mm	SB-2570TR	FT-8	SDJC $\frac{1}{8}$ 0808F-07FF	85mm	E26		
SDJC $\frac{1}{8}$ 1010F-07F	80mm			SDJC $\frac{1}{8}$ 1010JX-07FF	120mm			
SDJC $\frac{1}{8}$ 1010F-11F	80mm	SB-4085TR	FT-15	SDJC $\frac{1}{8}$ 1010JX-11FF	120mm			
SDJC $\frac{1}{8}$ 1212H-11F	100mm			SDJC $\frac{1}{8}$ 1212JX-11FF	120mm			
SDJC $\frac{1}{8}$ 1616H-11F	100mm			SDJC $\frac{1}{8}$ 1616JX-11FF	120mm			
-	-	SB-2570TR	FT-8	SDLC $\frac{1}{8}$ 6-2JXFF	4.75"		E30	

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

■ New Part Description (Change in Overall Length) Reference Table for Small Tools (Screw Clamp)

Insert Shape	Conventional Toolholder				New Swiss Length Toolholder			Ref. to Page
	Part Number	Overall Length	Spare Parts		Part Number	Overall Length	Notes	
			Clamp Screw	Wrench				
DC..	-	-	SB-4085TR	FT-15	SDLC $\frac{1}{2}$ 6-3JXFF	4.75"	E30	
	-	-			SDLC $\frac{1}{2}$ 8-3JXFF	4.75"		
	-	-			SDLC $\frac{1}{2}$ 10-3JXFF	4.75"		
	SDLC $\frac{1}{2}$ 1010F-07FF	80mm	SB-2570TR	FT-8	SDLC $\frac{1}{2}$ 1010JX-07FF	120mm	E30	
	SDLC $\frac{1}{2}$ 1212H-07FF	100mm			SDLC $\frac{1}{2}$ 1212F-07FF	85mm		Short length type
	SDLC $\frac{1}{2}$ 1616H-07FF	100mm			SDLC $\frac{1}{2}$ 1212JX-07FF	120mm		
	SDLC $\frac{1}{2}$ 1212H-11FF	100mm	SB-4085TR	FT-15	SDLC $\frac{1}{2}$ 1616JX-07FF	120mm	E30	
	SDLCL1616H-11FF	100mm			SDLC $\frac{1}{2}$ 1212JX-11FF	120mm		
	SDNC $\frac{1}{2}$ 6-2CF	5.00"			SDLCL1616JX-11FF	120mm		
	SDNCN6-2X	3.00"	SB-2570TR	FT-8	SDNC $\frac{1}{2}$ 6-2JXF	4.75"	E31	
	-	-			SDNCN6-2JX	4.75"		
	-	-			SDNCN6-3JX	4.75"		
	SDNC $\frac{1}{2}$ 8-3DF	6.00"	SB-4085TR	FT-15	SDNCN8-2JX	4.75"	E31	
	SDNCN8-3A	4.00"	-	-	SDNCN8-3JX	4.75"		
	SDNCN10-3C	5.00"	SB-4085TR	FT-15	SDNCN10-3JX	4.75"		
	SDNCN12-3C	5.00"	-	-	-	-	No Alternative	
	SDNC $\frac{1}{2}$ 1010F-07F	80mm	SB-2570TR	FT-8	SDNC $\frac{1}{2}$ 1010JX-07F	120mm	E31	
	SDNC $\frac{1}{2}$ 1010F-11F	80mm	SB-4085TR	FT-15	SDNC $\frac{1}{2}$ 1010JX-07F	120mm		Insert size is different.
	SDNC $\frac{1}{2}$ 1212H-11F	100mm	SB-4085TR	FT-15	SDNCN1010JX-11	120mm		Neutral
	SDNC $\frac{1}{2}$ 1616H-11F	100mm	SB-4085TR	FT-15	SDNCN1212F-11	85mm	Neutral	
	SDNCN0808E-07	70mm	SB-2570TR	FT-8	SDNCN1212JX-11	120mm	Neutral	
	SDNCN1010F-07	80mm			SDNCN1616JX-11	120mm	Neutral	
	SDNCN1212H-07	100mm			SDNCN0808F-07	85mm		
	SDNCN1212H-11	100mm	SB-4085TR	FT-15	SDNCN1010JX-07	120mm	E30	
SDXC $\frac{1}{2}$ 1010F-07	80mm	SB-2570TR	FT-8	SDNCN1212JX-07	120mm			
SDXC $\frac{1}{2}$ 1010F-11	80mm	SB-4085TR	FT-15	SDNCN1212F-11	85mm	Short length type		
SDXC $\frac{1}{2}$ 1212H-11	100mm	SB-4085TR	FT-15	SDNCN1212JX-11	120mm	E30		
SDXC $\frac{1}{2}$ 1616H-11	100mm			SDXC $\frac{1}{2}$ 1010JX-07	120mm			
-	-			SDXC $\frac{1}{2}$ 1212JX-11	120mm			
DP..	-	-	SB-2570TR	FT-8	SDLP $\frac{1}{2}$ 6-2JXFF	4.75"	E32	
	-	-	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 6-3JXFF	4.75"		
	-	-	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 8-3JXFF	4.75"		
	-	-	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 10-3JXFF	4.75"		
	SDLP $\frac{1}{2}$ 0808F-07F	80mm	SB-2570TR	FT-8	SDLP $\frac{1}{2}$ 0808F-07FF	85mm	E32	
	SDLP $\frac{1}{2}$ 1010F-07F	80mm	SB-2570TR	FT-8	SDLP $\frac{1}{2}$ 1010JX-07FF	120mm		
	SDLP $\frac{1}{2}$ 1010F-11F	80mm	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 1010JX-11FF	120mm		
	SDLP $\frac{1}{2}$ 1212H-11F	100mm	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 1212JX-11FF	120mm		
SDLP $\frac{1}{2}$ 1616H-11F	100mm	SB-4085TR	FT-15	SDLP $\frac{1}{2}$ 1616JX-11FF	120mm			
VB..	SVJB $\frac{1}{2}$ 6-2CF	5.00"	SB-2570TR	FT-8	SVJB $\frac{1}{2}$ 6-2JXFF	4.75"	E34	
	SVJB $\frac{1}{2}$ 6-2X	3.00"	-	-	-	-		
	SVJB $\frac{1}{2}$ 8-2DF	6.00"	SB-2570TR	FT-8	SVJB $\frac{1}{2}$ 8-2JXFF	4.75"		
	SVJB $\frac{1}{2}$ 8-2A	4.00"	-	-	-	4.75"	E34	
	-	-	SB-2570TR	FT-8	SVJB $\frac{1}{2}$ 10-2JXFF	4.75"		
	SVJB $\frac{1}{2}$ 12-3C	5.00"	-	-	-	No Alternative		
	SVJB $\frac{1}{2}$ 1010F-11F	80mm	SB-2570TR	FT-8	SVJB $\frac{1}{2}$ 1010JX-11FF	120mm	E34	
	SVJB $\frac{1}{2}$ 1212H-11F	100mm			SVJB $\frac{1}{2}$ 1212JX-11FF	120mm		
	SVJB $\frac{1}{2}$ 1616H-11F	100mm			SVJB $\frac{1}{2}$ 1616JX-11FF	120mm		
	SVPB $\frac{1}{2}$ 1010F-11	80mm	SB-2570TR	FT-8	SVPB $\frac{1}{2}$ 1010JX-11	120mm	E35	
	SVPB $\frac{1}{2}$ 1212H-11	100mm			SVPB $\frac{1}{2}$ 1212JX-11	120mm		
SVPB $\frac{1}{2}$ 1616H-11	100mm	SVPB $\frac{1}{2}$ 1616JX-11			120mm			

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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New Part Description (Change in Overall Length) Reference Table for Small Tools (Screw Clamp)

Insert Shape	Conventional Toolholder				New Swiss Length Toolholder			Ref. to Page
	Part Number	Overall Length	Spare Parts		Part Number	Overall Length	Notes	
			Clamp Screw	Wrench				
VB..	-	-	SB-2570TR	FT-8	SVBN6-2JX	4.75"	-	E36
	-	-			SVBN8-2JX	4.75"		
	-	-			SVBN10-2JX	4.75"		
	SVBN1212H-11	100mm	SB-2570TR	FT-8	SVBN1212JX-11	120mm		E36
VP..	-	-	SB-2570TR	FT-8	SVJP $\frac{1}{2}$ 8-2JXFF	4.75"		E39
		-	-	FT-8	SVJP $\frac{1}{2}$ 10-2JXFF	4.75"		
		-	SB-2550TR	FT-6	SVLP $\frac{1}{2}$ 6-15JXFF	4.75"		
		-	-	FT-6	SVLP $\frac{1}{2}$ 8-15JXFF	4.75"		
		-	-	FT-6	SVLP $\frac{1}{2}$ 10-15JXFF	4.75"		
		-	SB-2570TR	FT-8	SVLP $\frac{1}{2}$ 8-2JXFF	4.75"		
		-	-	FT-8	SVLP $\frac{1}{2}$ 10-2JXFF	4.75"		
		-	SB-2570TR	FT-15	SVLPR52-2JX-F9	4.75"		
		-	-	FT-15	SVLPR62.5-2JX-F9	4.75"		
		SVLP $\frac{1}{2}$ 1010F-08FF	80mm	-	-	SVLP $\frac{1}{2}$ 1010JX-08FF			120mm
	SVLP $\frac{1}{2}$ 1212H-08FF	100mm	SB-2050TR	FT-6	SVLP $\frac{1}{2}$ 1212F-08FF	85mm	Short length type	
	SVLP $\frac{1}{2}$ 1616H-08FF	100mm	-	-	SVLP $\frac{1}{2}$ 1212JX-08FF	120mm		
	SVLP $\frac{1}{2}$ 1010F-11F	80mm	-	-	SVLP $\frac{1}{2}$ 1616JX-08FF	120mm		E39
	SVLP $\frac{1}{2}$ 1212H-11F	100mm	SB-2570TR	FT-8	SVLP $\frac{1}{2}$ 1010JX-08FF	120mm	Insert size is different.	
	SVLP $\frac{1}{2}$ 1616H-11F	100mm	-	-	SVLP $\frac{1}{2}$ 1212F-11FF	85mm	Short length type	
	-	-	SB-2570TR	FT-8	SVLP $\frac{1}{2}$ 1212JX-11FF	120mm		
		-	-	FT-8	SVLP $\frac{1}{2}$ 1616JX-11FF	120mm		
		-	SB-2570TR	FT-8	SVPPR6-2JXFF	4.75"		E40
		-	SB-2050TR	FT-6	SVPPR8-2JXFF	4.75"		
		-	-	FT-6	SVPPR10-2JXFF	4.75"		
-	SB-2050TR	FT-6	SVPPR6-15JXFF	4.75"				
-	-	FT-6	SVPPR8-15JXFF	4.75"				
SVPPR1010F-11	80mm	-	-	SVPPR10-15JXFF	4.75"			
SVPPR1212H-11	100mm	SB-2570TR	FT-8	SVPBR1010JX-11	120mm	Insert relief angle is different.	E35	
-	-	-	-	SVPBR1010JX-11FF	120mm	Without Offset	E40	
	-	-	-	SVPBR1212JX-11	120mm	Insert relief angle is different.	E35	
SVPPR1616H-11	100mm	-	-	SVPBR1212JX-11FF	120mm	Without Offset	E40	
SVPL1616H-11	100mm	SB-2570TR	FT-8	SVPBR1616JX-11	120mm	Insert relief angle is different.	E35	
-	-	-	-	SVPPR1616JX-11FF	120mm	Without Offset	E40	
-	-	-	-	SVPBL1616JX-11	120mm	Insert relief angle is different.	E35	
TC..	STGCR6-1.5X	3.00"	-	-	-	No Alternative		
	STGC $\frac{1}{2}$ 8-2A	4.00"	-	-	-			
WP..	SWLP $\frac{1}{2}$ 8-2A	4.00"	-	-	-	No Alternative		
	SWLPR12-3C	5.00"	-	-	-			

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

New Part Description Reference Table for Small Tools (Screw Clamp) Toolholders for Back Turning

Insert Shape	Conventional Toolholder				New Swiss Length Toolholder		Ref. to Page
	Part Number	Overall length	Clamp Screw	Wrench	Part Number	Overall length	
							
TKFB..	KTKF $\frac{1}{2}$ 1010K-12	125mm	SB-4590TRWN	LTW-10S	KTKF $\frac{1}{2}$ 1010JX-12	120mm	E12
	KTKF $\frac{1}{2}$ 1212M-12	150mm			KTKF $\frac{1}{2}$ 1212JX-12	120mm	
	KTKF $\frac{1}{2}$ 1616M-12	150mm			KTKF $\frac{1}{2}$ 1616JX-12	120mm	
	KTKF $\frac{1}{2}$ 1010K-16	125mm			KTKF $\frac{1}{2}$ 1010JX-16	120mm	
	KTKF $\frac{1}{2}$ 1212M-16	150mm			KTKF $\frac{1}{2}$ 1212JX-16	120mm	
	KTKF $\frac{1}{2}$ 1616M-16	150mm			KTKF $\frac{1}{2}$ 1616JX-16	120mm	

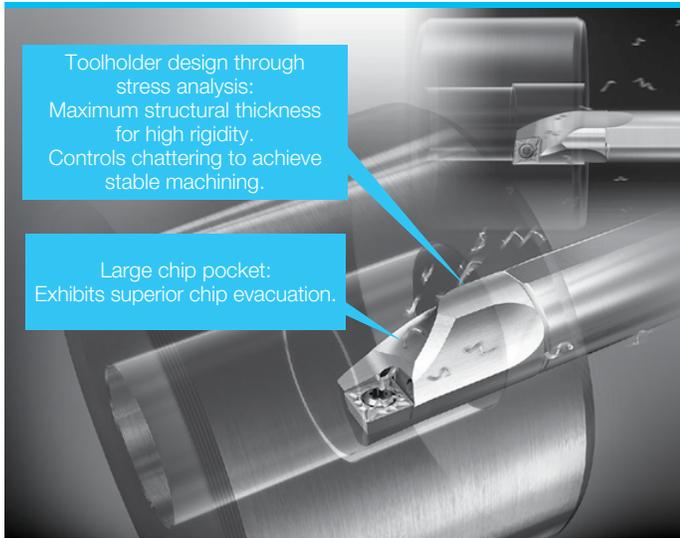
Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

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DC INSERTS	Boring Bar - General Purpose	F56
JC INSERTS	Boring Bar - General Purpose	F58
TC INSERTS	Dynamic Bar	F59
TB / TP INSERTS	Dynamic Bar	F60
TB / TP INSERTS	Boring Bar - General Purpose	F63
VB / VC / VP INSERTS	Dynamic Bar	F66
VB / VC INSERTS	Boring Bar - General Purpose	F72
WB / WP INSERTS	Dynamic Bar	F74
WB / WP INSERTS	Boring Bar - General Purpose	F76
SP INSERTS	Boring Bar - General Purpose	F78
TP INSERTS (Without Hole)	Boring Bar - General Purpose	F79
BORING BARS FOR BEARING MACHINING (Square Shank)		F80
AD BARS (Anti-Vibration Dampener System)		F81 - F84
BORING BARS FOR NEGATIVE INSERTS		F85 - F96
CN INSERTS		F85
DN INSERTS		F87
SN INSERTS		F91
TN INSERTS		F92
WN INSERTS		F94
BORING BARS FOR CERAMIC / CBN INSERTS		F97 - F98
BORING BAR SLEEVES		F100 - F105
EZH-CT / EZH-HP / EZH-ST		F30, F100
PH		F102
SHA / SH / SL / SHC / SJS		F102
ALTERNATE TOOLHOLDER REFERENCE TABLE		F106 - F109
RECOMMENDED CUTTING CONDITIONS		F110 - F111

New Dynamic Bar

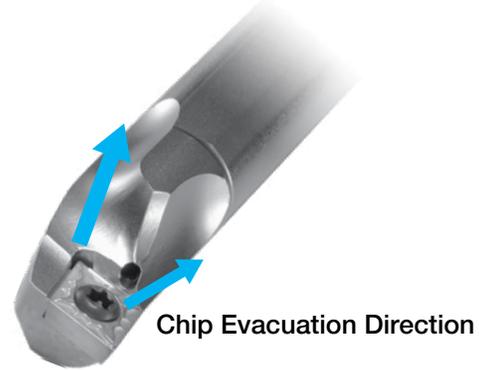


Dynamic design driven by the latest computer simulation technology.

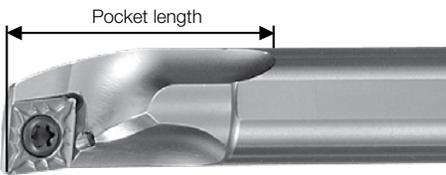
Superior Chip Evacuation (External Coolant)

	Dynamic Bar	Competitor A	Competitor B
Inside the Workpiece			

In Competitor A and B's products chips remain inside the workpiece, but chips from Dynamic Bar are all evacuated from the workpiece.



Pocket Length Comparison



Part Number	Pocket length (mm)	
	Dynamic Bar	Competitor A
A16-SCLPR09-18 type	37	29
A20-SCLCR09-22 type	48	32

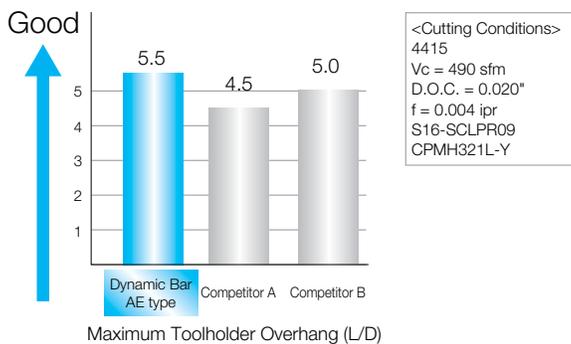
Chip Evacuation Direction

SCLC(P)	STLB(P)
Better Evacuation with Dual Chip Flow	

Dynamic Bar with Superior Chip Evacuation

High rigidity and chattering resistance is achieved by using a special alloy designed with stress analysis technology. Achieve previously unobtained surface finish and dimensional accuracy.

Anti-chatter Vibration Performance



Surface Finish Comparison

Vibration of the Dynamic Bar was minimal even at high cutting speeds, enabling stable machining.

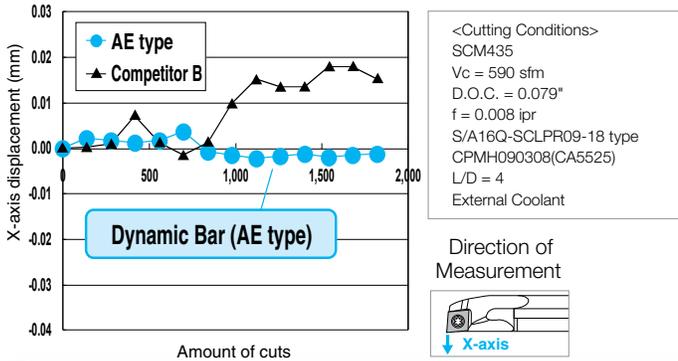
	Dynamic Bar	Competitor A	Competitor B
Surface Wall			
Surface Roughness	Ra=0.4µm Rz=2.3µm	Ra=0.6µm Rz=3.6µm	Ra=3.4µm Rz=14.0µm
Oscillatory Waveform			

<Cutting Conditions>
4415
Vc = 690 sfm
D.O.C. = 0.020"
f = 0.004 ipr
A16Q-SCLPR09-18
CPMH321XP(PV7020)
L/D = 4
External Coolant

Direction of Vibration Measurement

Cutting Point Precision

The AE Dynamic Bar resists deflection to maintain precise cutting edge positional accuracy through the use of a special alloy, thereby achieving high precision machining.



Toolholder Lineup

Excellent Bar (AE Type)

Excellent Bar with coolant hole (internal coolant) (A...AE) enables better chip evacuation.



Steel Bar

The steel shank bar (without coolant hole) provides superior cost performance

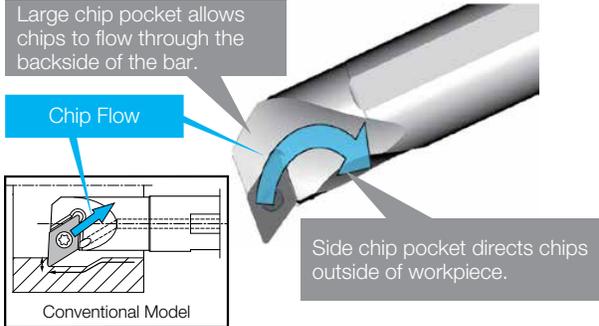


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

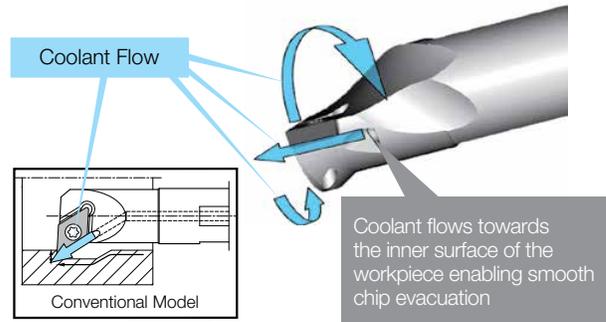
Advantages of Dynamic Bar SDUC

New Design Focusing on Chip Evacuation

Streamlined pocket enables effective chip evacuation.



Coolant flows toward the workpiece's inner surface.



AD Bars Interchangeable Head Boring Bars with Anti-vibration Dampener System

- The AD (Advanced Dampener) system enables a maximum overhang of 6 times L/D.
- Highly efficient machining: The anti-vibration dampener enables large cutting-depths and high feed rates.
- Applicable for a variety of machining conditions due to the interchangeable head design.



Double Clamp Boring Bars for Negative Inserts

Stable machining with Double Clamp and Direction Adjustment Coolant Hole.

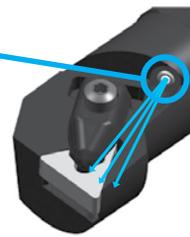
Improved Clamping Rigidity

Firmly clamp the insert in two directions with one action. Ensure quick, accurate, and repeatable insert position.



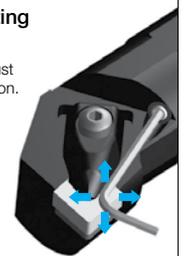
Direction Adjustment Mechanism Coolant Hole

Discharge direction of coolant is adjustable to focus directly on cutting edge.
 *Not applicable to high-pressure coolant



Nozzle Setting

Use wrench to adjust coolant hole direction.



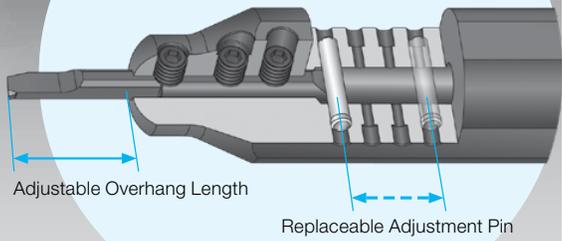
EZ Bar

Kyocera's Original EZ Adjust Structure

- Easy adjustment and high precision
- EZ Bar minimizes deviation with high rigidity clamping

MEGACOAT PR1225 for Stable Cutting and Extended Tool Life

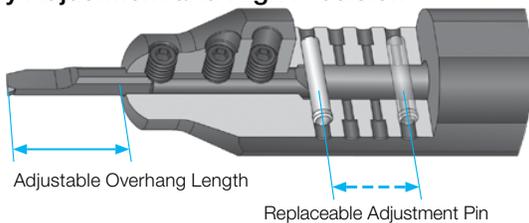
Kyocera's Original EZ Adjust Structure



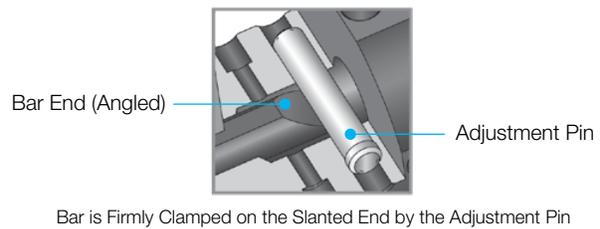
EZ Adjust Structure

Bar overhang is adjustable by replacing adjustment pin. Internal coolant sleeve (EZH-CT) is available.

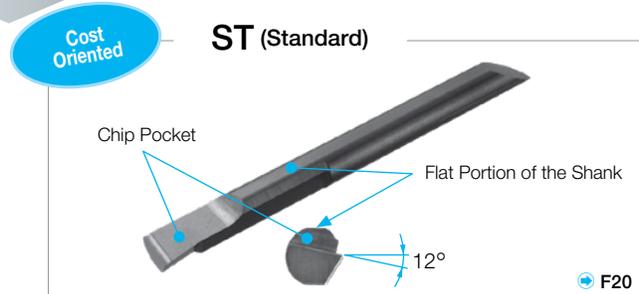
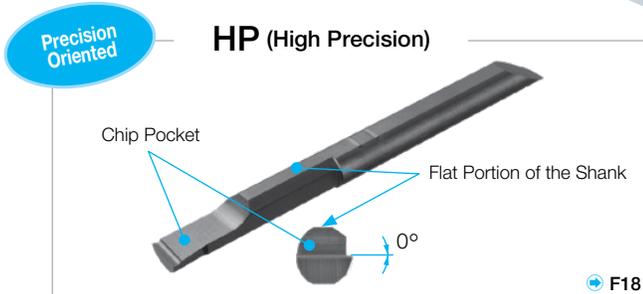
1 Easy Adjustment and High Precision



Excellent Clamping Force



2 Bar Types



* Chip pocket angles are different.
* Even when using the same sleeve, the Min. Bore Dia. can be different depending on which bar is attach.

3 Chipbreakers for Various Applications



2 Types of Corner-R (RE) for Each Chipbreaker
H Chipbreaker: 0.003", 0.006" (0.08mm, 0.15mm)
F Chipbreaker: 0.002", 0.006" (0.05mm, 0.15mm)
NB (No Chipbreaker): 0.002" (0.05mm) - PR1225
0.0014" (0.035mm) - PCD / CBN

* Lineup Depends on Description

EZVB for Boring, Internal Profiling and Copying

EZ Bar PLUS Indexable Type

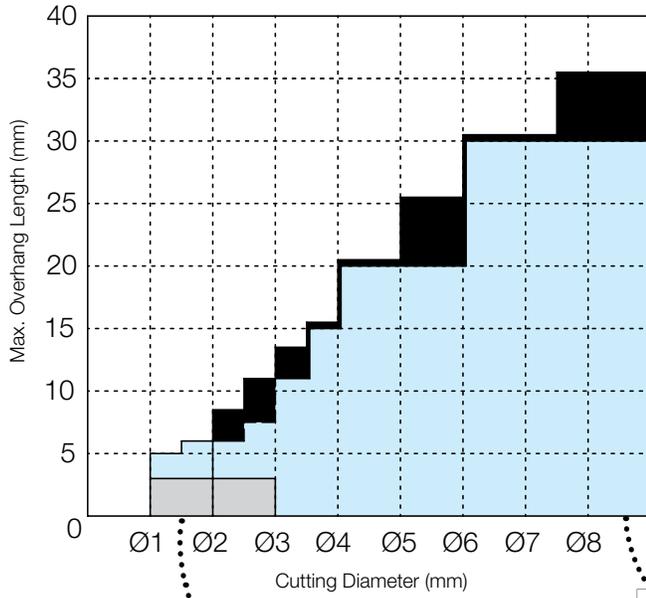


EZBT for Back Boring

EZBF 90° Lead Type



● **Usage Classification** (Solid Bar type: Minimum Cutting Dia. 1mm)



EZ Bar
Easy Adjustment & High Precision



F16



Twin Bars

F42~F43

 SVN F38 Square Shank Straight	 SVNS F38
 S...SVN F39 Standard Round Shank	
Swiss IQ Bars F36	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

BORING BAR IDENTIFICATION SYSTEM

Boring Bar Identification System (Round Shank)

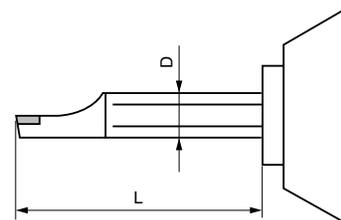
S	Steel	ANSI (in)	ISO (mm)	ANSI (in)	ISO (mm)	C : Top Clamp	C : 80° Diamond	Manufacturer's Optional Mark or Number A : Dynamic Bar AE : Excellent Bar (Dynamic Bar type) E : Excellent Bar
A	Steel (with Coolant Hole)	F: 3.00	80	Q: 7.00	180	M : Multi Lock	D : 55° Diamond	
C	Carbide	G: 3.50	90	R: 8.00	200	P : Lock Pin Only or Lever Lock	J : 70° Diamond	
E	Carbide (with Coolant Hole)	H: 4.00	100	S: 10.00	250	S : Screw Clamp	R : Round	
		J: 4.50	110	T: 12.00	300	W : Wedge Lock	S : 90° Square	
		K: 5.00	125	U: 14.00	350		T : 60° Triangle	
		L: 5.50	140	V: 16.00	400		V : 35° Diamond	
		M: 6.00	150	W: 18.00	450		W : 80° Trigon	
		N: 6.50	160	X: Special	500			
		P: 6.75	170					

Shank	Toolholder Length	Clamping System	Insert Shape	Hand of Tool	Others																							
ANSI (inch)	S 08	M - S	C L P R	3	AE																							
ISO (metric)	S 12	M - S	C L P R	09	16 A																							
Shank Diameter	Cutting Edge Angle		Insert Relief Angle	Insert Size	Min. Bore Dia.																							
ANSI A two-digit number that indicates the shank diameter in 1/16" increments. ISO Shank diameter in mm	<table border="1"> <tr> <td>F</td> <td>K</td> <td>L</td> <td>P</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Q</td> <td>S</td> <td>U</td> <td>W</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Y</td> <td>X</td> <td>Z</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table>	F	K	L	P					Q	S	U	W					Y	X	Z						 B : 5° Positive C : 7° Positive D : 15° Positive E : 20° Positive N : 0° Negative P : 11° Positive	ANSI Number of 1/8 increments of I.C.	ISO
F	K	L	P																									
Q	S	U	W																									
Y	X	Z																										

● Anti-vibration interchangeable head mechanism Boring Bar "AD Bar"
 For the identification system for boring bars with interchangeable head, Ref. to page **F83**

Guidelines for Overhang Length of Boring Bar (Workpiece Material 1045)

Overhang Length (L / D)	Shank Material
3	Steel
4	Steel (Dynamic Bar)
5	Excellent
5.5	Excellent (Dynamic Bar)
6	AD Bars (with Anti-vibration Dampener System)
7	Carbide



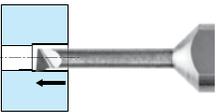
Carbide Shank Boring Bar

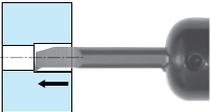
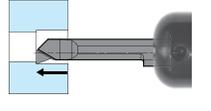
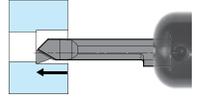
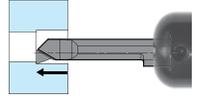
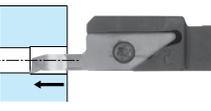
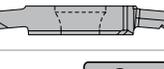
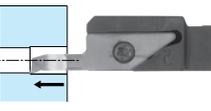
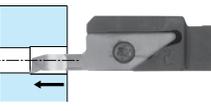
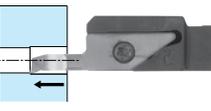
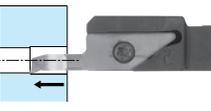
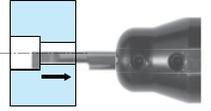
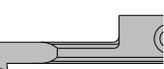
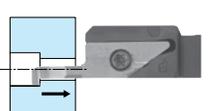
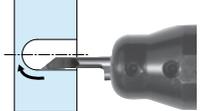
Short Shank Series

Short Shank Types with length of 1/2 and 2/3 of standard type are available. (1/2 or 2/3 is shown at the end of the description)
 When installing on machines, no additional machining (to change toolholder length) is required.



Solid Micro Bars

Application	Solid Micro Bars	Shape	Application
Boring / Profiling	MBS Standard Length ➔ F14		
	MBE Extended Reach ➔ F15		

Application	Solid Micro Bars	Shape	Shank Type Max. Overhang Length L/D	Min. Bore Dia. DMIN (mm)													Toolholder / Sleeve Ref. Page	Application		
				1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0			7.5	
Boring	EZB-HP EZ Bar ➔ F18		Solid L/D = ~5			●	●	●	●	●	●	●	●	●	●			➔ F30~ ➔ F34		
	EZB-HP-LT EZ Bar (Long Type) ➔ F19		Solid			●	●	●	●	●	●	●	●	●	●					
	EZB-ST EZ Bar ➔ F20		Solid L/D = ~5			●	●	●	●	●	●	●	●	●	●	●			➔ F30~ ➔ F34	
	EZB-NB EZ Bar (MEGACOAT) ➔ F21		Solid L/D = ~5			●	●	●	●	●	●	●	●	●	●	●				
	EZB-NB EZ Bar ➔ F21		Solid L/D = ~5					●	●	●	●	●	●	●	●	●			➔ F30~ ➔ F34	
	EZB-NB EZ Bar ➔ F21		Solid L/D = ~5					●	●	●	●	●	●	●	●	●				
	EZBF EZ Bar (90° Lead Type) NEW		Solid					●	●	●	●	●	●	●	●	●			➔ F30~ ➔ F34	
	TWB Twin Bars ➔ F42		Solid		●	●	●	●	●										➔ F42	
	TWBT Twin Bars ➔ F43		Solid		●	●	●	●	●										➔ F43	
	VNB-S Swiss IQ Bars ➔ F36		Solid		●	●	●	●	●	●									➔ F38 ➔ F39	
VNB Swiss IQ Bars ➔ F36		Solid			●	●	●	●	●	●	●	●	●	●	●		➔ F38 ➔ F39			
VNBX-S Swiss IQ Bars ➔ F40		Solid		●	●	●	●	●	●								➔ F41			
Back Boring	EZBT EZ Bar NEW ➔ F26		Solid							●	●	●	●	●	●		➔ F30~ ➔ F34			
	VNBT Swiss IQ Bars ➔ F37		Solid							●	●	●	●	●	●		➔ F38 ➔ F39			
Copying	EZVB EZ Bar ➔ F24		Solid						●	●	●	●	●	●	●		➔ F30~ ➔ F34			

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Dynamic Bars (inch)

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (in)														Toolholder/ Sleeve Ref. Page													
				Yes	No	0.240	0.312	0.392	0.413	0.450	0.480	0.512	0.551	0.580 (0.600)	0.630	0.700	0.770	0.787	0.790		0.825	0.930	0.980	1.180	1.200	1.240	1.300	1.340					
Boring / Internal Facing		A...SCLC-AE Excellent L/D = ~5,5	●							●		●						●				●						●	F44				
		E...SCLC-A Carbide L/D = ~7,0	●							●		●							●														
	A...SCLP-AE Excellent L/D = ~5,5	●						●	●		●	●						●					●						F48				
	A...STLB(P)-AE Excellent L/D = ~5,5	●					●		●		●	●						●						●					F60				
	S...STLB-AE Excellent L/D = ~5,5	○					●																										
Boring		A...SWUB(P)-AE Excellent L/D = ~5,5	●							●		●	●					●					●							F74			
		S...SWUB-AE Excellent L/D = ~5,5	○				●	●																									
Copying		A...SDUC-AE Excellent L/D = ~5,5	●								●	●							●								●			F52			
		E...SDUC-A Carbide L/D = ~7,0	●								●	●																					
		A...SDQC-AE Excellent L/D = ~5,5	●								●		●							●												F54	
		E...SDQC-A Carbide L/D = ~7,0	●								●		●																				
		A...SVJB-AE Excellent L/D = ~5,5	●																	●					●							F66	
		A...SVPC(B)-AE Excellent L/D = ~5,5	●																	●				●	●							F68	
		A...SVUC(B)-AE Excellent L/D = ~5,5	●																	●				●	●								F70
		A...SVZC(B)-AE Excellent L/D = ~5,5	●																	●				●									
Back Boring		A...SVZC(B)-AE Excellent L/D = ~5,5	●																●				●										

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

Dynamic Bars / EZ Bar PLUS (metric)

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (mm)																				Toolholder / Sleeve Ref. Page								
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30	31	32	34		40	50						
Boring / Internal Facing		A...SCLC-AE	Excellent L/D = ~5.5	●						●	●			●		●				●								F44						
		S...SCLC-AE	Excellent L/D = ~5.5	○		●	●	●	●																					F48				
		S...SCLC-A	Steel L/D = ~4.0	○						●	●				●		●				●										F48			
		C...SCLC-AN	Carbide L/D = ~7.0	○		●	●	●	●																							F48		
		E...SCLC-A(N)	Carbide L/D = ~7.0	●						●	●				●		●				●												F48	
		A...SCLP-AE	Excellent L/D = ~5.5	●						●	●				●	●	●	●				●												
	S...SCLP-A	Steel L/D = ~4.0	○						●	●				●	●	●	●				●								F48					
	E...SCLP-A(N)	Carbide L/D = ~7.0	●						●	●				●	●	●	●				●									F48				
		S...SCLC-EZ(P)	Steel L/D = ~3.0	○		●	●	●	●																						F27			
		C...SCLC-EZ(P)	Carbide L/D = ~5.0	○		●	●	●	●																							F27		
		A...STLP-AE	Excellent L/D = ~5.5	●						●	●				●	●	●	●				●											F60	
		S...STLB(P)-A	Steel L/D = ~4.0	○						●	●				●	●	●	●				●												F60
E...STLP-A(N)		Carbide L/D = ~7.0	●						●	●				●	●	●	●				●							F60						
C...STLB-AN		Carbide L/D = ~7.0	○						●	●																				F60				
Boring		A...STLC-AE	Excellent L/D = ~5.5	●						●	●			●		●				●									F59					
		S...STLC-A	Steel L/D = ~4.0	○						●	●				●		●				●											F59		
		S...STLB(P)-EZP	Steel L/D = ~3.0	○						●	●																						F28	
		C...STLB(P)-EZP	Carbide L/D = ~5.0	○						●	●																							F28
		A...SWUB(P)-AE	Excellent L/D = ~5.5	●						●	●				●		●					●									F74			
		S...SWUB(P)-A	Steel L/D = ~4.0	○						●	●				●		●					●								F74				
	C...SWUB-A	Carbide L/D = ~7.0	○						●	●																			F74					
	E...SWUB(P)-A	Carbide L/D = ~7.0	●						●	●				●		●					●											F74		
		S...SWUB-EZP	Steel L/D = ~3.0	○						●	●																						F29	
		C...SWUB-EZP	Carbide L/D = ~5.0	○						●	●																							

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Dynamic Bars (metric)

Application	Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. DMIN (mm)																	Toolholder / Sleeve / Ref. Page					
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23	25	26	27	30		31	32	34	40	50
Copying		A...SDUC-AE	Excellent L/D = ~5.5	●									●	●	●	●		●		●							F52	
		S...SDUC-A	Steel L/D = ~4.0	○										●	●	●	●		●		●							
		E...SDUC-A	Carbide L/D = ~7.0	●										●	●	●	●		●		●							
		A...SDQC-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●							F54
		S...SDQC-A	Steel L/D = ~4.0	○										●	●	●	●		●		●							
		E...SDQC-A	Carbide L/D = ~7.0	●										●	●	●	●		●		●							
		A...SVJB(C)-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●			●	●			F66
		A...SVJP-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●			●	●			
		S...SVJB(C)-A	Steel L/D = ~4.0	○										●	●	●	●		●		●			●	●			
		S...SVJP-A	Steel L/D = ~4.0	○										●	●	●	●		●		●			●	●			
		A...SVPC(B)-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●			●	●			F68
		S...SVPC(B)-A	Steel L/D = ~4.0	○										●	●	●	●		●		●			●	●			
E...SVPC(B)-A		Carbide L/D = ~7.0	●										●	●	●	●		●		●			●	●				
	A...SVUB(C)-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●			●	●			F70	
	S...SVUB(C)-A	Steel L/D = ~4.0	○										●	●	●	●		●		●			●	●				
	E...SVUB(C)-A	Carbide L/D = ~7.0	●										●	●	●	●		●		●	29		●	●				
Back Boring		A...SDZC-AE	Excellent L/D = ~5.5	●									●	●	●	●		●		●							F55	
		S...SDZC-A	Steel L/D = ~4.0	○										●	●	●	●		●		●							
		E...SDZC-A	Carbide L/D = ~7.0	●										●	●	●	●		●		●							
		A...SVZB(C)-AE	Excellent L/D = ~5.5	●										●	●	●	●		●		●			●	●			F70
		S...SVZB(C)-A	Steel L/D = ~4.0	○										●	●	●	●		●		●			●	●			
		E...SVZB(C)-A	Carbide L/D = ~7.0	●										●	●	●	●		●		●			●	●			

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring bar size.

Boring Bars (metric)

Application	Boring Bar Type	Overview Shape	Shank Type Max. Overhang Length L/D	Coolant Hole		Insert Type	Min. Bore Dia. DMIN (mm)											Toolholder / Sleeve Ref. Page					
				Yes	No		5	6	7	8	10	12	14	16	18	20	25		30	32	40	50	63
Boring / Internal Facing	A...DCLN12		Steel L/D = -3.0	●		Negative												●	●	●	→ F85		
	S...PCLN00		Steel L/D = -3.0		○	Negative												●	●	●	→ F86		
	A...PCLN09		Steel L/D = -3.0	●		Negative												●	●	●	→ F86		
	A...DWLN08		Steel L/D = -3.0	●		Negative												●	●	●	→ F95		
	S...PWLN00		Steel L/D = -3.0		○	Negative												●	●	●	→ F94 → F96		
	A...PWLN06		Steel L/D = -3.0	●		Negative												●	●	●	→ F94		
	S...WWLN08-E		Excellent L/D = -5.0		○	Negative												●	●	●	→ F96		
	C...STXP(B)		Carbide L/D = -7.0		○	Positive			●	●	●										→ F65		
	C...SJLC		Carbide L/D = -7.0		○	Positive	●														→ F58		
Copying	S...STWP-E		Excellent L/D = -5.0		○	Positive					●	●					●	●	●	→ F64			
	S...STWP		Steel L/D = -3.0		○	Positive					●	●					●	●	●	→ F64			
	A...DDUN15		Steel L/D = -3.0	●		Negative												●	●	●	→ F88		
	S...PDUN11		Steel L/D = -3.0		○	Negative												●	●	●	→ F87		
	A...PDUN11		Steel L/D = -3.0	●		Negative												●	●	●	→ F87		
	S...PDUN15		Steel L/D = -3.0		○	Negative												●	●	●	→ F89		
	S...PDQN15		Steel L/D = -3.0		○	Negative												●	●	●	→ F89		
Back Boring	C...STZB		Carbide L/D = -7.0		○	Positive					●									→ F65			
	C...SJZC		Carbide L/D = -7.0		○	Positive	●													→ F58			
	S...PDZN15		Steel L/D = -3.0		○	Negative												●	●	●	→ F89		
Boring	S...CTUP		Steel L/D = -3.0		○	Positive						●					●	●	●	→ F79			
	A...DTFN00		Steel L/D = -3.0	●		Negative												●	●	●	→ F92		
	S...PTUN00		Steel L/D = -3.0		○	Negative												●	●	●	→ F93		
	A...PTUN11		Steel L/D = -3.0	●		Negative												●	●	●	→ F93		
	A...DSKN12		Steel L/D = -3.0	●		Negative												●	●	●	→ F91		
	S...SSKP		Steel L/D = -3.0		○	Positive												●	●	●	→ F78		
	S...CSKP		Steel L/D = -3.0		○	Positive												●	●	●	→ F78		

Min. Bore Dia. DMIN is indicated by the figure under ● depending on the boring size.

MBS (Micro Internal Diameter Profile Boring)



• MBS Bars are Right-hand

MBS Standard Length (Inch)

Uncoated		AlTiN Coating		Dimensions (in)			
Part Number	Stock	Part Number	Stock	DC ^{+0.0000} / _{-0.0025}	DCON	LF	CDX
MBS-0150.030	●	MBS-0150L030	●	0.0150	1/8	1 1/2	0.030
MBS-0200.030	●	MBS-0200L030	●	0.0200	1/8	1 1/2	0.030
MBS-0250.050	●	MBS-0250L050	●	0.0250	1/8	1 1/2	0.050
MBS-0300.050	●	MBS-0300L050	●	0.0300	1/8	1 1/2	0.050
MBS-0350.050	●	MBS-0350L050	●	0.0350	1/8	1 1/2	0.050
MBS-0400.050	●	MBS-0400L050	●	0.0400	1/8	1 1/2	0.050
MBS-0450.100	●	MBS-0450L100	●	0.0450	1/8	1 1/2	0.100
MBS-0500.100	●	MBS-0500L100	●	0.0500	1/8	1 1/2	0.100
MBS-0550.100	●	MBS-0550L100	●	0.0550	1/8	1 1/2	0.100
MBS-0600.100	●	MBS-0600L100	●	0.0600	1/8	1 1/2	0.100
MBS-0800.250	●	MBS-0800L250	●	0.0800	1/8	1 1/2	0.250
MBS-1000.375	●	MBS-1000L375	●	0.1000	1/8	1 1/2	0.375
MBS-1100.500	●	MBS-1100L500	●	0.1100	1/8	1 1/2	0.500
MBS-1200.600	●	MBS-1200L600	●	0.1200	3/16	2	0.600
MBS-1400.700	●	MBS-1400L700	●	0.1400	3/16	2	0.700
MBS-1600.800	●	MBS-1600L800	●	0.1600	3/16	2 1/2	0.800
MBS-1800.900	●	MBS-1800L900	●	0.1800	1/4	2 1/2	0.900
MBS-2000.1000	●	MBS-2000L1000	●	0.2000	1/4	3	1.000
MBS-2200.1250	●	MBS-2200L1250	●	0.2200	1/4	3	1.250
MBS-2400.1500	●	MBS-2400L1500	●	0.2400	1/4	3	1.500

MBS Standard Length (Metric)

Uncoated		AlTiN Coating		Dimensions (mm)			
Part Number	Stock	Part Number	Stock	DC ^{+0.00} / _{-0.06}	DCON	LF	CDX
MBS-0157.039	●	MBS-0157L039	●	0.40	3.00	38.00	1.00
MBS-0197.039	●	MBS-0197L039	●	0.50	3.00	38.00	1.00
MBS-0236.051	●	MBS-0236L051	●	0.60	3.00	38.00	1.30
MBS-0276.051	●	MBS-0276L051	●	0.70	3.00	38.00	1.30
MBS-0315.051	●	MBS-0315L051	●	0.80	3.00	38.00	1.30
MBS-0354.051	●	MBS-0354L051	●	0.90	3.00	38.00	1.30
MBS-0394.098	●	MBS-0394L098	●	1.00	3.00	38.00	2.50
MBS-0433.098	●	MBS-0433L098	●	1.10	3.00	38.00	2.50
MBS-0472.098	●	MBS-0472L098	●	1.20	3.00	38.00	2.50
MBS-0512.098	●	MBS-0512L098	●	1.30	3.00	38.00	2.50
MBS-0591.236	●	MBS-0591L236	●	1.50	3.00	38.00	6.00
MBS-0669.276	●	MBS-0669L276	●	1.70	3.00	38.00	7.00
MBS-0787.315	●	MBS-0787L315	●	2.00	3.00	38.00	8.00
MBS-1181.591	●	MBS-1181L591	●	3.00	5.00	50.00	15.00
MBS-1378.787	●	MBS-1378L787	●	3.50	5.00	50.00	20.00
MBS-1575.866	●	MBS-1575L866	●	4.00	5.00	50.00	22.00
MBS-1772.906	●	MBS-1772L906	●	4.50	8.00	65.00	23.00
MBS-1969.984	●	MBS-1969L984	●	5.00	8.00	65.00	25.00
MBS-2165.1063	●	MBS-2165L1063	●	5.50	8.00	65.00	27.00
MBS-2362.1142	●	MBS-2362L1142	●	6.00	8.00	65.00	29.00

Series MBS Workpiece Materials																
Coating	P	P	H	H	M	K	N	N	N	N	N	N	N	S	S	
	Steel ~30HRC	Steel 30~40HRC	Hardened Steel ~55HRC	Hardened Steel ~68HRC	Stainless Steel	Cast Iron	Aluminum	Graphite	Copper Alloy	Brass	CFRP	Plastic	Thermoset Plastic	High Density Plastic	Nickel / Cobalt	Titanium Alloy
AlTiN	★	★	★	☆	☆	☆			☆						☆	☆
Uncoated	★	★	★	☆	☆		☆		☆	☆				☆		

★ : Priority ☆ : Applicable Materials

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● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

MBE (Micro Internal Diameter Profile Boring)



• MBE Bars are Right-hand

MBE Extended Reach (Inch)

Uncoated		AlTiN Coating		Dimensions (in)			
Part Number	Stock	Part Number	Stock	DC ^{+0.0000} / _{-0.0025}	DCON	LF	CDX
MBE-0150.075	●	MBE-0150L075	●	0.0150	1/8	1 1/2	0.075
MBE-0200.075	●	MBE-0200L075	●	0.0200	1/8	1 1/2	0.075
MBE-0250.125	●	MBE-0250L125	●	0.0250	1/8	1 1/2	0.125
MBE-0300.125	●	MBE-0300L125	●	0.0300	1/8	1 1/2	0.125
MBE-0350.125	●	MBE-0350L125	●	0.0350	1/8	1 1/2	0.125
MBE-0400.125	●	MBE-0400L125	●	0.0400	1/8	1 1/2	0.125
MBE-0450.250	●	MBE-0450L250	●	0.0450	1/8	1 1/2	0.250
MBE-0500.250	●	MBE-0500L250	●	0.0500	1/8	1 1/2	0.250
MBE-0550.250	●	MBE-0550L250	●	0.0550	1/8	1 1/2	0.250
MBE-0600.250	●	MBE-0600L250	●	0.0600	1/8	1 1/2	0.250
MBE-0800.500	●	MBE-0800L500	●	0.0800	1/8	1 1/2	0.500
MBE-1000.600	●	MBE-1000L600	●	0.1000	1/8	1 1/2	0.600
MBE-1100.700	●	MBE-1100L700	●	0.1100	1/8	1 1/2	0.700
MBE-1200.850	●	MBE-1200L850	●	0.1200	3/16	2	0.850
MBE-1400.900	●	MBE-1400L900	●	0.1400	3/16	2	0.900
MBE-1600.1100	●	MBE-1600L1100	●	0.1600	3/16	2 1/2	1.100
MBE-1800.1250	●	MBE-1800L1250	●	0.1800	1/4	2 1/2	1.250
MBE-2000.1400	●	MBE-2000L1400	●	0.2000	1/4	3	1.400
MBE-2200.1500	●	MBE-2200L1500	●	0.2200	1/4	3	1.500
MBE-2400.1750	●	MBE-2400L1750	●	0.2400	1/4	3	1.750

MBE Standard Reach (Metric)

Uncoated		AlTiN Coating		Dimensions (mm)			
Part Number	Stock	Part Number	Stock	DC ^{+0.00} / _{-0.06}	DCON	LF	CDX
MBE-0157.079	●	MBE-0157L079	●	0.40	3.00	38.00	2.00
MBE-0197.079	●	MBE-0197L079	●	0.50	3.00	38.00	2.00
MBE-0236.118	●	MBE-0236L118	●	0.60	3.00	38.00	3.00
MBE-0276.118	●	MBE-0276L118	●	0.70	3.00	38.00	3.00
MBE-0315.118	●	MBE-0315L118	●	0.80	3.00	38.00	3.00
MBE-0354.118	●	MBE-0354L118	●	0.90	3.00	38.00	3.00
MBE-0394.197	●	MBE-0394L197	●	1.00	3.00	38.00	5.00
MBE-0433.197	●	MBE-0433L197	●	1.10	3.00	38.00	5.00
MBE-0472.197	●	MBE-0472L197	●	1.20	3.00	38.00	5.00
MBE-0512.197	●	MBE-0512L197	●	1.30	3.00	38.00	5.00
MBE-0591.394	●	MBE-0591L394	●	1.50	3.00	38.00	10.00
MBE-0669.394	●	MBE-0669L394	●	1.70	3.00	38.00	10.00
MBE-0787.394	●	MBE-0787L394	●	2.00	3.00	38.00	10.00
MBE-1181.787	●	MBE-1181L787	●	3.00	5.00	50.00	20.00
MBE-1378.984	●	MBE-1378L984	●	3.50	5.00	50.00	25.00
MBE-1575.1063	●	MBE-1575L1063	●	4.00	5.00	50.00	27.00
MBE-1772.1260	●	MBE-1772L1260	●	4.50	8.00	65.00	32.00
MBE-1969.1260	●	MBE-1969L1260	●	5.00	8.00	65.00	32.00
MBE-2165.1260	●	MBE-2165L1260	●	5.50	8.00	65.00	32.00
MBE-2362.1378	●	MBE-2362L1378	●	6.00	8.00	65.00	35.00

Series MBE Workpiece Materials

Coating	P Steel ~30HRC	P Steel 30~40HRC	H Hardened Steel ~55HRC	H Hardened Steel ~68HRC	M Stainless Steel	K Cast Iron	N Aluminum	N Graphite	N Copper Alloy	N Brass	N CFRP	N Plastic	N Thermoset Plastic	N High Density Plastic	S Nickel / Cobalt	S Titanium Alloy
AlTiN	★	★	★	☆	☆	☆			☆						☆	☆
Uncoated	★	★	★	☆	☆		☆		☆	☆				☆		

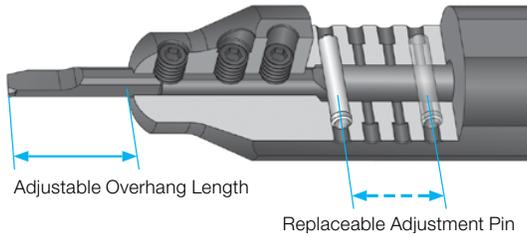
★ : Priority ☆ : Applicable Materials

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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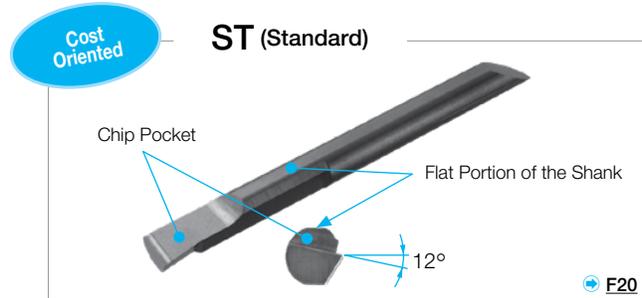
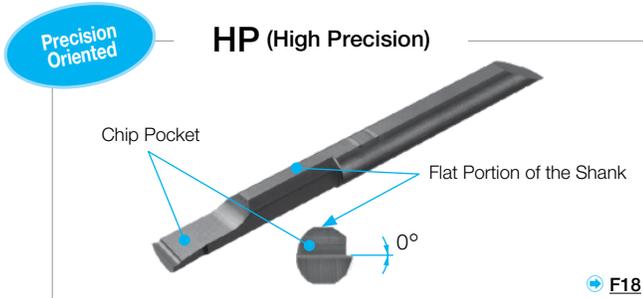
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TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Kyocera's Original EZ Adjust Structure



- Easy Adjustment and High Precision
- EZ Bar Minimizes Deviation with High Rigidity Clamping Force
- Wide of Tooling for Various Applications

2 Types of Bars



Insert Setting Image		Insert Tolerance	Offset (F)	Overall length (Z)	Edge Height (Y)	Min. Bore Dia.
<p>Y = Edge Height</p> <p>F = Offset</p> <p>Z = Insert length</p>		Precision-oriented HP Type (High Precision)	±0.025mm	±0.05mm	+0.05/0mm	Same as Shank Dia.
		Cost-oriented ST Type (Standard)	±0.060mm	±0.10mm	+0.06/0mm	Not same as Shank Dia.

* See "Dimensions" page for details.

"EZ Bar PLUS" Indexable EZ Bar Lineup Expansion



3 Types of Sleeves

EZH-CT



High Precision, with Coolant Hole (Adjustable)

EZH-HP



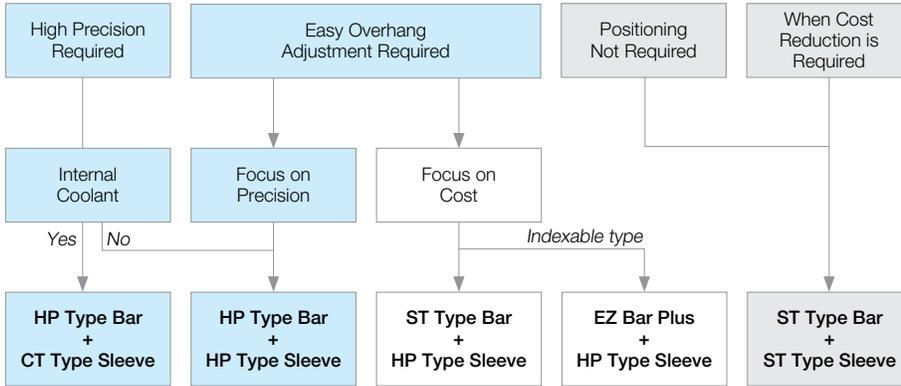
Overhang Length is Adjustable (Adjustable)

EZH-ST



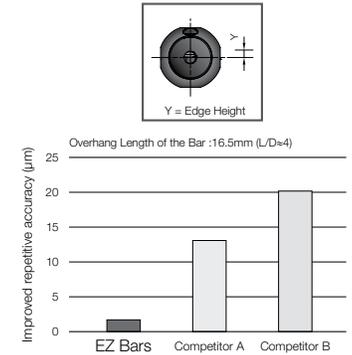
Not-Adjustable

How to Select Bars and Sleeves for Each Application



HP Type Bar + CT/HP Type Sleeve

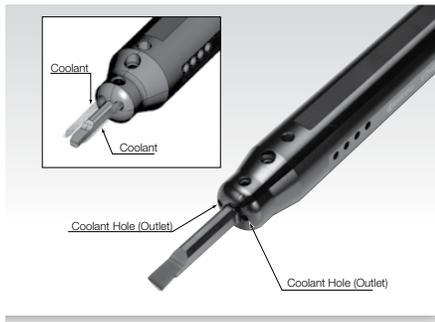
Excellent repeatability and drastic tool change time reduction



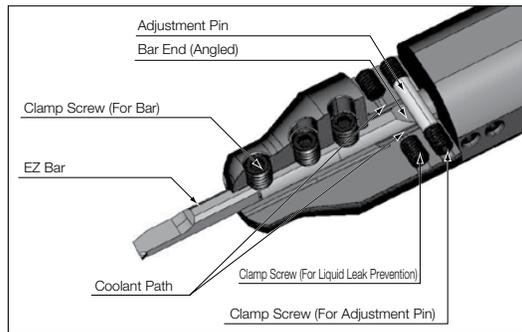
EZH-CT (high precision / with coolant hole) is added to the EZH sleeve lineup

Kyocera's unique EZ adjust structure and internal coolant system improve dimensional accuracy and surface roughness!

EZH-CT Coolant System



EZH-CT Internal Structure



How to Set Bar in Sleeve

How to use adjustment pin and prevent coolant leakage (Fig.1)

- Put the adjustment pin into the hole according to the overhang length and push it into the sleeve using the wrench "LW-1.5".
- Tighten the clamp screw for the adjustment pin "HS3X4P" using the wrench "LW-1.5" from both sides of the sleeve.
- Put the additional clamp screws "HS3X4P" into the un-used adjustment pin holes to prevent coolant leakage using the wrench "LW-1.5" and fix them from both sides of the sleeve.

How to secure the bar (Fig.2)

- With the chip pocket upward, set the bar into the sleeve. Press the angled face of the bar end with the adjustment pin. Make sure that the bar does not rotate. (Fig.3)
- Tighten the clamp screw with wrench "LW-2" and secure the bar. (Use "LW-1.5" if shank dia. is 3mm or less.)

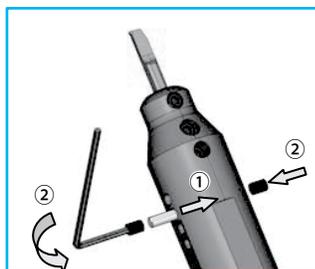


Fig.1 How to use the adjustment pin



Fig.2 How to secure the bar

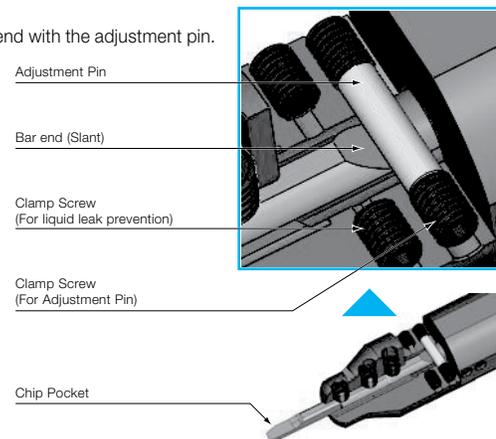
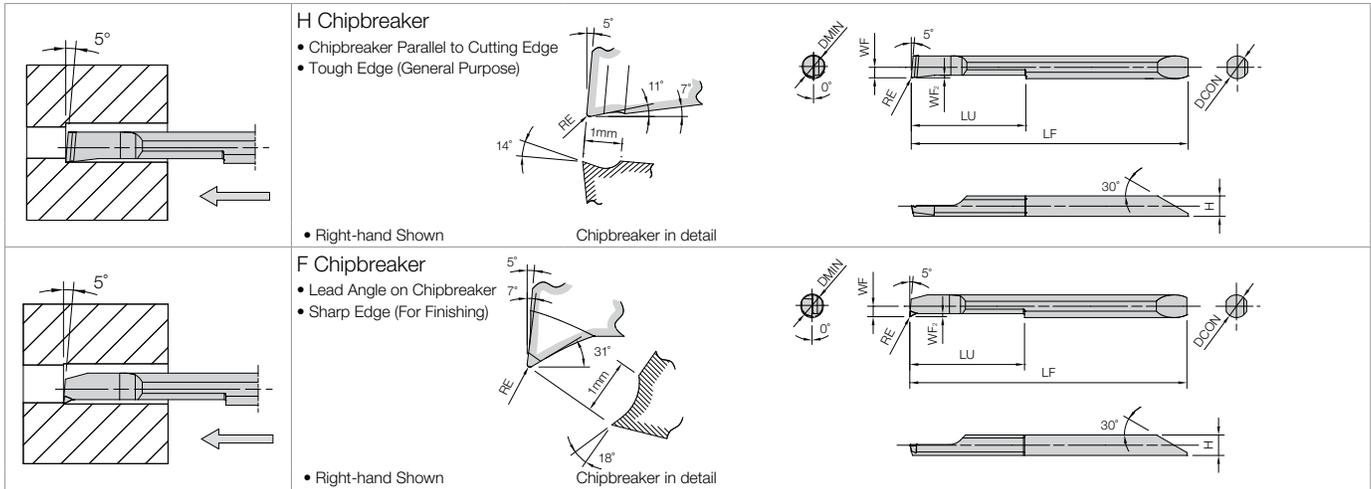


Fig.3 Clamped bar

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZ BAR

EZB-HP (Boring)



EZ Bar Dimensions (metric)

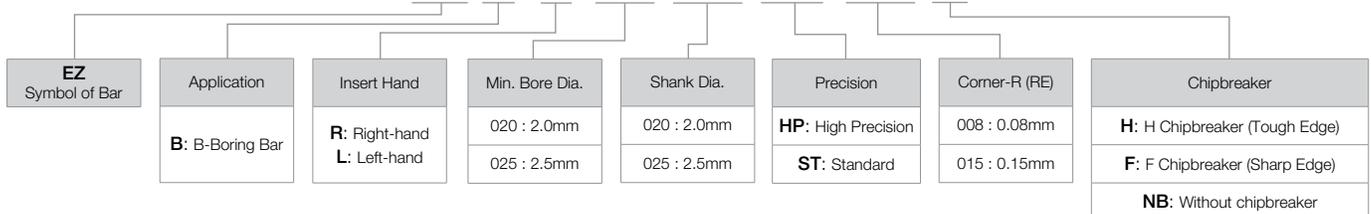
Part Number	Min. Bore Dia.	Dimensions (mm)								Grade				Applicable Sleeve F30-F34
		DMIN	DCON	H	LF	LU	WF	WF ₂	RE	MEGACOAT PR1225		Carbide GW05		
EZB% 020020HP-008H	2.0	2.0	1.8	32.0	8.0	0.85	0.25	0.08 ±0.015	●	●	●		EZH020...	
025025HP-008H	2.5	2.5	2.3	35.0	10.5	1.10	0.25	0.08 ±0.015	●	●	●		EZH025...	
025025HP-015H								0.15 ±0.020	●					
030030HP-008H	3.0	3.0	2.7	38.9	13.0	1.35	0.30	0.08 ±0.015	●	●	●		EZH030...	
030030HP-015H								0.15 ±0.020	●					
035035HP-008H	3.5	3.5	3.2	41.9	15.0	1.60	0.40	0.08 ±0.015	●	●	●		EZH035...	
035035HP-015H								0.15 ±0.020	●					
040040HP-008H	4.0	4.0	3.6	48.8	20.0	1.85	0.40	0.08 ±0.015	●	●	●		EZH040...	
040040HP-015H								0.15 ±0.020	●					
NEW 045045HP-008H	4.5	4.5	4.1	51.1	22.5	2.1	0.50	0.08 ±0.015	●	●	●		EZH045...	
050050HP-008H	5.0	5.0	4.6	58.1	25.0	2.35	0.50	0.08 ±0.015	●	●	●		EZH050...	
050050HP-015H								0.15 ±0.020	●					
060060HP-008H	6.0	6.0	5.6	66.1	30.0	2.85	0.60	0.08 ±0.015	●	●	●		EZH060...	
060060HP-015H								0.15 ±0.020	●					
NEW 070070HP-008H	7.0	7.0	6.3	73.8	35.0	3.3	0.7	0.08 ±0.015	●	●	●		EZH070...	
NEW 080080HP-008H	8.0	8.0	7.2	84.8	40.0	3.75	0.8	0.08 ±0.015	●	●	●		EZH080...	
EZBR 020020HP-005F	2.0	2.0	1.8	32.0	8.0	0.85	0.25	0.05 ±0.010	●				EZH020...	
025025HP-005F	2.5	2.5	2.3	35.0	10.5	1.10	0.30	0.05 ±0.010	●				EZH025...	
025025HP-015F								0.15 ±0.020	●					
030030HP-005F	3.0	3.0	2.7	38.9	13.0	1.35	0.40	0.05 ±0.010	●				EZH030...	
030030HP-015F								0.15 ±0.020	●					
035035HP-005F	3.5	3.5	3.2	41.9	15.0	1.60	0.50	0.05 ±0.010	●				EZH035...	
035035HP-015F								0.15 ±0.020	●					
040040HP-005F	4.0	4.0	3.6	48.8	20.0	1.85	0.50	0.05 ±0.010	●				EZH040...	
040040HP-015F								0.15 ±0.020	●					
050050HP-005F	5.0	5.0	4.6	58.1	25.0	2.35	0.70	0.05 ±0.010	●				EZH050...	
050050HP-015F								0.15 ±0.020	●					
060060HP-005F	6.0	6.0	5.6	66.1	30.0	2.85	0.90	0.05 ±0.010	●				EZH060...	
060060HP-015F								0.15 ±0.020	●					
NEW 070070HP-005F	7.0	7.0	6.3	73.8	35.0	3.3	1.0	0.05 ±0.010	●				EZH070...	
NEW 070070HP-015F								0.15 ±0.020	●					
NEW 080080HP-005F	8.0	8.0	7.2	84.8	40.0	3.75	1.0	0.05 ±0.010	●				EZH080...	
NEW 080080HP-015F								0.15 ±0.020	●					

Tolerance: Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm

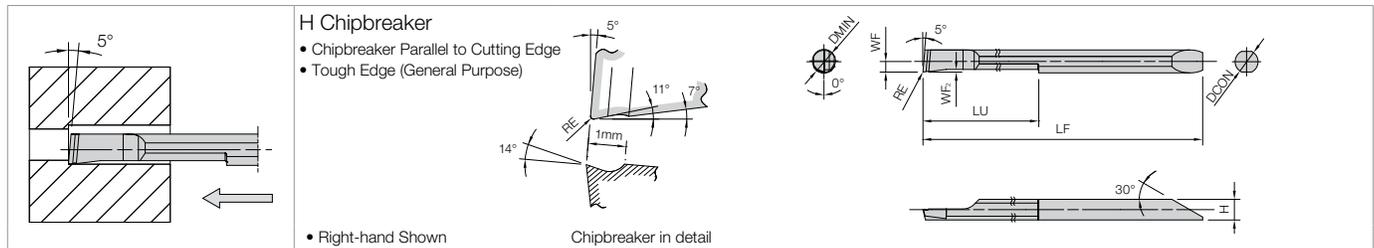
Recommended Cutting Conditions **F22**

EZ Bar Identification System

EZ B R 020 020 HP - 008 H



EZB-HP (Boring, Long Type)



EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)										Grade	Applicable Sleeve F30-F34	
		DMIN	DCON	H	LF	LU	*Overhang Length				WF			WF ₂	RE
							No.1	No.2	No.3	No.4		PR1225		
EZBR 020020HP-008H-LT	2	2	1.8	36	12	12.5	8.5	-	-	0.85	0.08 ±0.015	●	EZH020...	
025025HP-008H-LT	2.5	2.5	2.3	39.5	15	15.5	11.5	-	-	1.1		●	EZH025...	
030030HP-008H-LT	3	3	2.7	47.9	18	22.5	18.5	14.5	-	1.35		●	EZH030...	
035035HP-008H-LT	3.5	3.5	3.2	51.9	21	*25.5	21.5	17.5	-	1.6		●	EZH035...	
040040HP-008H-LT	4	4	3.6	60.8	28	*32.5	28.5	24.5	20.5	1.85		●	EZH040...	
050050HP-008H-LT	5	5	4.6	73.1	35	*40.5	35.5	30.5	25.5	2.35		●	EZH050...	
060060HP-008H-LT	6	6	5.6	83.1	42	*47.5	42.5	37.5	32.5	2.85		●	EZH060...	

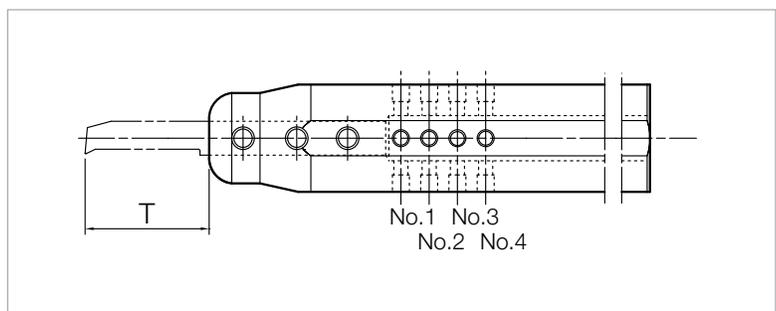
Tolerance: Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm

Recommended Cutting Conditions **F22**

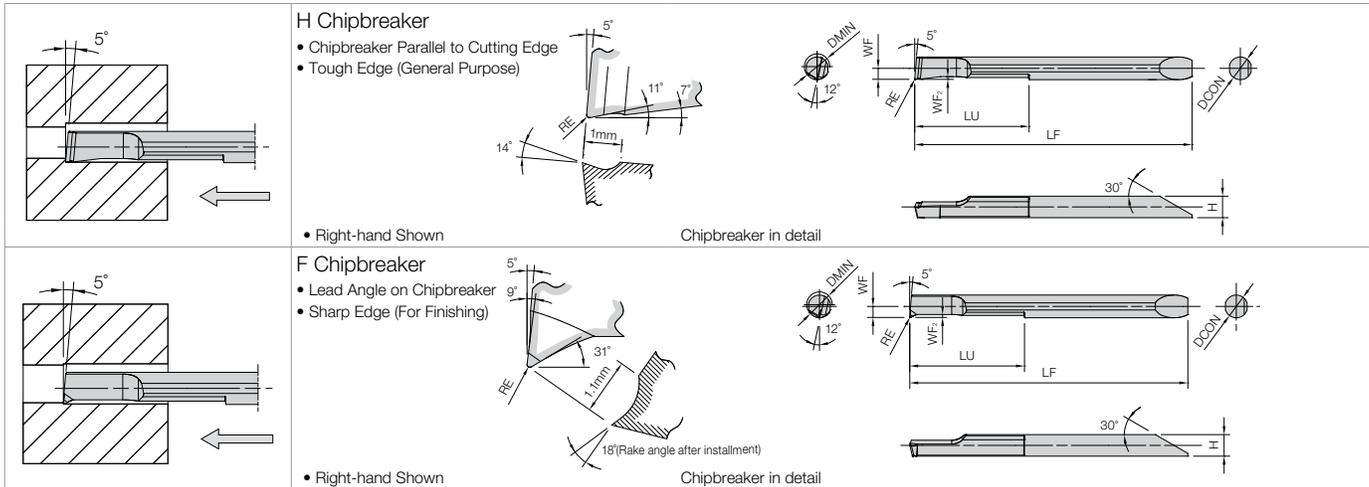
Long Type Overhang Amount T (mm)

Part Number	*Overhang Length (mm)			
	No.1	No.2	No.3	No.4
EZBR 020020HP-008H-LT	12.5	8.5	-	-
025025HP-008H-LT	15.5	11.5	-	-
030030HP-008H-LT	22.5	18.5	14.5	-
035035HP-008H-LT	*25.5	21.5	17.5	-
040040HP-008H-LT	*32.5	28.5	24.5	20.5
050050HP-008H-LT	*40.5	35.5	30.5	25.5
060060HP-008H-LT	*47.5	42.5	37.5	32.5

*To use full overhang, inserts with modified LU dimension are required.



EZB-ST (Boring)



EZ Bar Dimensions (metric)

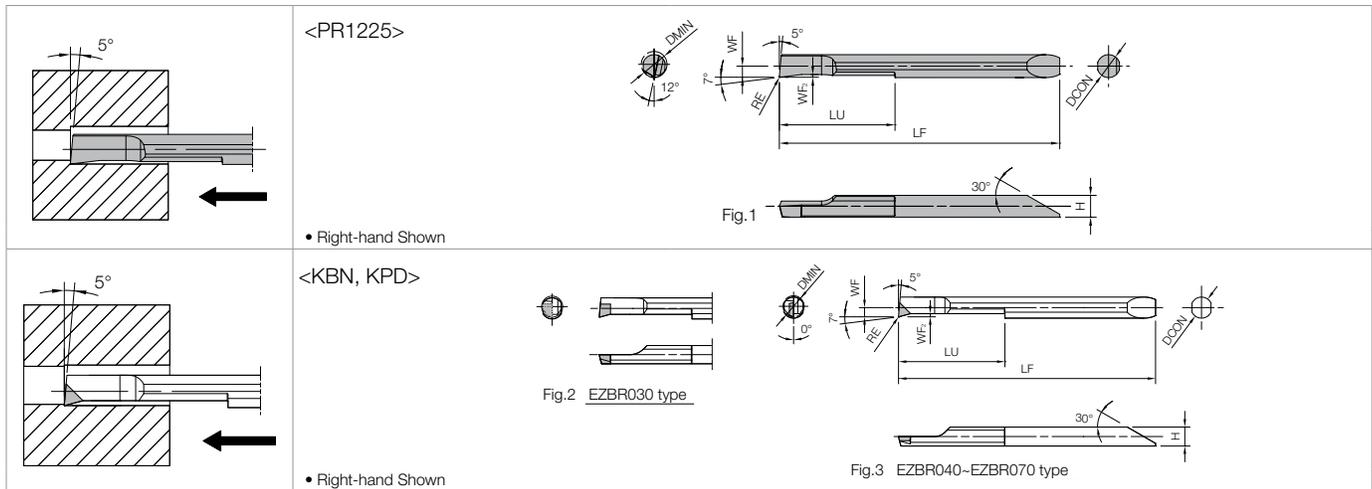
Part Number	Min. Bore Dia.	Dimensions (mm)							Grade		Applicable Sleeve F30-F34
		DMIN	DCON	H	LF	LU	WF	WF ₂	RE	MEGACOAT	
										PR1225	
EZBR	020017ST-008H	2.0	1.7	1.5	27.3	7.0	0.79	0.19	0.08 ±0.015	●	EZH017...
	025020ST-008H	2.5	2.0	1.82	32.0	8.0	0.94	0.16	0.08 ±0.015	●	EZH020...
	025020ST-015H								0.15 ±0.020	●	EZH025...
	030025ST-008H	3.0	2.5	2.3	35.0	10.5	1.19	0.15	0.08 ±0.015	●	EZH025...
	030025ST-015H								0.15 ±0.020	●	EZH030...
	035030ST-008H	3.5	3.0	2.8	39.0	13.0	1.44	0.18	0.08 ±0.015	●	EZH030...
	035030ST-015H								0.15 ±0.020	●	EZH035...
	040035ST-008H	4.0	3.5	3.3	42.0	15.0	1.69	0.24	0.08 ±0.015	●	EZH035...
	040035ST-015H								0.15 ±0.020	●	EZH040...
	045040ST-008H	4.5	4.0	3.8	49.0	20.0	1.94	0.27	0.08 ±0.015	●	EZH040...
	045040ST-015H								0.15 ±0.020	●	EZH050...
	055050ST-008H	5.5	5.0	4.8	58.2	25.0	2.44	0.33	0.08 ±0.015	●	EZH050...
	055050ST-015H								0.15 ±0.020	●	EZH060...
	065060ST-008H	6.5	6.0	5.8	66.2	30.0	2.94	0.38	0.08 ±0.015	●	EZH060...
065060ST-015H	0.15 ±0.020								●	EZH070...	
075070ST-008H	7.5	7.0	6.8	74.2	35.0	3.44	0.44	0.08 ±0.015	●	EZH070...	
075070ST-015H								0.15 ±0.020	●	EZH017...	
EZBR	020017ST-005F	2.0	1.7	1.5	27.3	7.0	0.79	0.20	0.05 ±0.010	●	EZH017...
	025020ST-005F	2.5	2.0	1.82	32.0	8.0	0.94	0.16	0.05 ±0.010	●	EZH020...
	025020ST-015F								0.15 ±0.020	●	EZH025...
	030025ST-005F	3.0	2.5	2.3	35.0	10.5	1.19	0.20	0.05 ±0.010	●	EZH025...
	030025ST-015F								0.15 ±0.020	●	EZH030...
	035030ST-005F	3.5	3.0	2.8	39.0	13.0	1.44	0.26	0.05 ±0.010	●	EZH030...
	035030ST-015F								0.15 ±0.020	●	EZH035...
	040035ST-005F	4.0	3.5	3.3	42.0	15.0	1.69	0.33	0.05 ±0.010	●	EZH035...
	040035ST-015F								0.15 ±0.020	●	EZH040...
	045040ST-005F	4.5	4.0	3.8	49.0	20.0	1.94	0.31	0.05 ±0.010	●	EZH040...
	045040ST-015F								0.15 ±0.020	●	EZH050...
	055050ST-005F	5.5	5.0	4.8	58.2	25.0	2.44	0.45	0.05 ±0.010	●	EZH050...
	055050ST-015F								0.15 ±0.020	●	EZH060...
	065060ST-005F	6.5	6.0	5.8	66.2	30.0	2.94	0.59	0.05 ±0.010	●	EZH060...
	065060ST-015F								0.15 ±0.020	●	EZH070...
	075070ST-005F	7.5	7.0	6.8	74.2	35.0	3.44	0.65	0.05 ±0.010	●	EZH070...
	075070ST-015F								0.15 ±0.020	●	

Tolerance: Offset ±0.06mm (of the reference pin), overall length ±0.1mm, edge height +0.06/0mm

Recommended Cutting Conditions **F22**

EZ Bars are sold in 1 piece boxes.

EZB-NB (Boring)



EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)							Drawing	Grade				Applicable Sleeve F30-F34	
		DMIN	DCON	H	LF	LU	WF	WF ₂		RE	MEGA COAT	Carbide	CBN		PCD
											PR1225	GW05	KBN05M		KPD001
EZBR 020017-005NB	2.0	1.7	1.50	27.3	7.0	0.79	0.20	±0.015 0.050	Fig.1	●	●			EZH017...	
025020-005NB	2.5	2.0	1.82	32.0	8.0	0.94	0.16			●	●			EZH020...	
030025-005NB	3.0	2.5	2.30	35.0	10.5	1.19	0.16			●	●			EZH025...	
035030-005NB	3.5	3.0	2.80	39.0	13.0	1.44	0.19			●	●			EZH030...	
040035-005NB	4.0	3.5	3.30	42.0	15.0	1.69	0.25			●	●			EZH035...	
045040-005NB	4.5	4.0	3.80	49.0	20.0	1.94	0.28			●	●			EZH040...	
055050-005NB	5.5	5.0	4.80	58.2	25.0	2.44	0.33			●	●			EZH050...	
065060-005NB	6.5	6.0	5.80	66.2	30.0	2.94	0.39			●	●			EZH060...	
075070-005NB	7.5	7.0	6.80	74.2	35.0	3.44	0.45			●	●			EZH070...	
EZBR 030030-003NB	3.0	3.0	2.60	38.8	13.0	1.25	0.30	±0.015 0.035	Fig.2			●		EZH030...	
040040-003NB	4.0	4.0	3.60	48.8	20.0	1.75	0.50					●		EZH040...	
050050-003NB	5.0	5.0	4.60	58.1	25.0	2.25	0.50					●		EZH050...	
060060-003NB	6.0	6.0	5.60	66.1	30.0	2.75	0.50					●		EZH060...	
070070-003NB	7.0	7.0	6.60	74.1	35.0	3.25	0.50					●		EZH070...	
EZBR 040040-003NB	4.0	4.0	3.60	48.8	20.0	1.75	0.50	±0.015 0.035	Fig.3				●	EZH040...	
050050-003NB	5.0	5.0	4.60	58.1	25.0	2.25	0.50						●	EZH050...	
060060-003NB	6.0	6.0	5.60	66.1	30.0	2.75	0.50						●	EZH060...	
070070-003NB	7.0	7.0	6.60	74.1	35.0	3.25	0.50						●	EZH070...	

Edge Preparation

Grade	Edge Preparation	Notes
PR1225	Sharp Edge	-
KBN05M	T00315	0.003" × 15° Chamfered Cutting Edge
KPD001	Sharp Edge	-

Recommended Cutting Conditions **F22**

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

EZ Bars are sold in 1 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

◆ Recommended Cutting Conditions

● H Chipbreaker (EZB-HP...H Type / EZB-ST...H Type)

Workpiece Material	Insert Grade (Vc : sfm)		EZB%020/025		EZB%030/035		EZB%040/045		EZB%050/055/060/065/070/075/080		Notes
	MEGACOAT	Carbide	Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Material	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

● H Chipbreaker (EZB-HP...H-LT Long Type)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025/030/035				EZBR040/050/060				Notes
	MEGACOAT		Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1225		D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~200		~0.0118		~0.0020		~0.0157		~0.0039		Wet
Stainless Steel	70~130		~0.0098		~0.0020		~0.0118		~0.0028		

● F Chipbreaker (EZB-HP...F Type / EZB-ST...F Type)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/065/070/075/080		Notes
	MEGACOAT		Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1225		D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330		~0.0079	~0.0012	~0.0079	~0.0020	~0.0118	~0.0028	~0.0118	~0.0028	Wet
Stainless Steel	100~260		~0.0079	~0.0008	~0.0079	~0.0012	~0.0098	~0.0020	~0.0098	~0.0020	

● NB (Without Chipbreaker)

Workpiece Material	Insert Grade (Vc : sfm)		EZBR020/025		EZBR030/035		EZBR040/045		EZBR050/055/060/065/075		Notes
	MEGACOAT	Carbide	Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1225	GW05	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel	100~260	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Material	-	~330	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0028	~0.0197	~0.0039	

Workpiece Material	Insert Grade (Vc : sfm)		EZBR030		EZBR040/045		EZBR050/060/070		Notes
	MEGACOAT CBN	PCD	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	KBN05M	KPD001	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Non-ferrous Material	-	~980	-	-	~0.0177	~0.0039	~0.0197	~0.0059	Wet
Hardened Materials	~330	-	~0.0028	~0.0012	~0.0039	~0.0020	~0.0059	~0.0028	

■ EZ Bar Compatibility

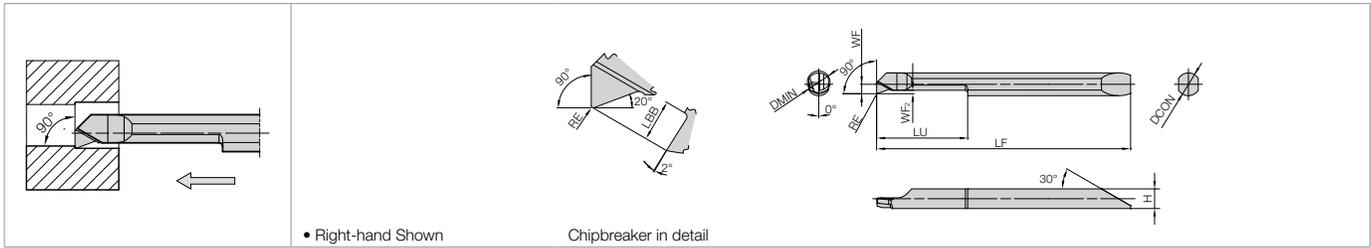
EZ Bar is compatible with conventional Micro-Bars

Sleeve \ Bar	EZB...HP	EZB...ST/NB	HPB...(Conventional)
EZH...CT/HP	✓	✓	※1 ※2 ✓ (Compatible)
EZH...ST	✓	✓	※1 ✓ (Compatible)
PSH...(Discontinued Sleeve)	※1 ✓ (Compatible)	※1 ✓ (Compatible)	✓

※1 Some diameters of conventional Micro-Bars are incompatible

※2 Use them without Adjustment Pins. Overhang length of bar is not adjustable.

EZBF (90° Lead Boring) NEW



• Right-hand Shown

Chipbreaker in detail

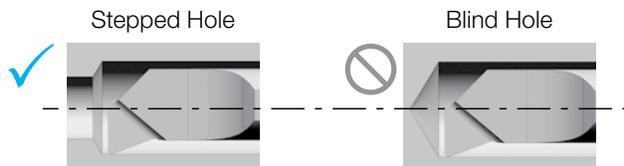
EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)								Grade	Applicable Sleeve F30~F34
		DMIN	DCON	H	LF	LU	WF	WF2	LBB	RE		PR1225
EZBFR 030030-008	3	3	2.5	37.7	12	1.2	0.45	1.5	0.08 ^{±0.015}	●	EZH030...
040040-008	4	4	3.45	44.6	16	1.65	0.55	2.0	0.08 ^{±0.015}	●	EZH040...
050050-015	5	5	4.3	52.7	20	2.15	0.7	2.4	0.15 ^{±0.02}	●	EZH050...
060060-015	6	6	5.15	59.6	24	2.55	0.85	2.8	0.15 ^{±0.02}	●	EZH060...

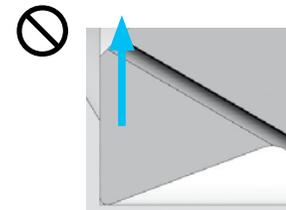
Tolerance: Offset ± 0.05 mm (of the reference pin), overall length ± 0.05 mm, edge height $+0.05/0$ mm

EZBF Machining Notes

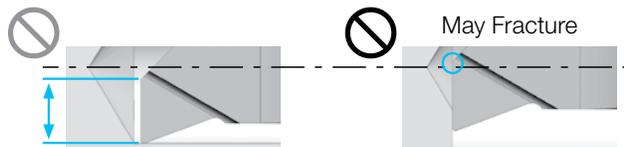
1. Machining into blind holes is not recommended



3. Up facing is not recommended



2. If front cutting edge exceeds beyond workpiece center line, fracturing may occur



Recommended Cutting Conditions

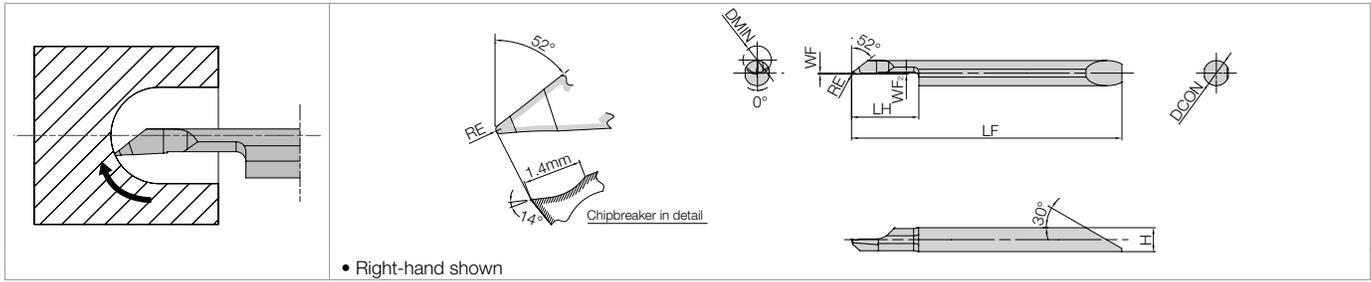
Workpiece Material	Insert Grade (Vc : sfm)	EZBFR030		EZBFR040		EZBFR050/060		Notes
	MEGACOAT	Depth of Cut: D.O.C. (inch), Feed: f (ipr)						
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	Wet
Stainless Steel	100~260	~0.0079	~0.0020	~0.0118	~0.0020	~0.0197	~0.0020	

EZ Bars are sold in 1 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZ BAR (COPYING / PROFILING)

EZVB (Boring / Internal Facing / Internal Profiling)



Toolholder Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)							Grade	Applicable Sleeve ● F30~F34	
		DMIN	DCON	H	LF	LH	WF	WF ₂	RE		MEGACOAT
											PR1225
EZVBR 035030-010	3.5	3.0	2.8	38.0	8.0	0.17	0.22	0.1 ±0.015	●	EZH030...	
045040-010	4.5	4.0	3.8	43.0	10.0	0.17	0.26	0.1 ±0.015	●	EZH040...	
055050-010	5.5	5.0	4.8	50.2	12.0	0.17	0.29	0.1 ±0.015	●	EZH050...	
065060-010	6.5	6.0	5.8	55.2	14.0	0.17	0.32	0.1 ±0.015	●	EZH060...	

Recommended Cutting Conditions

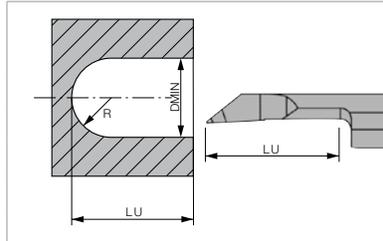
Workpiece Material	Insert Grade (Vc : sfm)	EZVBR035		EZVBR045		EZVBR055/065		Notes		
		MEGACOAT								
		Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f			
Carbon Steel / Alloy Steel	100~330	~0.0020	~0.0016	~0.0028	~0.0028	~0.0039	~0.0028	Wet		
Stainless Steel	100~260	~0.0012	~0.0012	~0.0020	~0.0020	~0.0028	~0.0020			

F
 BORING
 MICRO BORING
 POSITIVE INSERTS
 AD BARS
 NEGATIVE INSERTS

EZ Bars are sold in 1 piece boxes.

EZVB Application (Internal Spherical Machining, Internal Facing, Internal Profiling)

1. Application Range



Part Number	Min. Bore Dia.	R	LU
	DMIN	mm	mm
EZVBR 035030-010	3.5	1.75	8.0
045040-010	4.5	2.25	10.0
055050-010	5.5	2.75	12.0
065060-010	6.5	3.25	14.0

2. Application

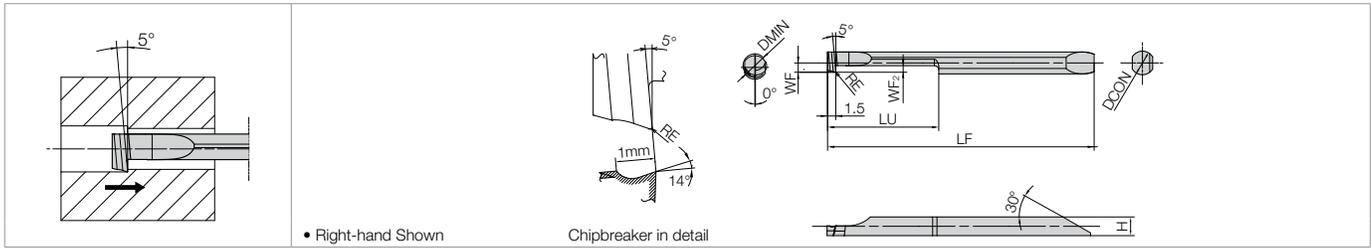
Without Existing Hole	Finishing
<p>(Note) f should be under 0.0012 ipr during internal facing</p>	
With Pre-Drilled Hole	Finishing
<p>(Note) f should be under 0.0012 ipr during internal facing</p>	<p>Machining Process (1) Finish the internal face first. (2) Next, finish the internal diameter.</p>

3. Caution

<p>When machining past the center of the workpiece, insert may break.</p>	<p>Fix the insert edge at the center of the workpiece.</p> <p>Adjust the machining program to radius minus the value of Corner-R(RE).</p>
<p>This type of machining is possible, but the chips might scratch the surface.</p>	<p>[Burs may occur, if D.O.C. is bigger than Corner-R(RE)]</p>

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZBT (Back Boring) NEW



• Right-hand Shown

Chipbreaker in detail

EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)							Grade		Applicable Sleeve ● F31-F34
		DMIN	DCON	H	LF	LU	WF	WF2	RE	PR1225		GW05
EZBTR 040040-005	4	4	3.45	48.7	20	1.7	1.2	0.05 ^{+0.02}	●	●	EZH040...
050050-005	5	5	4.3	58.7	25	2.15	1.5		●	●	EZH050...

F BORING

MICRO BORING

POSITIVE INSERTS

AD BARS

NEGATIVE INSERTS

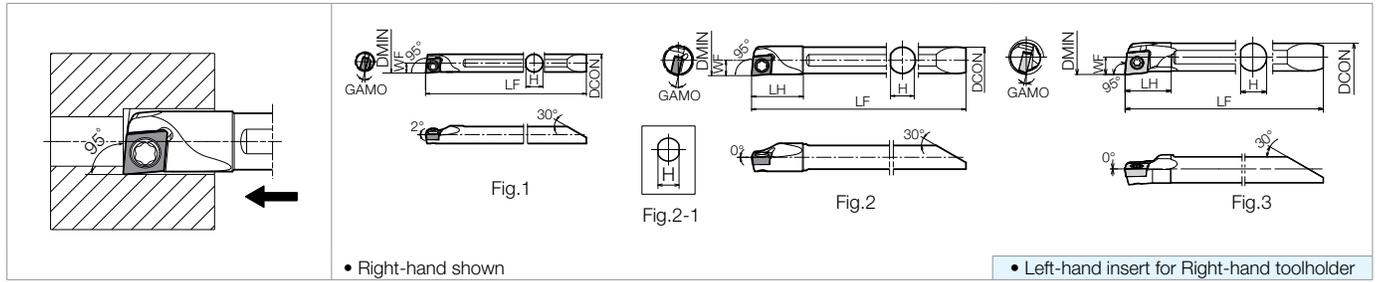
Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc : sfm)		EZBTR040		EZBTR050		Notes
	MEGACOAT	Carbide	Depth of Cut: D.O.C. (inch), Feed: f (ipr)				
	PR1225	GW05	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~330	-	~0.018	~0.003	~0.020	~0.004	Wet
Stainless Steel	100~260	-	~0.018	~0.002	~0.020	~0.003	
Non-ferrous Material	-	100~330	~0.018	~0.004	~0.020	~0.006	

EZ Bars are sold in 1 piece boxes.

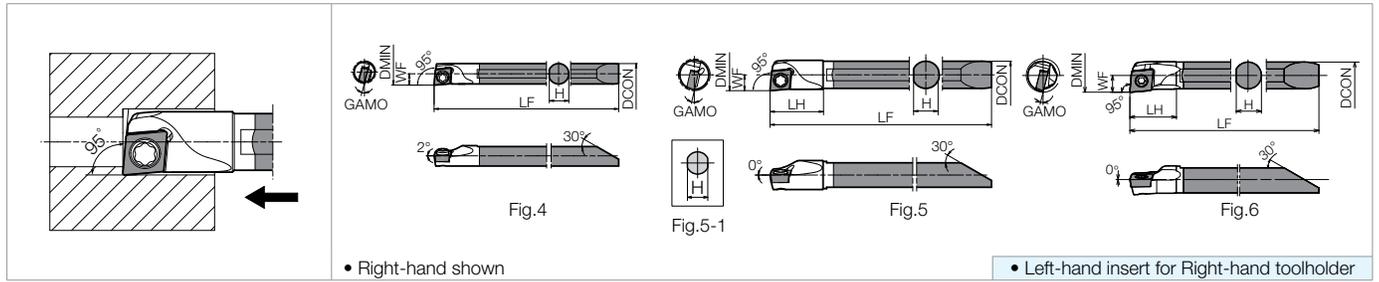
S-SCLC-EZ(P)

Maximum overhand length - L/D = ~3



C-SCLC-EZ(P)

Maximum overhand length - L/D = ~5



Toolholder Dimensions

Part Number	Stock (R)	Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve • F31, F33	
			DMIN	DCON	H	LF	LH					WF	Clamp Screw		Wrench
Steel	S045X-SCLCR03-050EZ	△	5.0	4.5	4.3	42.4	-	2.5	15°	No	Fig.1	SB-1635TR	FT-6	EZH045...	
	S045X-SCLCR03-050EZP	●													Fig.2	EZH050...
	S050X-SCLCR03-060EZP	●	6.0	5.0	4.7	48.4	9.0	3.0	13°		Fig.2-1	SB-2035TR		EZH060...	
	S060X-SCLCR04-070EZ	△													7.0
	S060X-SCLCR04-070EZP	●	8.0	7.0	6.7	60.4	10.3	4.0	14°		Fig.3	SB-2545TR		FT-8										EZH080...
	S070X-SCLCR04-080EZP	●													10.0	8.0	7.5	69.5	13.3	5.0	0.4	Fig.4	SB-1635TR		EZH045...
	S080X-SCLCR06-100EZP	●	Fig.5	EZH050...											
Carbide	C045X-SCLCR03-050EZ	△			5.0	4.5	4.3	51.4	-	2.5	15°	No	Fig.4	SB-1635TR	FT-6	EZH045...
	C045X-SCLCR03-050EZP	●	Fig.5	EZH050...											
	C050X-SCLCR03-060EZP	●			6.0	5.0	4.7	58.4	9.0	3.0	13°		Fig.5-1	SB-2035TR	
	C060X-SCLCR04-070EZ	△	7.0	6.0											
	C060X-SCLCR04-070EZP	●			8.0	7.0	6.7	74.4	11.0	4.0	14°		Fig.6	SB-2545TR	
	C070X-SCLCR04-080EZP	●	10.0	8.0											
	C080X-SCLCR06-100EZP	●													

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium
Ref. Page	• B53	• B53	• B53	• B53	• B53	• B54	• B54	• B54	• B54	• B54, B55
Insert	CF	PF	GF	SKS	SK	WP (Wiper)	PP	GK	HQ	Standard
Toolholder										
...SCLCR03-...	CCGT1109..	CCGT1109..	-	-	-	-	-	-	-	-
...SCLCR04-...	CCGT1411..	CCGT1411..	-	-	-	-	-	-	-	-
...SCLCR06-...	-	CCGT215..	CCGT215..	CCGT215..	CCGT215..	CCMT215..	CCMT215..	CCMT215..	CCMT215..	CCGT215..
Application	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision	Cast Iron	Non-ferrous Metals	Hard Material		
Ref. Page	• B53	• B56	• B55	• B58, B59	• B57	• B60	• C24	• C14		
Insert	GQ	L-F	L-FSF	(E/F)L-U	FL-USF	Without Chipbreaker	PCD	CBN		
Toolholder										
...SCLCR03-...	-	CCGT1109..	CCET1109..	-	-	-	-	CCMW1109..		
...SCLCR04-...	-	CCGT1411..	CCET1411..	-	-	-	-	CCMW1411..		
...SCLCR06-...	CCGT215..	-	-	CCGT215..	CCET215..	CCGW215..	CCGW215..	CCMW215..		

Recommended Cutting Conditions • F110-F111

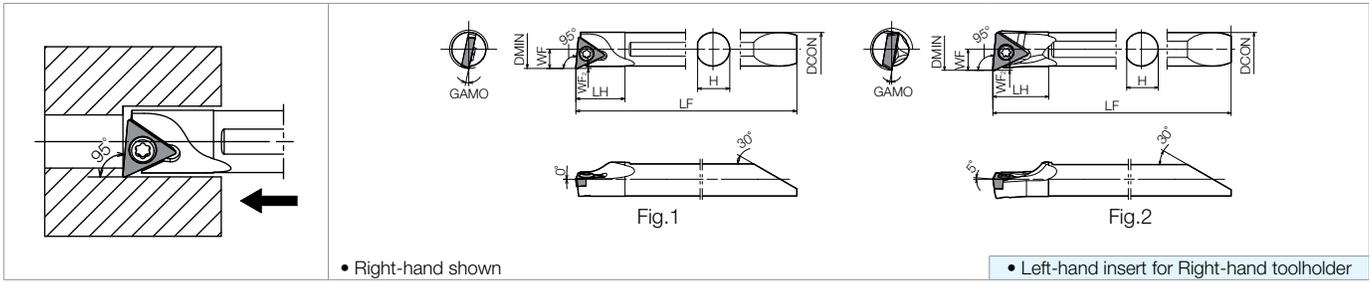
Other Applicable Sleeves • F100-F104

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

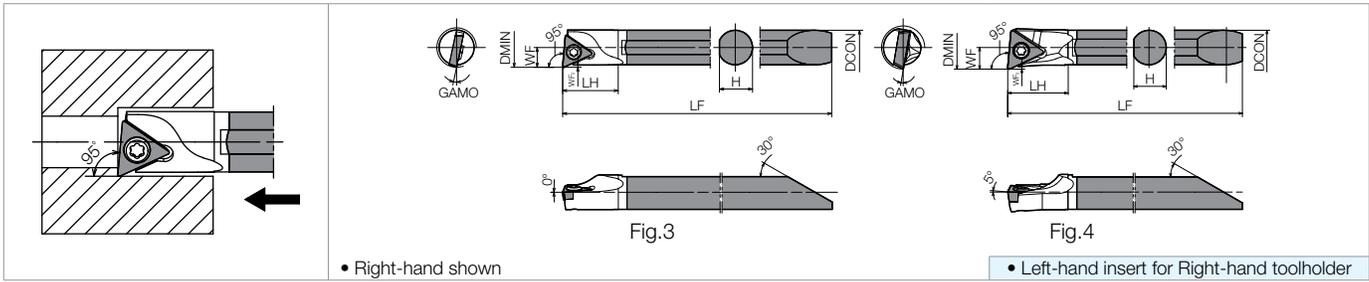
S-STLB(P)-EZP

Maximum overhand length - L/D = ~3



C-STLB(P)-EZP

Maximum overhand length - L/D = ~5



Toolholder Dimensions

Part Number	Stock (R)	Min. Bore Dia.	Dimensions (mm)						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve ● F31, F33	
			DMIN	DCON	H	LF	LH	WF					WF ₂	Clamp Screw		Wrench
Steel																
S070X-STLBR06-080EZP*	●	8	7	6.7	60.4	10.3	4	0.4	12°	0.2	No	Fig.1	SB-2035TR	FT-6	EZH070...	
S080X-STLPR09-100EZP	●	10	8	7.5	69.5	13.3	5	0.5	10°	0.4	No	Fig.2	SB-2545TR	FT-8	EZH080...	
Carbide																
C070X-STLBR06-080EZP*	●	8	7	6.7	74.4	11	4	0.4	12°	0.2	No	Fig.3	SB-2035TR	FT-6	EZH070...	
C080X-STLPR09-100EZP	●	10	8	7.5	85.5	14	5	0.5	10°	0.4	No	Fig.4	SB-2545TR	FT-8	EZH080...	

* TB□□1212... type insert cannot be used.

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Medium
Ref. Page	● B76, B80	● B76, B80	● B80	● B80	● B85	● B81	● B76	● B81	● B76, B82, B83	● B84
Insert	CF	PF	*WP (Wiper)	PP	R-P	GP	DP	HQ	L	L-H
Toolholder										
...STLBR06-...	TBGT121..	TBGT121..	-	-	-	-	TBMT121..	-	TBGT121..	-
...STLPR09-...	TPGT1815..	TPMT1815..	TPMX1815..	TPMT1815..	TPEH1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	TPGH1815..
Application	Soft Steel / Finishing	Cast Iron	Non-ferrous Metals	Hard Material						
Ref. Page	● B81	● B76, B86	● C26, C2Z	● C16						
Insert	XP	Without Chipbreaker	PCD	CBN						
Toolholder										
...STLBR06-...	-	TBGW121..	TBMT121.. TBGW121..	-						
...STLPR09-...	TPMT1815..	TPGB1815..	TPMH1815.. TPGB1815..	TPGB1815..						

Recommended Cutting Conditions ● F110-F111
Other Applicable Sleeves ● F100-F104

S-SWUB-EZP

Maximum overhand length - L/D = ~3

• Right-hand shown

• Left-hand insert for Right-hand toolholder

C-SWUB-EZP

Maximum overhand length - L/D = ~5

• Right-hand shown

• Left-hand insert for Right-hand toolholder

Toolholder Dimensions

Part Number	Stock (R)	Min. Bore Dia.	Dimensions (mm)						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve • F31, F33
			DMIN	DCON	H	LF	LH	WF					Clamp Screw	Wrench	
Steel	S050X-SWUBR06-060EZP	●	6.0	5.0	4.7	48.4	9.0	3.0	15°	0.2	No	Fig.1	SB-2035TR	FT-6	EZH050...
	S060X-SWUBR06-070EZP	●	7.0	6.0	5.7	54.4	10.0	3.5	13°						EZH060...
	S070X-SWUBR08-080EZP	●	8.0	7.0	6.7	60.4	10.3	4.0	15°						EZH070...
Carbide	C050X-SWUBR06-060EZP	●	6.0	5.0	4.7	58.4	9.0	3.0	15°	0.2	No	Fig.2	SB-2035TR	FT-6	EZH050...
	C060X-SWUBR06-070EZP	●	7.0	6.0	5.7	66.4	10.0	3.5	13°						EZH060...
	C070X-SWUBR08-080EZP	●	8.0	7.0	6.7	74.4	11.0	4.0	15°						EZH070...

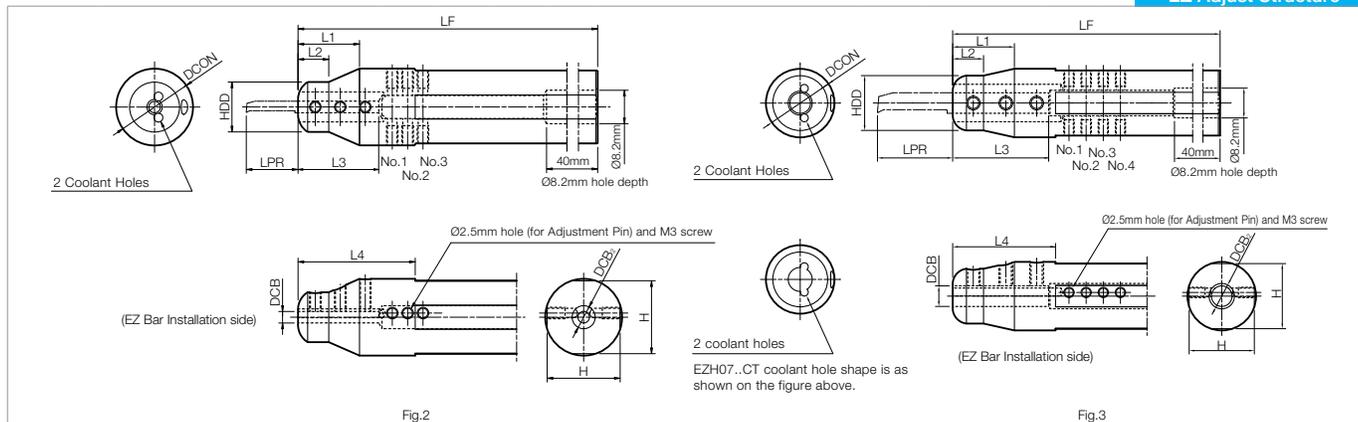
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hard Material
Ref. Page	• B97	• B97	• B97	• B98	• B98	• B98	• C29	• C18
Insert	L-CF	L-PF	L-DP	L-P	L-F	Without Chipbreaker	PCD	CBN
Toolholder								
...SWUBR06-...	WBG121..	WBG121..	WBMT121..	-	WBG121..	WBGW121..	WBMT121..	WBGW121..
...SWUBR08-...	-	WBG1215..	WBMT1215..	WBET1215..	WBG1215..	WBGW1215..	WBMT1215..	WBGW1215..

Recommended Cutting Conditions • F110-F111
Other Applicable Sleeves • F100-F104

EZH-CT (Sleeve)

With Coolant Hole and EZ Adjust Structure



Part Number	Stock	Dimensions (mm)										LPR (mm) Overhang Length of Bar *2				Drawing	Applicable EZ Bar or EZ Bar PLUS ● F18-F21 ● F23-F29 ● G59, G90 ● J32			
		DCB	DCON	HDD	DCB ₂	H	LF	L1	L2	L3	L4	Adjustment Pin Setting Position								
												No.1	No.2	No.3	No.4					
EZH 03019CT-120	●		0.75"			18.0	120												Fig.2	EZBR...030... EZBFR...030-... EZVBR...030-... EZGR...030-... EZTR...030-...
03020CT-120	●		20			19.0	120													
03022CT-135	●	3.0	22	13	6.0	21.0	135	16	8	21	41.5	13.5	9.5	5.5	-					
03025.0CT-135	●		25			24.0	135				30.5									
03025.4CT-120	●		1.00"			24.4	120													
EZH 03519CT-120	●		0.75"			18.0	120												Fig.2	EZBR...035... EZTR...035-...
03520CT-120	●		20			19.0	120				31.1									
03522CT-135	●	3.5	22	13	6.0	21.0	135	16	8	21	41.5	15.5	11.5	7.5	-					
03525.0CT-135	●		25			24.0	135				31.1									
03525.4CT-120	●		1.00"			24.4	120													
EZH 04019CT-120	●		0.75"			18.0	120												Fig.3	EZBR...040... EZVBR045040-... EZGR...040-... EZFRGR...040-... EZTR...040-...
04020CT-120	●		20			19.0	120				32.7									
04022CT-135	●	4.0	22	13	6.0	21.0	135	16	8	22	41.5	20.5	16.5	12.5	8.5					
04025.0CT-135	●		25			24.0	135				32.7									
04025.4CT-120	●		1.00"			24.4	120													
EZH 04519CT-120	●		0.75"			18	120												Fig.3	_045X-...050EZ(P)
04520CT-120	●		20			19	120				30.0									
04522CT-135	●	4.5	22	16	6	21	135	18	9	23	44.0	23	18.5	14	9.5	(-)	(-)			
04525.0CT-135	●		25			24	135				30.0									
04525.4CT-120	●		1.00"			24.4	120													
EZH 05019CT-120	●		0.75"			18.0	120												Fig.3	EZBR...050... EZVBR055050-... EZGR...050-... EZFRGR...050-... EZTR...050-... _050X-...-060EZP
05020CT-120	●		20			19.0	120				30.0									
05022CT-135	●	5.0	22	16	6.0	21.0	135	18	9	26	44.0	25.5	20.5	15.5	10.5	(-)	(-)			
05025.0CT-135	●		25			24.0	135				30.0									
05025.4CT-120	●		1.00"			24.4	120													
EZH 06019CT-120	●		0.75"			18.0	120												Fig.3	EZBR...060... EZVBR065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ(P)
06020CT-120	●		20			19.0	120				30.0									
06022CT-135	●	6.0	22	16	7.4	21.0	135	18	9	28	41.5	30.5	25.5	20.5	15.5	(-)	(-)			
06025.0CT-135	●		25			24.0	135				30.0									
06025.4CT-120	●		1.00"			24.4	120													
EZH 07019CT-120	●		0.75"			18.0	120												Fig.3	EZBR...070... EZGR...070-... EZFRGR...070-... EZTR...070-... _070X-...-080EZP
07020CT-120	●		20			19.0	120				30.0									
07022CT-135	●	7.0	22	16	7.4	21.0	135	18	9	29	44.0	35.5	30.5	25.5	20.5	(-)	(-)			
07025.0CT-135	●		25			24.0	135				30.0									
07025.4CT-120	●		1.00"			24.4	120													
EZH 08019CT-120	●		0.75"			18	120												Fig.3	_080X-...-100EZP
08020CT-120	●		20			19	120				34.0									
08022CT-135	●	8.0	22	16	8.6	21	135	18	9	33	44.0	40.5	35.5	30.5	25.5	(-)	(-)			
08025.0CT-135	●		25			24	135				34.0									
08025.4CT-120	●		1.00"			24.4	120													

*1 L3 shows DCB length
 *2 Dimension LPR shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhand length of EZ Bar PLUS.
 • Choose sleeves (DCB) to match DCON dimension of bar.

EZ Bar Mounting Procedure (EZH-CT Sleeve) F15

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZH-HP (Sleeve)

Adjustable

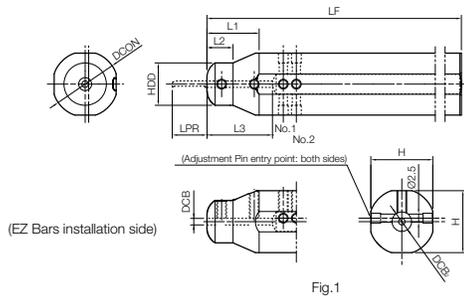


Fig.1

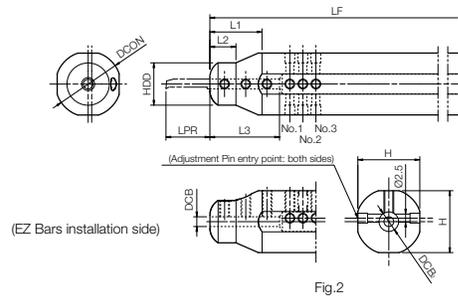


Fig.2

Part Number	Stock	Dimensions (mm)									LPR (mm) Overhang Length of Bar *2				Drawing	Applicable EZ Bar ● F18-F21 ● F23-F26 ● G59, G90 ● J32												
		DCB	DCON	HDD	DCB ₂	H	LF	L1	L2	*1 L3	Adjustment Pin Setting Position																	
											No.1	No.2	No.3	No.4														
EZH 01716HP-100	●		16			15.0	100																					
01719HP-120	●		0.75"			18.0	120																					
01720HP-120	●	1.7	20	13	6	19.0	120	16	8	16	7.5	3.5	-	-	Fig.1	EZBR...017...												
01722HP-135	●		22			135																						
01725.0HP-135	●		25			135																						
01725.4HP-120	●		1.00"			120																						
EZH 02016HP-100	●		16														15.0	100										
02019HP-120	●		0.75"														18.0	120										
02020HP-120	●	2.0	20	13	6	19.0	120	16	8	20	8.5	4.5	-	-	Fig.1	EZB%...020...												
02022HP-135	●		22			135																						
02025.0HP-135	●		25			135																						
02025.4HP-120	●		1.00"			120																						
EZH 02516HP-100	●		16														15.0	100										
02519HP-120	●		0.75"														18.0	120										
02520HP-120	●	2.5	20	13	6	19.0	120	16	8	20	11.0	7.0	-	-	Fig.1	EZB%...025... EZTR...025-...												
02522HP-135	●		22			135																						
02525.0HP-135	●		25			135																						
02525.4HP-120	●		1.00"			120																						
EZH 03016HP-100	●		16														15.0	100										
03019HP-120	●		0.75"														18.0	120										
03020HP-120	●	3.0	20	13	6	19.0	120	16	8	21	13.5	9.5	5.5	-	Fig.2	EZB%...030... EZBFR...030-... EZVBR...030-... EZGR...030-... EZTR...030-...												
03022HP-135	●		22			135																						
03025.0HP-135	●		25			135																						
03025.4HP-120	●		1.00"			120																						
EZH 03516HP-100	●		16														15.0	100										
03519HP-120	●		0.75"														18.0	120										
03520HP-120	●	3.5	20	13	6	19.0	120	16	8	22	15.5	11.5	7.5	-	Fig.2	EZB%...035... EZTR...035-...												
03522HP-135	●		22			135																						
03525.0HP-135	●		25			135																						
03525.4HP-120	●		1.00"			120																						
EZH 04016HP-100	●		16														15	100										
04019HP-120	●		19.05														18	120										
04020HP-120	●	4.0	20	13	6	19	120	16	8	24	20.5	16.5	12.5	8.5	Fig.4 (F23)	EZB%...040... EZBTR...040-... EZBFR...040-... EZVBR...040-... EZG%...040-... EZFG%...040-... EZTR...040-...												
04022HP-135	●		22			135																						
04025.0HP-135	●		25			135																						
04025.4HP-120	●		25.4			120																						

*1 L3 shows DCB length

*2 Dimension LPR shows overhang length of the EZB Bar when attached to sleeve.

● Choose sleeves (DCB) to match DCON dimension of bar.

● Spare Parts (for EZH-HP Sleeves)

Part Number	Spare Parts					Applicable EZB Bar and EZ Bar PLUS
	Adjustment Pin	Clamp Screw	Wrench	Clamp Screw	Wrench	
EZH 017...HP-... 020...HP-... 025...HP-... 030...HP-...	LCP025140	HS3X4P (for adjustment pin and bar)	LW-1.5 Tightening Torque 1N·m	HS3X4P (for bar)	LW-1.5 Tightening Torque 1N·m	EZBR...017... EZB%...020... EZB%...025... EZ_R...025-... EZB%...030... EZ_R...030-... EZB%...035... EZ_R...035-... EZB%...040... EZ_%...040-... _045X-...-050EZ(P) EZB%...050... EZ_%...050-... _050X-...-060EZP EZB%...060... EZ_%...060-... _060X-...-070EZ(P) EZB%...070... EZ_%...070-... _070X-...-080EZP _080X-...-100EZP
EZH 035...HP-... 040...HP-... 045...HP-... 050...HP-... 060...HP-... 070...HP-... 080...HP-...	LCP025140	HS3X4P (only for adjustment pin)	LW-1.5 Tightening Torque 1N·m	HS4X4P (for bar)	LW-2 Tightening Torque 2N·m	

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● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

EZH-HP (Sleeve)

Adjustable

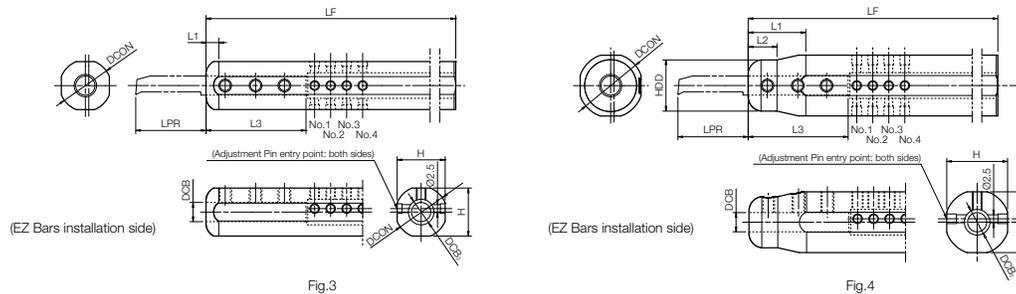


Fig.3

Fig.4

Part Number	Stock	Dimensions (mm)									LPR (mm) Overhang Length of Bar ²				Drawing	Applicable EZ Bar or EZ Bar PLUS ● F18~F21 ● F23~F29 ● G59, G90 ● J32
		DCB	DCON	HDD	DCB ₂	H	LF	L1	L2	L3	Adjustment Pin Setting Position					
											No.1	No.2	No.3	No.4		
EZH 04516HP-100	●	4.5	16	16	6	15.0	100	4	-	25.3	23.0 (14)	18.5 (9.5)	14.0 (-)	9.5 (-)	Fig.3	EZB%...045... _045X-...050EZ(P)
04519HP-120	●		0.75"			18.0	120									
04520HP-120	●		20			19.0	120									
04522HP-135	●		22			21.0	135									
04525.0HP-135	●		25			24.0	135									
04525.4HP-120	●		1.00"			24.4	120									
EZH 05016HP-100	●	5.0	16	16	6	15.0	100	4	-	29	25.5	20.5	15.5	10.5	Fig.3	EZB%...050... EZBTR...050-... EZBFR...050-... EZVBR...050-... EZG%...050-... EZFG%...050-... EZTR...050-... _050X-...060EZP
05019HP-120	●		0.75"			18.0	120									
05020HP-120	●		20			19.0	120									
05022HP-135	●		22			21.0	135									
05025.0HP-135	●		25			24.0	135									
05025.4HP-120	●		1.00"			24.4	120									
EZH 06016HP-100	●	6.0	16	16	8	15.0	100	4	-	31	30.5 (18.5)	25.5 (13.5)	20.5 (-)	15.5 (-)	Fig.3	EZB%...060... EZBFR...060-... EZVBR...060-... EZG%...060-... EZTR...060-... _060X-...070EZ(P)
06019HP-120	●		0.75"			18.0	120									
06020HP-120	●		20			19.0	120									
06022HP-135	●		22			21.0	135									
06025.0HP-135	●		25			24.0	135									
06025.4HP-120	●		1.00"			24.4	120									
EZH 07016HP-100	●	7.0	16	16	8	15.0	100	4	-	33	35.5	30.5	25.5	20.5	Fig.3	EZB%...070... EZG%...070-... EZFG%...070-... EZTR...070-... _070X-...080EZP
07019HP-120	●		0.75"			18.0	120									
07020HP-120	●		20			19.0	120									
07022HP-135	●		22			21.0	135									
07025.0HP-135	●		25			24.0	135									
07025.4HP-120	●		1.00"			24.4	120									
EZH 08019HP-120	●	8.0	0.75"	16	8.4	18.0	120	18	9	37	40.5 (24.5)	35.5 (19.5)	30.5 (14.5)	25.5 (-)	Fig.4	EZB%...080... _080X-...100EZP
08020HP-120	●		20			19.0	120									
08022HP-135	●		22			21.0	135									
08025.0HP-135	●		25			24.0	135									
08025.4HP-120	●		1.00"			24.4	120									

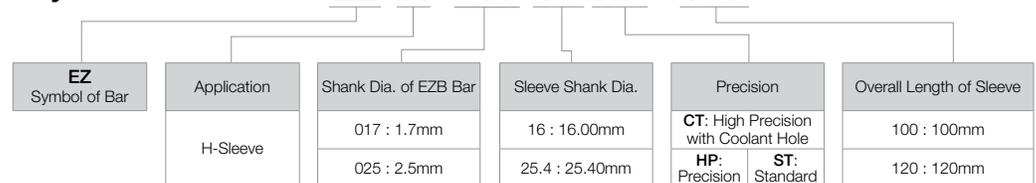
*1 L3 shows DCB length

*2 Dimension LPR shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhand length of EZ Bar PLUS.

● Choose sleeves (DCB) to match DCON dimension of bar.

EZ Bar Identification System

EZ H 017 16 HP - 100



EZ Bar Mounting Procedure

● How to use adjustment pin (Fig.1)

- Put the adjustment pin into the hole.
- Push it into the sleeve, using the wrench "LW-1.5".
- Tighten the clamp screw "HS3X4P" with wrench "LW-1.5" to fix the adjustment screw.

● How to secure bar (Fig.2)

- With the chip pocket upward, set the bar in sleeve. Press the slant of the end of the bar against the adjustment pin. Make sure that the bar does not rotate. (Fig.3)
- Tighten the clamp screw with wrench "LW-2" and secure the bar. (Use "LW-1.5" if shank dia. is 3mm or less.)



Fig. 1: How to Use Adjustment Pin



Fig. 2: How to Secure Bar

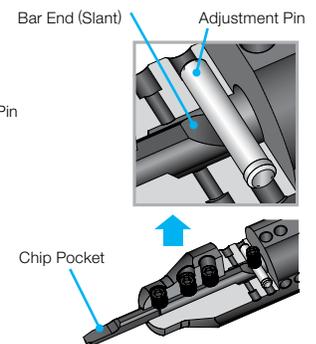


Fig. 3: Clamped Bar

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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EZH-ST (Sleeve)

NOT Adjustable

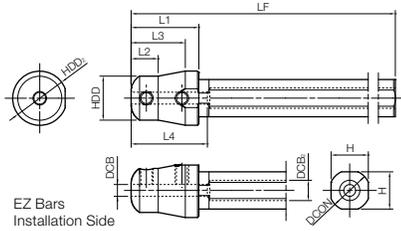


Fig.1

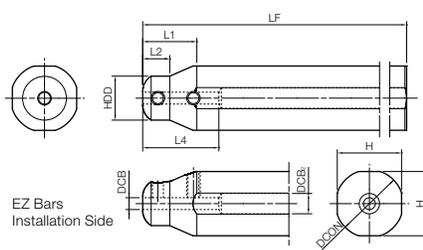


Fig.2

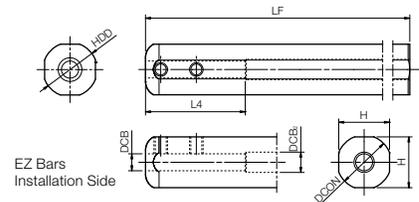


Fig.3

Part Number	Stock	Dimensions (mm)											Drawing	Applicable EZ Bar or EZ Bar PLUS ● F18-F21 ● F23-F29 ● G59, G90 ● J32	
		DCB	DCON	HDD	HDD ₂	DCB ₂	H	LF	L1	L2	L3	*L4			
EZH 01712ST-80	●	1.7	12	13	16	6	11.0	80	20	16	8	-	16	Fig.1	EZBR...017...
01716ST-100	●		16				15.0	100							
01719ST-120	●		0.75"				18.0	120							
01720ST-120	●		20				19.0	120							
01722ST-135	●		22				21.0	135							
01725.0ST-135	●		25				24.0	135							
01725.4ST-120	●		1.00"				24.4	120							
EZH 02512ST-80	●	2.5	12	13	16	6	11.0	80	20	16	8	-	22	Fig.1	EZB%...025... EZTR...025-...
02516ST-100	●		16				15.0	100							
02519ST-120	●		0.75"				18.0	120							
02520ST-120	●		20				19.0	120							
02522ST-135	●		22				21.0	135							
02525.0ST-135	●		25				24.0	135							
02525.4ST-120	●		1.00"				24.4	120							
EZH 03512ST-80	●	3.5	12	13	16	6	11.0	80	20	16	8	-	22	Fig.1	EZB%...035... EZTR...035-...
03516ST-100	●		16				15.0	100							
03519ST-120	●		0.75"				18.0	120							
03520ST-120	●		20				19.0	120							
03522ST-135	●		22				21.0	135							
03525.0ST-135	●		25				24.0	135							
03525.4ST-120	●		1.00"				24.4	120							
EZH 04019ST-120	●	4.0	0.75"	13	-	6	18	120	16	8	-	24	Fig.2	EZB%...040... EZBTR...040-... EZBFR...040-... EZVBR...040-... EZG%...040-... EZFG%...040-... EZTR...040-...	
04020ST-120	●		20				19								
04025.0ST-135	●		1.00"				24.4								
EZH 05022ST-135	●	5.0	22	16	-	6	21	135	18	9	-	29	Fig.2	EZB%...050... EZBTR...050-... EZBFR...050-... EZVBR...050-... EZG%...050-... EZFG%...050-... EZTR...050-... _050X-...-060EZP	
EZH 06022ST-135	●	6.0	22	16	-	8	21	135	18	9	-	31	Fig.2	EZB%...060... EZBTR...060-... EZBFR...060-... EZVBR...060-... EZG%...060-... EZTR...060-... _060X-...-070EZ(P)	
EZH 08016ST-100	●	8.0	16	16	-	8.4	15	100	18	9	-	37	Fig.3	EZB%...080... _080X-...-100EZP	
08019ST-120	●		0.75"				18	120							
08020ST-120	●		20				19	120							
08022ST-135	●		22				21	135							
08025.0ST-135	●		25				24	135							
08025.4ST-120	●		1.00"				24.4	120							

* L4 shows DCB length

● Choose sleeves (DCB) to match DCON dimension of bar.

● Adjustment pin cannot be installed in EZH-ST sleeves. To adjust overhang of EZB insert, please use EZH-CT or EZH-HP sleeves.

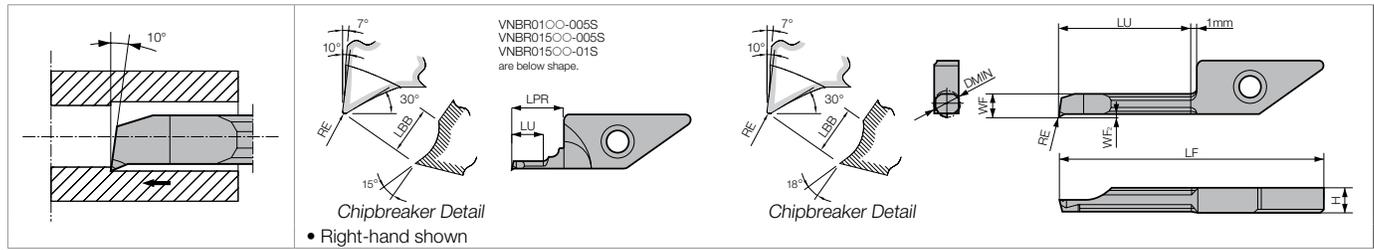
● **Spare Parts** (for EZH-ST Sleeves)

Part Number	Spare Parts		Applicable EZ Bar		EZ Bar PLUS
	Clamp Screw 	Wrench 	EZB-HP EZB-HP-LT EZB-ST EZB-NB	EZG EZFG EZT EZVB	S/C-SCLC S/C-STLB(P) S/C-SWUB
EZH 017...ST-..	HS3X4P	LW-1.5 Tightening Torque 1N • m	EZBR...017...	-	-
020...ST-..			EZB%...020...	-	-
025...ST-..			EZB%...025...	EZTR...025-...	-
030...ST-..			EZB%...030...	EZ_R...030-...	-
EZH 035...ST-..	HS4X4P	LW-2 Tightening Torque 2N • m	EZB%...035...	EZTR...035-...	-
040...ST-..			EZB%...040...	EZ_%...040-...	-
050...ST-..			EZB%...050...	EZ_%...050-...	_050X-...-060EZP
060...ST-..			EZB%...060...	EZ_%...060-...	_060X-...-070EZ(P)
070...ST-..			EZBR...070...	EZ_%...070-...	_070X-...-080EZP
080...ST-..			-	-	_080X-...-100EZP

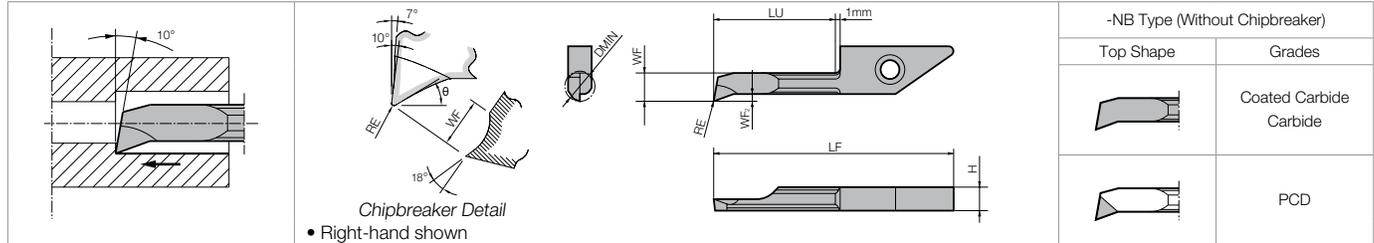
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SWISS IQ BAR FOR MICRO BORING

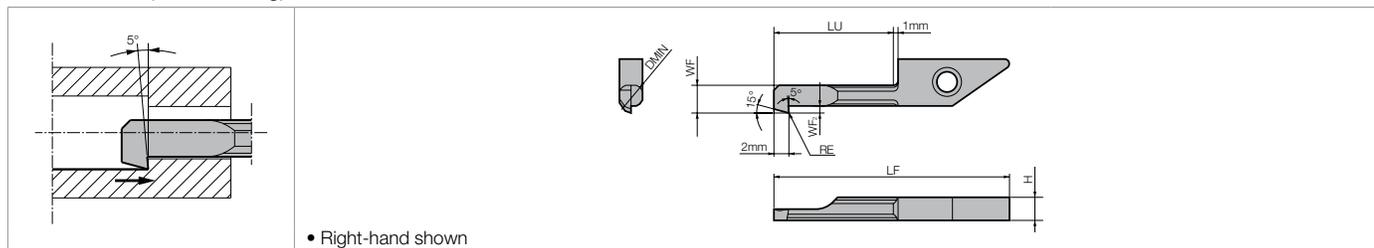
VNB-S (Boring) [Comer-R (RE) Minus Tolerance]



VNB (Boring)



VNBT (Back Boring)



Insert Dimensions (VNB-S)

Part Number	Min. Bore Dia.	Dimensions (mm)								Grade					
		DMIN	H	LF	LU	LPR	WF	WF ₂	RE	LBB	MEGA COAT	PVD Coated Carbide	Carbide	PCD	
											PR1225	PR930	KW10	KPD001	KPD010
VNBR 0103-005S	1.0	3.9	26.5	3.0	7	0.85	0.20	+0 -0.02 0.05	0.7	●					
0105-005S			26.5	5.0						0.85	0.20	●			
01503-005S	1.5	3.9	26.5	3.0	-	1.3	0.20	0.05	0.8	●					
01505-005S			26.5	5.0						1.3	0.20	●			
0206-005S	2.0	3.9	26.5	6.0	-	1.8	0.25	0.05	0.8	●					
025075-005S	2.5		28.1	7.5						2.1	0.40	●			
0311-005S	3.0	3.9	30.8	11.0	-	2.6	0.40	+0 -0.02 0.05	0.8	●					
03515-005S	3.5		34.8	15.0						3.0	0.50	●			
0411-005S	4.0	3.9	30.8	11.0	-	3.5	0.50	0.10	0.8	●					
0420-005S			39.8	20.0						3.5	0.50	●			
VNBR 01503-01S	1.5	3.9	26.5	3.0	7	1.3	0.20	+0 -0.03 0.10	0.7	●					
01505-01S			26.5	5.0						1.3	0.20	●			
0206-01S	2.0	3.9	26.5	6.0	-	1.8	0.25	0.10	0.8	●					
025075-01S	2.5		28.1	7.5						2.1	0.40	●			
0311-01S	3.0	3.9	30.8	11.0	-	2.6	0.40	+0 -0.03 0.10	0.8	●					
03515-01S	3.5		34.8	15.0						3.0	0.50	●			
0411-01S	4.0	3.9	30.8	11.0	-	3.5	0.50	0.20	0.8	●					
0420-01S			39.8	20.0						3.5	0.50	●			
VNBR 0411-02S	4.0	3.9	30.8	11.0	-	3.5	0.50	+0 -0.04 0.20	0.8	●					
0420-02S			39.8	20.0						3.5	0.50	●			

Recommended Cutting Conditions F99

Swiss IQ Bars are sold in 5 piece boxes.

SWISS IQ BAR FOR MICRO BORING

● Insert Dimensions (VNB / VNB-NB / VNBT)

Part Number	Min. Bore Dia.	Dimensions (mm)								Grade						
										MEGA COAT	PVD Coated Carbide	Carbide	PCD			
		DMIN	H	LF	LU	WF	WF ₂	RE	LBB	θ	PR1225	PR930	KW10	KPD001	KPD010	
VNBR 0206-003	2		26.5	6	1.8	0.25	0.03	1.2	24°		●	●				
0311-003	3		30.8	11	2.6	0.40	0.03	1.8	24°		●	●				
0411-003	4		30.8	11	3.5	0.50	0.03	2.7	23°		●	●				
0420-003			39.8	20	3.5	0.50					●	●				
0511-003	5	3.9	30.8	11	4.5	0.70	0.03	3.0	23°		●	●				
0520-003			39.8	20	4.5	0.70					●	●				
0620-003	6		39.8	20	5.3	1.00	0.03	3.0	24°		●	●				
0630-003			49.8	30	5.3	1.00					●	●				
0720-003	7		39.8	20	6.2	1.00					●	●				
0730-003			49.8	30	6.2	1.00		●	●							
VNBR 0206-01	2		26.5	6	1.8	0.25	0.10	1.2	24°		●	●				
0311-01	3		30.8	11	2.6	0.40	0.10	1.8	24°		●	●				
0411-01	4		30.8	11	3.5	0.50	0.10	2.7	23°		●	●				
0420-01			39.8	20	3.5	0.50					●	●				
0511-01	5	3.9	30.8	11	4.5	0.70	0.10	3.0	23°		●	●				
0520-01			39.8	20	4.5	0.70					●	●				
0620-01	6		39.8	20	5.3	1.00	0.10	3.0	24°		●	●				
0630-01			49.8	30	5.3	1.00					●	●				
0720-01	7		39.8	20	6.2	1.00					●	●				
0730-01			49.8	30	6.2	1.00		●	●							
VNBR 0206-02	2		26.5	6	1.8	0.25	0.20	1.2	24°	●	●	●				
0311-02	3		30.8	11	2.6	0.40	0.20	1.8	24°	●	●	●				
0411-02	4		30.8	11	3.5	0.50	0.20	2.7	23°		●	●				
0420-02			39.8	20	3.5	0.50					●	●				
0511-02	5	3.9	30.8	11	4.5	0.70	0.20	3.0	23°		●	●				
0520-02			39.8	20	4.5	0.70					●	●				
0620-02	6		39.8	20	5.3	1.00	0.20	3.0	24°	●	●	●				
0630-02			49.8	30	5.3	1.00					●	●				
0720-02	7		39.8	20	6.2	1.00					●	●				
0730-02			49.8	30	6.2	1.00		●	●							
VNBR 0206-003NB	2		26.5	6	1.8	0.25	0.03	-	15°		●	●				
0311-003NB	3		30.8	11	2.6	0.40					●	●				
0411-003NB	4		30.8	11	3.5	0.50					●	●				
0420-003NB			39.8	20	3.5	0.50					●	●				
0511-003NB	5	3.9	30.8	11	4.5	0.70					●	●				
0520-003NB			39.8	20	4.5	0.70					●	●				
0620-003NB	6		39.8	20	5.3	1.00					●	●				
0630-003NB			49.8	30	5.3	1.00					●	●				
0720-003NB	7		39.8	20	6.2	1.00		●	●							
0730-003NB			49.8	30	6.2	1.00		●	●							
VNBR 0206-02NB	2		26.5	6	1.8	0.25	0.20	-	15°		●	●				
0311-02NB	3		30.8	11	2.6	0.40					●	●				
0411-02NB	4		30.8	11	3.5	0.50					●	●	●	●		
0420-02NB			39.8	20	3.5	0.50					●	●	●	●		
0511-02NB	5	3.9	30.8	11	4.5	0.70					●	●	●	●		
0520-02NB			39.8	20	4.5	0.70					●	●	●	●		
0620-02NB	6		39.8	20	5.3	1.00					●	●	●	●		
0630-02NB			49.8	30	5.3	1.00					●	●	●	●		
0720-02NB	7		39.8	20	6.2	1.00		●	●	●	●					
0730-02NB			49.8	30	6.2	1.00		●	●	●	●					
VNBR 0411-003	4	3.9	30.8	11	3.6	1.00	0.03	-	-		●	●				
0420-003			39.8	20	3.6	1.00					●	●				
0511-003	5		30.8	11	4.6	1.30					●	●				
0520-003			39.8	20	4.6	1.30					●	●				
VNBR 0411-01	4	3.9	30.8	11	3.6	1.00	0.10	-	-		●	●				
0420-01			39.8	20	3.6	1.00					●	●				
0511-01	5		30.8	11	4.6	1.30					●	●				
0520-01			39.8	20	4.6	1.30					●	●				

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions ● F99

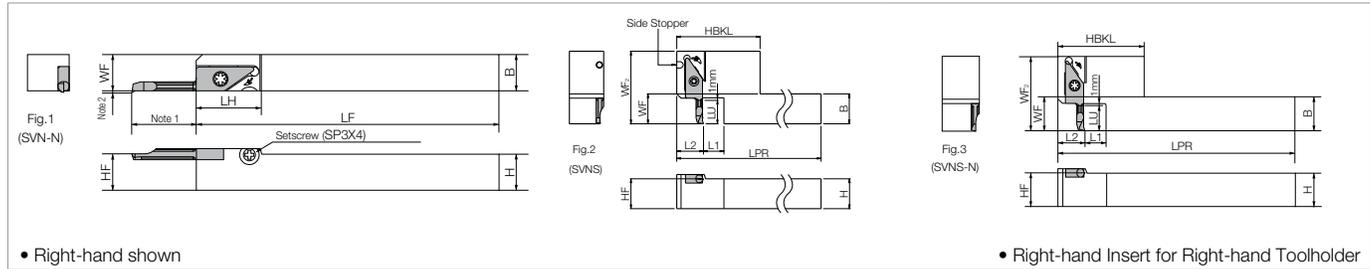
Swiss IQ Bars are sold in 5 piece boxes.

PCD Inserts are sold in 1 piece boxes.

SVN-N (Without Side Stopper)

SVNS (With Side Stopper)

SVNS-N (Without Side Stopper / Without Setscrew)



Toolholder Dimensions

Note 1 & Note 2 : See Insert Dimension Table. (F36-F37)

Part Number	Stock	Unit	Dimensions										Drawing	Spare Parts					Applicable Inserts ● F36-F37 ● G61 ● G90 ● J36
			H=	B	LF	LH	L1	L2	WF	WF2	LU	Clamp Screw		Wrench	Side Stopper	Wrench	Set Screw		
			HF	LPR	HBKL	L1	L2	LPR	LU	FT	LTW	HS3X4		LW-1.5					
SVNR 1010H-12N	●	mm	10	10	100	22	-	-	10	-	-	Fig.1	SB-3080TR	FT-10	-	-	SP3X4	VNBR...-... VNBTR...-... VNGR...-... VNFR...-... VNTR...-...	
1212K-12N	●		12	12	125	22	-	-	12	-	-								
1616K-12N	●		16	16	125	22	-	-	16	-	-								
2020K-12N	●		20	20	125	22	-	-	20	-	-								
2525M-12N	●		25	25	150	22	-	-	25	-	-								
SVNSR 8-12-11	●	inch	0.500	0.500	6.0	1.772	0.394	0.472	0.500	1.299	0.433	Fig.2	SB-3080TR	LTW-10S	HS3X4	LW-1.5	-	(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
8-12-20	●		0.500	0.500	6.0	1.772	0.394	0.492	0.500	1.654	0.787							(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	
12-12-11	●		0.750	0.750	8.0	1.772	0.630	0.472	0.750	1.299	0.433							(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
12-12-20	●		0.750	0.750	8.0	1.772	0.630	0.492	0.750	1.654	0.787							(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	
SVNSR 1010K-12-06N	●	mm	10	10	125	45	10	12	10	29	6	Fig.3	SB-3080TR	LTW-10S	-	-	-	(VNBR..06-...)	
1010K-12-11N	●		10	10	125	45	10	12	10	33	11							(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1212M-12-06N	●		12	12	150	45	10	12	12	29	6							(VNBR..06-...)	
1212M-12-11N	●		12	12	150	45	10	12	12	33	11							(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1212M-12-20N	●		12	12	150	45	10	13	12	42	20							(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	
1616M-12-06N	●		16	16	150	45	16	12	16	29	6							(VNBR..06-...)	
1616M-12-11N	●		16	16	150	45	16	12	16	33	11							(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1616M-12-20N	●		16	16	150	45	16	13	16	42	20							(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	

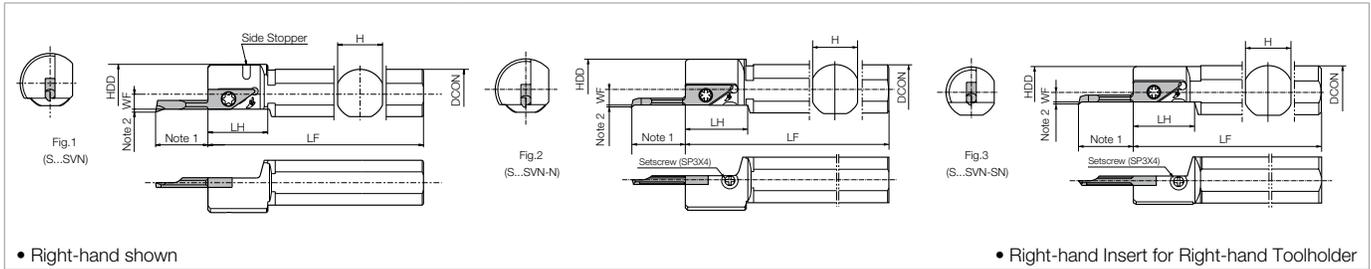
* All Swiss IQ Bar Inserts are used with SVNSR Toolholder, but when setting the cutting edge at the toolholder face level as shown in Fig. 2, use the Insert shown in (). In that case, the toolholder dimension LU becomes the same as HBKL of Insert Dimension.

- 1) SVN-N / S...SVN-N / S-SVN-SN Toolholders (without side stopper) retain high index accuracy by easy restraint.
- 2) For high-rigidity clamping, (e.g. when varying load direction of undercutting, internal and external, or face cutting by one tool), changing the SP3X4 screw to a HS3X4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
HS3X4	LW-1.5

■ **S...SVN** (With Side Stopper : Standard)
 ■ **S...SVN-N** (Without Side Stopper : Standard)
 ■ **S...SVN-SN** (Without Side Stopper : Straight)



• Right-hand shown

• Right-hand Insert for Right-hand Toolholder

Note 1 & Note 2 : See Insert Dimension Table. (☛ F36-F37)

Toolholder Dimensions

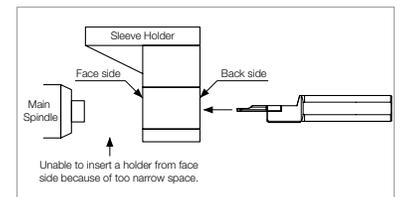
Part Number	Stock	Unit	Dimensions						Drawing	Spare Parts					Applicable Inserts • F36-F37 • G61 • G90 • J36
			DCON	HDD	H	LF	LH	WF		Clamp Screw	Wrench	Side Stopper	Wrench	Set Screw	
S08-SVNR12	●	inch	0.500	0.787	0.480	3.500	0.906	0.157	Fig.1	SB-3080TR	FT-10	HS3X4	LW-1.5	-	VNBR..... VNBTR..... VNFR..... VNTR.....
S12F-SVNR12N	●	mm	12	20.0	11	80	23	4	Fig.2	SB-3080TR	FT-10	-	-	SP3X4	VNBR..... VNBTR..... VNFR..... VNTR.....
S14G-SVNR12N	●		14	20.0	13	90	23	4							
S16H-SVNR12N	●		16	24.0	15	100	23	6							
S19H-SVNR12N	●	inch	0.750	0.945	0.669	3.937	0.945	0.236							
S19N-SVNR12N	●	mm	0.750	0.945	0.669	6.299	0.945	0.236							
S20H-SVNR12N	●	mm	20	24.0	18	100	24	6	Fig.3	SB-3080TR	FT-10	-	-	SP3X4	VNBR..... VNBTR..... VNFR..... VNTR.....
S25H-SVNR12N	●	inch	1.000	1.181	0.905	3.937	0.945	0.236							
S25Q-SVNR12N	●	mm	1.000	1.181	0.905	7.086	0.945	0.236							
S20H-SVNR12SN	●	mm	20	19.5	18	100	23	4	Fig.3	SB-3080TR	FT-10	-	-	SP3X4	VNBR..... VNBTR..... VNFR..... VNTR.....
S22K-SVNR12SN	●	mm	22	21.5	20	125	23	4							
S25.0G-SVNR12SN	●	mm	25	24.5	23	90	23	4							

Swiss IQ Bar Selection

Gang-Type (Horizontal)	Gang-Type	Gang-Type (Front Loading Sleeve Type)	Gang-Type (Back Loading Sleeve Type)
Square Shank (Straight)	Square Shank (L-Shape)	Square Shank	Square Shank
Round Shank (Standard)		Round Shank (Standard)	Round Shank (Standard)
Round Shank (Straight)		Round Shank (Straight)	Round Shank (Straight)

Q: There are standard types (head dia. is larger than shank) and straight types for round shanks. What is each one used for?

A: The straight type is used when it cannot be inserted from the face side of the sleeve holder and can be inserted only from the back side due to space limitation (Refer to Fig. below). On the other hand, the standard type should be installed when it can be inserted from the face side. The head end is used for positioning as stopper.

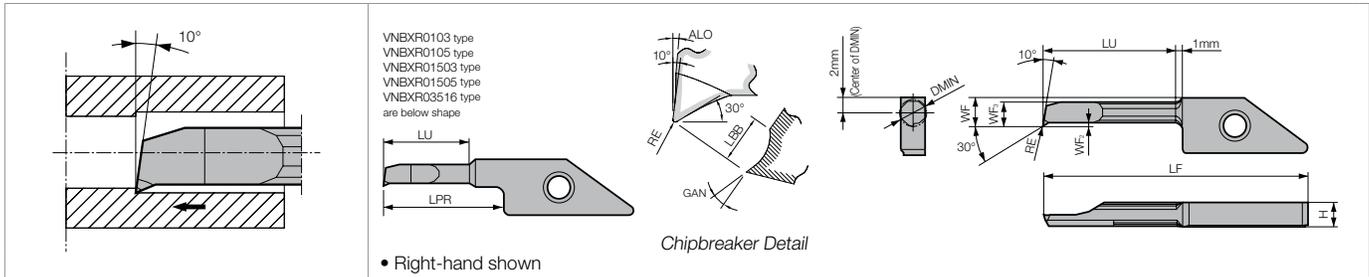


Recommended toolholder may change according to machines used and actual position. Automatic lathes have various toolpost types other than those above.

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

SWISS IQ BAR FOR MICRO BORING

VNBX-S (Boring) [Corner-R(RE) Minus Tolerance]



Insert Dimensions (VNBX-S)

Part Number	Min. Bore Dia.	Dimensions (mm)											Grade				
		DMIN	H	LF	LU	LPR	WF	WF ₂	WF ₃	RE	LBB	ALO	GAN	PVD Coated Carbide PR930			
VNBXR 0103-005S	1.0	3.9	26.5	3	7	2.95	0.20	0.85	+0 -0.02 0.05	0.7	7°	15°	●				
0105-005S	1.0	3.9	26.5	5	7	2.95	0.20	0.85					●				
01503-005S	1.5	3.9	26.5	3	7	2.95	0.20	1.30					●				
01505-005S	1.5	3.9	26.5	5	7	2.95	0.20	1.30					●				
0206-005S	2.0	3.9	26.5	6	-	3.00	0.25	1.80	+0 -0.02 0.05	0.8	8°	18°	●				
0311-005S	3.0	3.9	30.8	11	-	3.50	0.40	2.60					●				
03511-005S	3.5	3.9	30.8	11	-	3.75	0.45	3.10					●				
03516-005S	3.5	3.9	39.8	16	21	3.75	0.45	3.10					●				
0411-005S	4.0	3.9	30.8	11	-	4.00	0.50	3.50	+0 -0.03 0.10	0.8	8°	18°	●				
0420-005S	4.0	3.9	39.8	20	-	4.00	0.50	3.50					●				
VNBXR 01503-01S	1.5	3.9	26.5	3	7	2.95	0.20	1.30					+0 -0.03 0.10	0.7	7°	15°	●
01505-01S	1.5	3.9	26.5	5	7	2.95	0.20	1.30									●
0206-01S	2.0	3.9	26.5	6	-	3.00	0.25	1.80	●								
0311-01S	3.0	3.9	30.8	11	-	3.50	0.40	2.60	●								
03511-01S	3.5	3.9	30.8	11	-	3.75	0.45	3.10	+0 -0.03 0.10	0.8	8°	18°	●				
03516-01S	3.5	3.9	39.8	16	21	3.75	0.45	3.10					●				
0411-01S	4.0	3.9	30.8	11	-	4.00	0.50	3.50					●				
0420-01S	4.0	3.9	39.8	20	-	4.00	0.50	3.50					●				
VNBXR 0411-02S	4.0	3.9	30.8	11	-	4.00	0.50	3.50	+0 -0.04 0.20	0.8	8°	18°	●				
0420-02S	4.0	3.9	39.8	20	-	4.00	0.50	3.50					●				

Recommended Cutting Conditions ➔ F99

VNBX-S Attachment holder for VNBX-S Swiss IQ Bar

1. VNBX-S Attachment holder for VNBX-S Swiss IQ Bar is below (See page ➔ F41).

- ① SVNS-XN (Without Side Stopper)
- ② S...SVN-XN (Without Side Stopper)
- ③ S...SVN-SXN (Without Side Stopper)

2. Above holder assures high index accuracy by easy restraint.

3. A holder which attaches setscrews (without side stopper) can be used as binding effect holder as with side stopper holder, once taking off the setscrew, and insert a screw (HS3X4: sold separately) with wrench (LW-1.5: sold separately).

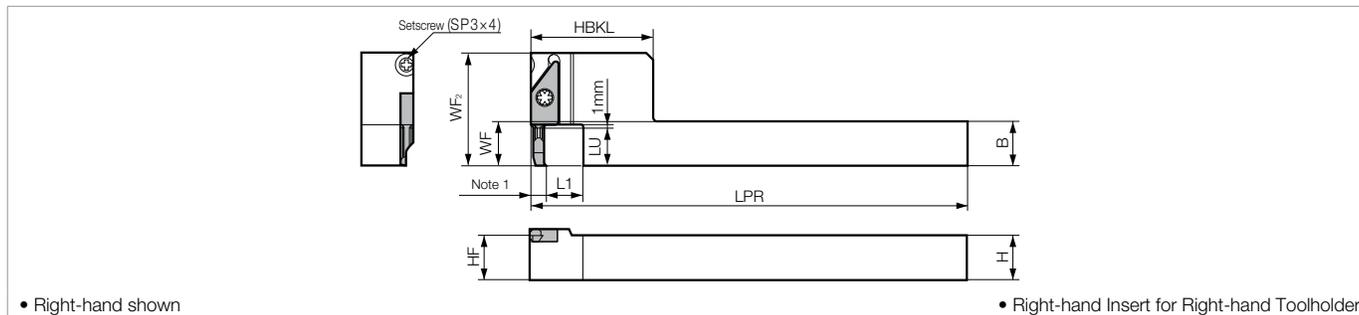
Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3X4	LW-1.5

Swiss IQ Bars are sold in 5 piece boxes.

SWISS IQ BAR FOR MICRO BORING

SVNS-XN (Square Shank: L-shape)



Note 1 dimension is same size as applicable insert (VNBX) WF dimension

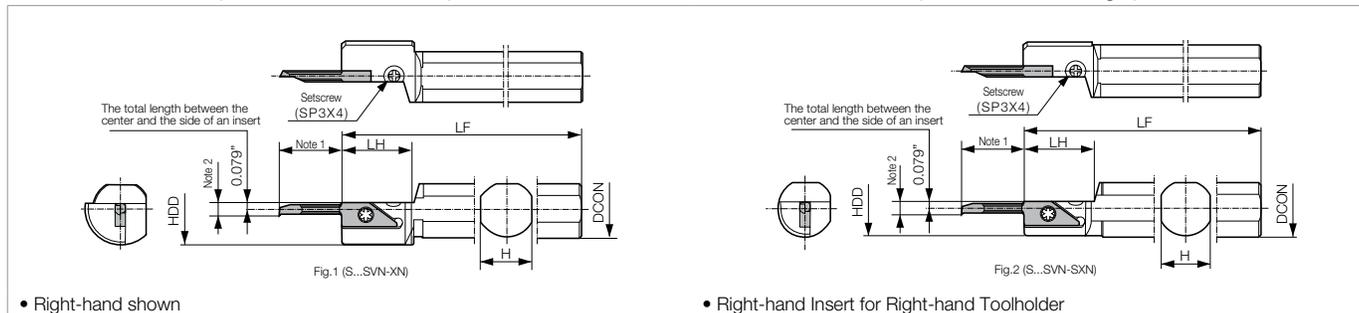
Toolholder Dimensions

Part Number	Stock	Dimensions (mm)									Spare Parts			Applicable Inserts • F40
		H	HF	B	LPR	HBKL	L1	WF	WF2	LU	Clamp Screw	Wrench	Setscrew	
SVNSR 1010K-12-06XN	●	10	10	10	125	45	10	10	29	6	SB-3080TR	LTW-10S	SP3X4	(VNBXR02..)
1010K-12-11XN	●	10	10	10	125	45	10	10	33	11				(VNBXR..11..)
1212M-12-06XN	●	12	12	12	150	45	10	12	29	6				(VNBXR02..)
1212M-12-11XN	●	12	12	12	150	45	10	12	33	11				(VNBXR..11..)
1212M-12-20XN	●	12	12	12	150	45	10	12	42	20				(VNBXR0420..)
1616M-12-06XN	●	16	16	16	150	45	16	16	29	6				(VNBXR02..)
1616M-12-11XN	●	16	16	16	150	45	16	16	33	11				(VNBXR..11..)
1616M-12-20XN	●	16	16	16	150	45	16	16	42	20				(VNBXR0420..)

※ All Swiss IQ Bar Inserts are used with an SVNS-XN Toolholder, however, when setting the cutting edge at the face level of the toolholder as shown in Fig., use the insert shown in ().

S...SVN-XN (Round Shank: Standard)

S...SVN-SXN (Round Shank: Straight)



1. Note 1 dimension shows the applicable insert (VNBX) LU dimension +1 mm.
 2. Note 2 dimension is same size as applicable insert (VNBX) WF dimension

Toolholder Dimensions (Holder center axis core and insert center are coaxial type)

Part Number	Stock	Unit	Dimensions					Drawing	Spare Parts			Applicable Inserts • F40
			DCON	HDD	H	LF	LH		Clamp Screw	Wrench	Setscrew	
S12F-SVNR12XN	●	mm	12	20.0	11	80	23	Fig.1	SB-3080TR	FT-10	SP3X4	VNBXR...
S14G-SVNR12XN	●		14	20.0	13	90	23					
S16H-SVNR12XN	●		16	24.0	15	100	23					
S19H-SVNR12XN	●	inch	0.750	0.945	0.669	3.937	0.945					
S19N-SVNR12XN	●		0.750	0.945	0.669	6.299	0.945					
S20H-SVNR12XN	●	mm	20	24.0	18	100	24					
S25H-SVNR12XN	●	inch	1.000	1.181	0.905	3.937	0.945					
S25Q-SVNR12XN	●		1.000	1.181	0.905	7.086	0.945					
S19H-SVNR12SXN	●		0.750	0.728	0.669	3.397	0.905					
S20H-SVNR12SXN	●	mm	20	19.5	18	100	23	Fig.2	SB-3080TR	FT-10	SP3X4	VNBXR...
S22K-SVNR12SXN	●		22	21.5	20	125	23					
S25.0G-SVNR12SXN	●		25	24.5	23	90	23					

TWIN BAR FOR MICRO BORING

TWB (Micro Boring: Horizontal Type) [Corner-R(RE) Tolerance: +0/-0.02mm, +0/-0.03mm]

Part Number	Min. Bore Dia.	Dimensions (mm)			Insert Grade	
		DMIN	WF	WF ₂	RE	PVD Coated Carbide
TWBR 01003-005	1.0	0.85	0.20	+0 -0.02 0.05	PR1535	PR1025
	1.5	1.30	0.20		●	△
	2.0	1.75	0.25		●	△
	2.5	2.10	0.30		●	△
TWBR 01503-010	3.0	2.40	0.40	+0 -0.03 0.10	PR1535	PR1025
	1.5	1.30	0.20		●	△
	2.0	1.75	0.25		●	△
	2.5	2.10	0.30		●	△
3.0	2.40	0.40	●	△		

• Right-hand shown

STW (Square Shank for Horizontal Type Inserts) (For Left-hand toolholder for grooving, please see G94)

• Right-hand shown

• Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Drawing	Spare Parts		Applicable Inserts Above
		H	HF	B	LF	LH	WF	LU		Clamp Screw	Wrench	
STWR 1212F-15	●	12	12	12	85	-	12	3	Fig.1	SB-3080TR	LTW-10S	TWBR○○○○○-○○○

S...-STW (Round Shank for Horizontal Type Inserts) (For Left-hand toolholder for grooving, please see G94)

• Right-hand shown

• Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Drawing	Spare Parts		Applicable Inserts Above
		DCON	HDD	H	LF	L2	LH	LU		Clamp Screw	Wrench	
S20G- STWR15	●	20.000	19.5	18	90	18	-	3	Fig.2	SB-3080TR	LTW-10S	TWBR○○○○○-○○○
S25.0J- STWR15	●	25.000	24.5	23	110	22	-	3	Fig.2	SB-3080TR	LTW-10S	TWBR○○○○○-○○○

TWIN BAR FOR MICRO BORING

NEW ITEMS!

TWBT (Micro Boring: Vertical Type) [Corner-R(RE) Tolerance: +0/-0.02mm, +0/-0.03mm]

Part Number	Min. Bore Dia.	Dimensions (mm)			Insert Grade		
		DMIN	WF	WF ₂	RE	PVD Coated Carbide	
TWBTR	01003-005	1.0	0.85	0.20	+0 -0.02 0.05	●	△
	01503-005	1.5	1.30	0.20		●	△
	02003-005	2.0	1.75	0.25		●	△
	02503-005	2.5	2.10	0.30		●	△
	03003-005	3.0	2.30	0.40		●	△
TWBTR	01503-010	1.5	1.30	0.20	+0 -0.03 0.1	●	△
	02003-010	2.0	1.75	0.25		●	△
	02503-010	2.5	2.10	0.30		●	△
	03003-010	3.0	2.30	0.40		●	△

• Right-hand shown

STWS (Square Shank for Vertical Type: L-shape)

• Right-hand shown

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Drawing	Spare Parts		Applicable Inserts
		H	HF	B	LF	L2	WF	HBKW	LU		Clamp Screw	Wrench	
STWSR 1212JX-15T	●	12	12	12	120	16	12	7	3	-	SB-3080TR	LTW-10S	TWBTR○○○○○-○○○ TWFGTRO○○○
STWSR 1616JX-15T	●	16	16	16	120	20	16	3	3	-			
STWSR 1010F-15T	●	10	10	10	85	16	10	9	3	-	SB-3080TR	LTW-10S	TWBTR○○○○○-○○○ TWFGTRO○○○
STWSR 1212F-15T	●	12	12	12	85	16	12	7	3	-			

Recommended Cutting Conditions (TWB / TWBT)

Workpiece Material	Recommended Grade (Vc sfm)		TWBR01003 TWBR01503 TWBTR01003 TWBTR01503				TWBR02003 TWBR02503 TWBR03003 TWBTR02003 TWBTR02503 TWBTR03003				Notes
	PVD Coated Carbide		Depth of Cut: D.O.C. (inch), Feed: f (ipr)								
	PR1535	PR1025	D.O.C.		f		D.O.C.		f		
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330	~0.0039		~0.0004		~0.0079		~0.0012		Wet
Stainless Steel	★ 100~260	☆ 100~260	~0.0039		~0.0004		~0.0079		~0.0008		

★ : 1st Recommendation ☆ : 2nd Recommendation

Twin Bars are sold in 5 piece boxes.

INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING
DRILLING
MILLING
QUICK CHANGE TOOLING
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T

A/S-SCLC-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 5.5$)

Shank Dia. DCON	Coolant Hole Dia.
Ø8mm	Ø2.5mm
Ø0.375" Ø10mm	Ø3.0mm
Ø0.500" Ø12mm	Ø4.0mm
Ø0.625" Ø16mm	Ø5.0mm
Ø0.750" Ø20mm	Ø5.0mm
Ø1.000" Ø25mm	Ø5.0mm

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SCLC-A Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 4$)

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

C/E-SCLC-A(N) Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 7$)

Shank Dia. DCON	Coolant Hole Dia.
Ø8mm	Ø3mm
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

F
BORING
MICRO BORING
POSITIVE INSERTS
AD BARS
NEGATIVE INSERTS

Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts				
	R	L			DMIN	DCON	H	LF	LH	WF					Clamp Screw	Wrench			
	Illustrations																		
Excellent Bar	A06M-SCLC% 2AE	●	●	inch	0.480	0.375	0.336	6.000	0.787	0.236	12°	1/64	Yes	Fig.2	SB-2545TR	FT-8			
	A08M-SCLC% 2AE	●	●		0.600	0.500	0.461	6.000	0.945	0.276	10°								
	A10R-SCLC% 3AE	●	●		0.770	0.625	0.586	8.000	1.181	0.354	10°								
	A12S-SCLC% 3AE	●	●		0.930	0.750	0.711	10.000	1.417	0.413	8°								
	A16T-SCLC% 3AE	●	●		1.200	1.000	0.961	12.000	1.811	0.531	6°								
	S10H-SCLC% 03-05AE	●	●	mm	5	10	9.0	100	24	2.5	15°	0.2	No	Fig.1	SB-1635TR	FT-6			
	S10H-SCLC% 03-06AE	●	●		6	10	9.0	100	28	3.0	13°								
	S10H-SCLC% 04-07AE	●	●		7	10	9.0	100	32	3.5	13°								
	S10H-SCLC% 04-08AE	●	●		8	10	9.0	100	37	4.0	11°								
	A08X-SCLC% 06-10AE	●	●		10	8	7.0	120	16	5.0	14°								
	A10L-SCLC% 06-12AE	●	●		12	10	9.0	140	20	6.0	12°								
	A12M-SCLC% 06-14AE	●	●		14	12	11.0	150	24	7.0	10°								
	A16Q-SCLC% 09-18AE	●	●		18	16	15.0	180	30	9.0	10°								
	A20R-SCLC% 09-22AE	●	●		22	20	19.0	200	36	11.0	8°								
	A25S-SCLC% 09-27AE	●	●		27	25	24.0	250	46	13.5	6°								
Steel	S08X-SCLC% 06-10A	●	●	mm	10	8	7.0	120	16	5.0	14°	0.4	No	Fig.3	SB-2545TR	FT-8			
	S10L-SCLC% 06-12A	●	●		12	10	9.0	140	20	6.0	12°								
	S12M-SCLC% 06-14A	●	●		14	12	11.0	150	24	7.0	10°								
	S16Q-SCLC% 09-18A	●	●		18	16	15.0	180	30	9.0	10°								
	S20R-SCLC% 09-22A	●	●		22	20	19.0	200	36	11.0	8°								
	S25S-SCLC% 09-27A	●	●		27	25	24.0	250	46	13.5	6°								
	Carbide	E06N-SCLC% 2A	●		●	inch	0.480	0.375	0.336	6.300	0.787						0.236	12°	1/64	Yes	Fig.6	SB-2545TR	FT-8
E06N-SCLC% 2A-2/3		□	□	0.480	0.375		0.336	4.200	0.787	0.236	12°								
E08Q-SCLC% 2A		●	●	0.600	0.500		0.461	7.100	0.906	0.276	10°								
E08Q-SCLC% 2A-2/3		□	□	0.600	0.500		0.461	4.800	0.906	0.276	10°								
E10X-SCLC% 3A		●	●	0.770	0.625		0.586	8.700	1.102	0.354	10°								
E10X-SCLC% 3A-2/3		●	□	0.770	0.625		0.586	5.800	1.102	0.354	10°								
C04G-SCLC% 03-05AN		●	●	5	4		3.8	90	7	2.5	15°	0.2	No	Fig.4	SB-1635TR	FT-6			
C05H-SCLC% 03-06AN		●	●	6	5		4.4	100	9	3.0	13°								
C06J-SCLC% 04-07AN		●	●	7	6		5.4	110	10	3.5	13°								
C07K-SCLC% 04-08AN		●	●	8	7		6.4	125	11	4.0	11°								
E08L-SCLC% 06-10AN		●	●	10	8	7.0	140	14	5.0	14°									
E08L-SCLC% 06-10AN-2/3		●	●	10	8	7.0	90	14	5.0	14°									
E10N-SCLC% 06-12AN		●	●	12	10	9.0	160	18	6.0	12°									
E10N-SCLC% 06-12AN-2/3		●	●	12	10	9.0	105	18	6.0	12°									
E12Q-SCLC% 06-14A		●	●	14	12	11.0	180	23	7.0	10°									
E12Q-SCLC% 06-14A-2/3		●	●	14	12	11.0	120	23	7.0	10°									
E16X-SCLC% 09-18A		●	●	18	16	15.0	220	28	9.0	10°	0.4	Yes	Fig.6	SB-2545TR	FT-8				
E16X-SCLC% 09-18A-2/3		●	●	18	16	15.0	145	28	9.0	10°									
E20S-SCLC% 09-22A		●	●	22	20	19.0	250	32	11.0	8°									
E20S-SCLC% 09-22A-2/3		●	●	22	20	19.0	165	32	11.0	8°									
E25T-SCLC% 09-27A		●	●	27	25	24.0	300	38	13.5	6°									
E25T-SCLC% 09-27A-2/3		●	●	27	25	24.0	200	38	13.5	6°									

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium	Finishing-Medium	Finishing / Precision
Ref. Page	● B53	● B53	● B53	● B54	● B54	● B54	● B54	● B54, B55	● B53	● B55, B56
Insert	CF	PF	SKS	WP (Wiper)	PP	GK	HQ	Standard	GQ	%-F / FSF
Toolholder										
...SCLC% 03-...	CCGT1109..	CCGT1109..	-	-	-	-	-	-	-	CCCT1109..
...SCLC% 04-...	CCGT1411..	CCGT1411..	-	-	-	-	-	-	-	CCCT1411..
...SCLC% 2... ...SCLC% 06-...	-	CCGT215..	CCGT215..	CCMT215..	CCMT215..	CCMT215..	CCMT215..	CCGT215..	CCGT215..	-
...SCLC% 3... ...SCLC% 09-...	-	-	CCGT325..	CCMT325	CCMT325	CCMT325	CCMT325..	CCGT325.. CCMT325..	CCGT325..	-
Application	※Finishing	Low Feed	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B57	● B58, B59	● B57	● B55	● B60	● B60	● B60	● B60	● C24	● C14
Insert	%-P	(E/F)%-U	F%-USF	MQ	Without Chipbreaker	AP	A3	AH	PCD	CBN
Toolholder										
...SCLC% 03-...	-	-	-	-	-	-	-	-	-	CCMW1109..
...SCLC% 04-...	-	-	-	-	-	-	-	-	-	CCMW1411..
...SCLC% 2... ...SCLC% 06-...	-	CCGT215..	CCET215..	-	CCGW215..	CCGT215..	-	-	CCGW1411..	CCMW1411..
...SCLC% 3... ...SCLC% 09-...	CCET325..	CCGT325..	CCET325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

※For P chipbreaker inserts, Left-hand Insert for Left-hand Toolholder, Right-hand Insert for Right-hand Toolholder

Recommended Cutting Conditions ● F110-F111

(Customer Service) 800.823.7284 - Option 1

Applicable Sleeve ● F101-F104

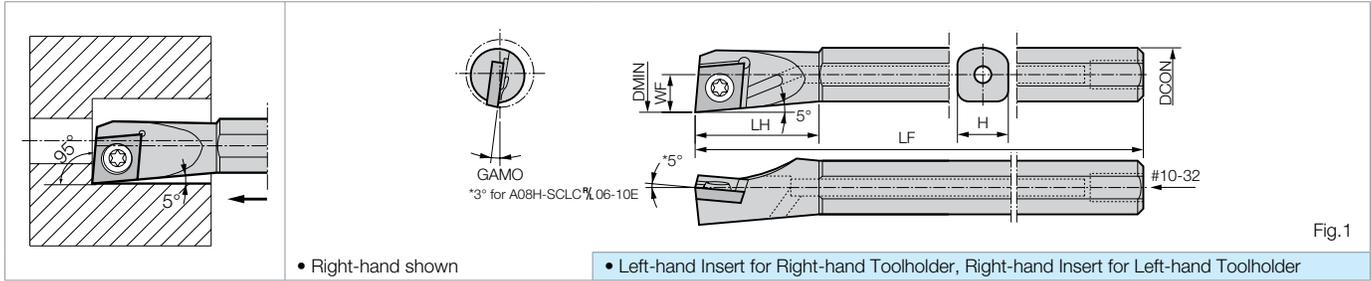
● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)

(Technical Support) 800.823.7284 - Option 2

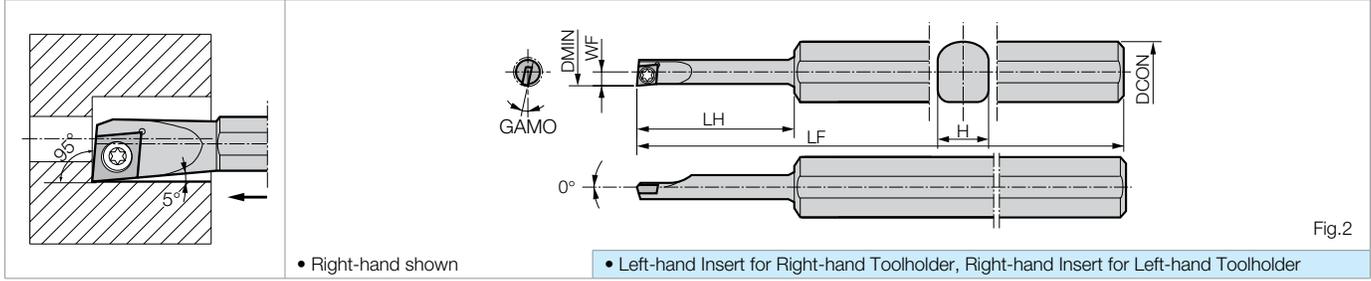
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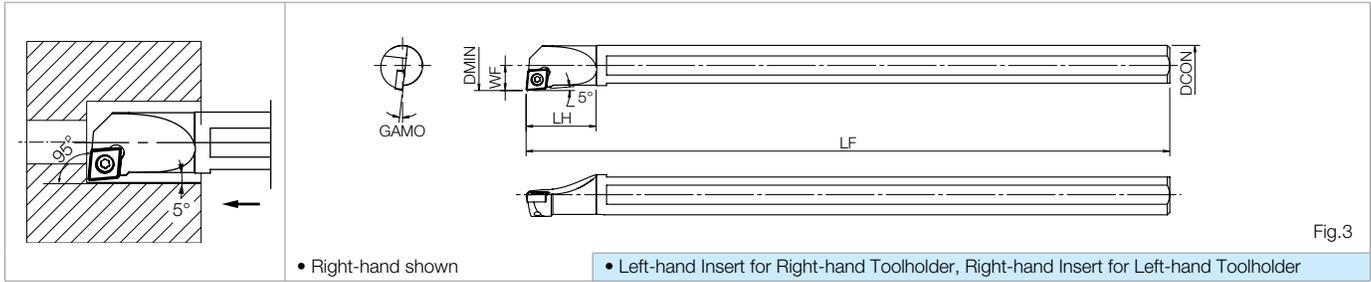
A-SCLC-E Excellent Twin Hole Bar (Boring / Internal Facing) (Max. Overhang Length $L/D = \sim 5$)



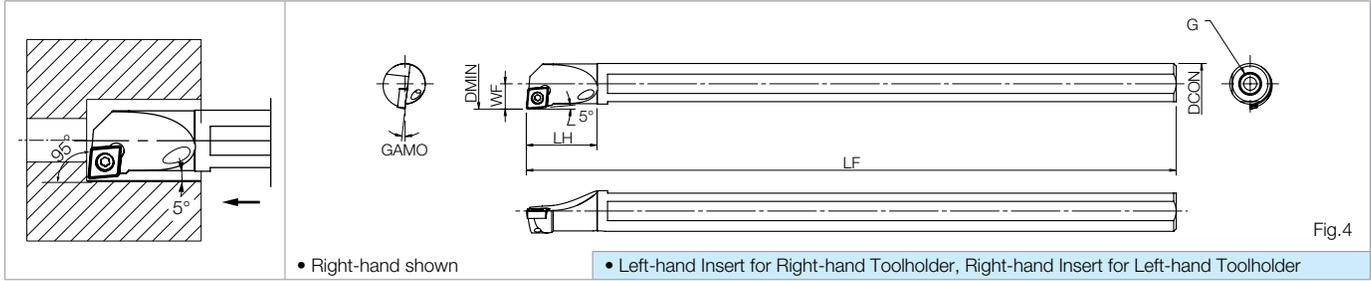
S-SCLC-E Excellent Steel Bar (Boring / Internal Facing) (Max. Overhang Length $L/D = \sim 5$)



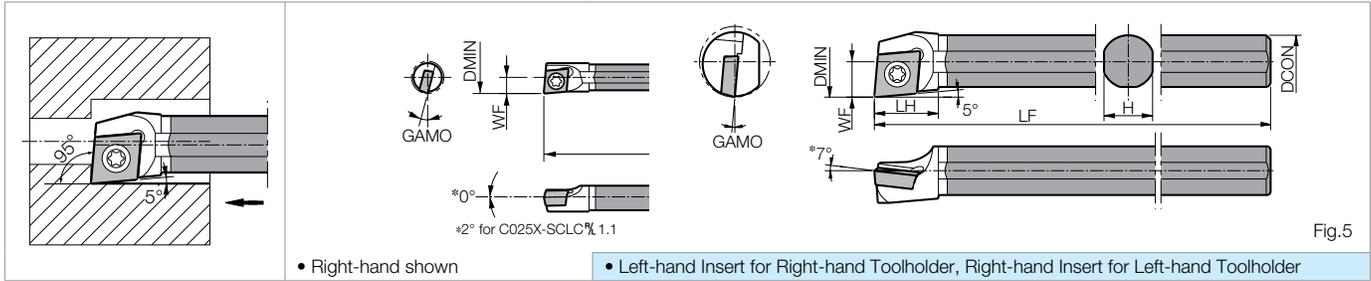
S-SCLC Steel Bar (Boring / Internal Facing) (Max. Overhang Length $L/D = \sim 3$)



A-SCLC Steel Bar (Boring / Internal Facing) (Max. Overhang Length $L/D = \sim 3$)



C-SCLC Carbide Shank Bar (Boring / Internal Facing) (Max. Overhang Length $L/D = \sim 7$)



● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					GAMO	G	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH						WF	Clamp Screw	Wrench
Excellent Bar S06H-SCLCR1.1E **	●		inch	0.197	0.375	0.335	4.000	0.900	0.098	15°	-	1/64	No	Fig.2	SB-1635TR	FT-6	
	A05H-SCLC%2E	●		□	0.394	0.312	0.281	4.000	0.650	0.197	12°		-	Yes	Fig.1	SB-2545TR	FT-8
Steel S05K-SCLC%2	●	●		0.394	0.312	-	5.000	0.625	0.197	12°	-	0.004	No	Fig.3	SB-2545TR	FT-8	
	A05K-SCLCR2	●			0.415	0.313	-	5.000	0.870	0.218	11°	-	1/64	Yes	Fig.4	SB-2545TR	FT-8
	A06M-SCLCR2	△			0.480	0.375	-	6.000	0.870	0.250	8°	-	1/64	Yes			
	A08R-SCLCR2	●			0.600	0.500	-	8.000	0.870	0.312	6°	-	1/64	Yes			
	A10S-SCLCR2	●			0.770	0.625	-	10.000	0.870	0.406	4°	1/8 NPT	1/64	Yes			
	Carbide C05K-SCLCR2	●			0.394	0.312	0.282	5.000	0.625	0.197	12°	-	0.004	No	Fig.5	SB-2545TR	FT-8

** Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium	Finishing-Medium	Finishing / Precision
Ref. Page	● B53	● B53	● B53	● B54	● B54	● B54	● B54	● B54, B55	● B53	● B55, B56
Toolholder	CF	PF	SKS	WP (Wiper)	PP	GK	HQ	Standard	GQ	%-F / FSF
...SCLC%1.1 ...SCLC%1.1E	CCGT1109..	CCGT1109..	-	-	-	-	-	-	-	CC□T1109..
...SCLC%2 ...SCLC%2E	-	CCGT215..	CCGT215..	CCMT215..	CCMT215..	CCMT215..	CCMT215..	CCGT215..	CCGT215..	-
Application	※Finishing	Low Feed	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B57	● B58, B59	● B57	● B55	● B60	● B60	● B60	● B60	● C24	● C14
Toolholder	%-P	(E/F)%-U	F%-USF	MQ	Without Chipbreaker	AP	A3	AH	PCD	CBN
...SCLC%1.1 ...SCLC%1.1E	-	-	-	-	-	-	-	-	-	CCMW1109..
...SCLC%2 ...SCLC%2E	-	CCGT215..	CCET215..	-	CCGW215..	CCGT215..	-	-	CCMT215.. CCGW215..	CCMW215..

※For P chipbreaker inserts, **Left-hand** Insert for **Left-hand** Toolholder, **Right-hand** Insert for **Right-hand** Toolholder

Recommended Cutting Conditions ● F110-F111
Applicable Sleeve ● F101-F104

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A-SCLP-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 5.5$)

Shank Dia. DCON	Coolant Hole Dia.
Ø0.312"	Ø2.5mm
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø5mm
Ø0.750" Ø20mm	Ø5mm
Ø1.000" Ø25mm	Ø5mm

• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SCLP-A Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 4$)

Shank Dia. DCON	Coolant Hole Dia.
Ø0.312"	Ø2.5mm
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø5mm
Ø0.750" Ø20mm	Ø5mm
Ø1.000" Ø25mm	Ø5mm

• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

E-SCLP-A(N) Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 7$)

Shank Dia. DCON	Coolant Hole Dia.
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

F BORING
MICRO BORING
POSITIVE INSERTS
AD BARS
NEGATIVE INSERTS

● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					GAMO	Standard Corner-R (FE)	Coolant Hole	Drawing	Spare Parts			
	R	L			DMIN	DCON	H	LF	LH					WF			
Excellent Bar	A05K-SCLP% 2AE	●	●	inch	0.413	0.312	0.273	5	0.630	0.197	10.0°	1/64	Yes	Fig.1	SB-2545TR	FT-8	
	A06M-SCLP% 2.5AE	●	●		0.480	0.375	0.336	6	0.787	0.236	5.0°	1/64	Yes	Fig.1	SB-3060TR	FT-10	
	A08M-SCLP% 2.5AE	●	●		0.580	0.500	0.461	6	0.945	0.276	4.0°						
	A10R-SCLP% 3AE	●	●		0.700	0.625	0.586	8	1.181	0.354	3.5°						
	A12S-SCLP% 3AE	●	●		0.825	0.750	0.711	10	1.417	0.413	2.0°	1/64	Yes	Fig.1	SB-4065TR	FT-15	
	A16T-SCLP% 3AE	●	●		1.200	1.000	0.961	12	1.811	0.531	0.0°						
	A10L-SCLP% 08-12AE	●	●		mm	12	10	9	140	20	6	5.0°	0.4	Yes	Fig.1	SB-3060TR	FT-10
	A12M-SCLP% 08-14AE	●	●			14	12	11	150	24	7	4.0°					
	A12M-SCLP% 09-16AE	●	●			16	12	11	150	24	8	4.0°					
	A16Q-SCLP% 09-18AE	●	●			18	16	15	180	30	9	3.5°	0.4	Yes	Fig.1	SB-4065TR	FT-15
	A20R-SCLP% 09-22AE	●	●			22	20	19	200	36	11	2.0°					
A25S-SCLP% 09-27AE	●	●	27	25		24	250	46	13.5	0.0°							
Steel	S10L-SCLP% 08-12A	●	●	mm		12	10	9	140	20	6	5.0°	0.4	No	Fig.2	SB-3060TR	FT-10
	S12M-SCLP% 08-14A	●	●			14	12	11	150	24	7	4.0°					
	S12M-SCLP% 09-16A	●	●			16	12	11	150	24	8	4.0°					
	S16Q-SCLP% 09-18A	●	●			18	16	15	180	30	9	3.5°	0.4	No	Fig.2	SB-4065TR	FT-15
	S20R-SCLP% 09-22A	●	●			22	20	19	200	36	11	2.0°					
	S25S-SCLP% 09-27A	●	●		27	25	24	250	46	13.5	0.0°						
Carbide	E10N-SCLP% 08-12AN	●	●	mm	12	10	9	160	18	6	5°	0.4	Yes	Fig.3	SB-3060TR	FT-10	
	E10N-SCLP% 08-12AN-2/3	●			12	10	9	105	18	6	5°						
	E10N-SCLP% 08-12AN-1/2	●			12	10	9	80	18	6	5°						
	E12Q-SCLP% 08-14A	●	●		14	12	11	180	23	7	4°						
	E12Q-SCLP% 08-14A-2/3	●			14	12	11	120	23	7	4°						
	E12Q-SCLP% 08-14A-1/2	●			14	12	11	90	23	7	4°						
	E12Q-SCLP% 09-16A	●	●		16	12	11	180	23	8	5°						
	E12Q-SCLP% 09-16A-2/3	●			16	12	11	120	23	8	5°						
	E12Q-SCLP% 09-16A-1/2	●			16	12	11	90	23	8	5°						
	E16X-SCLP% 09-18A	●	●		18	16	15	220	28	9	3.5°						
	E16X-SCLP% 09-18A-2/3	●			18	16	15	145	28	9	3.5°						
	E16X-SCLP% 09-18A-1/2	●			18	16	15	110	28	9	3.5°						
	E20S-SCLP% 09-22A	●	●		22	20	19	250	32	11	2°						
	E20S-SCLP% 09-22A-2/3	●			22	20	19	165	32	11	2°						
	E20S-SCLP% 09-22A-1/2	●			22	20	19	125	32	11	2°						
	E25T-SCLP% 09-27A	●	●		27	25	24	300	38	13.5	0°						
E25T-SCLP% 09-27A-2/3	●		27	25	24	200	38	13.5	0°								

● Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Medium	Finishing-Medium	Low Carbon Steel/Finishing	Low Carbon Steel/Finishing-Medium	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	● B61	● B61	● B61	● B61	● B61	● B61	● B61	● B61	● C25	● C14
Insert										
Toolholder										
...SCLP% 2AE...	-	-	-	CPGT215..	-	-	-	-	-	-
...SCLP% 2.5AE... ...SCLP% 08-...	CPMT2515..	CPMT2515..	CPMH2515..	CPMH2515..	CPMH2515..	CPMT2515..	-	CPMB2515..	CPMH2515..	CPGB2515..
...SCLP% 3AE... ...SCLP% 09-...	CPMT32..	CPMT32..	CPMH32..	CPMH32..	CPMH32..	CPMT32..	CPMT32..	CPMB32..	CPMH32..	CPGB32..

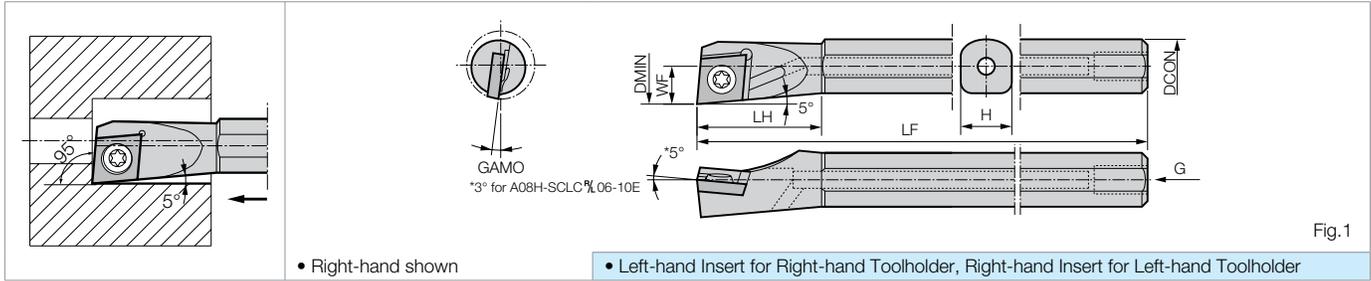
Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F102-F104

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

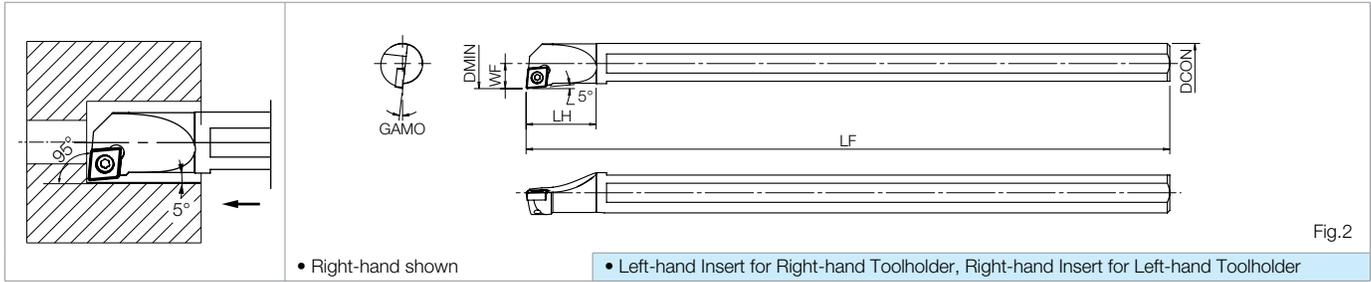
A-SCLP-E Excellent Twin Hole Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 5$)



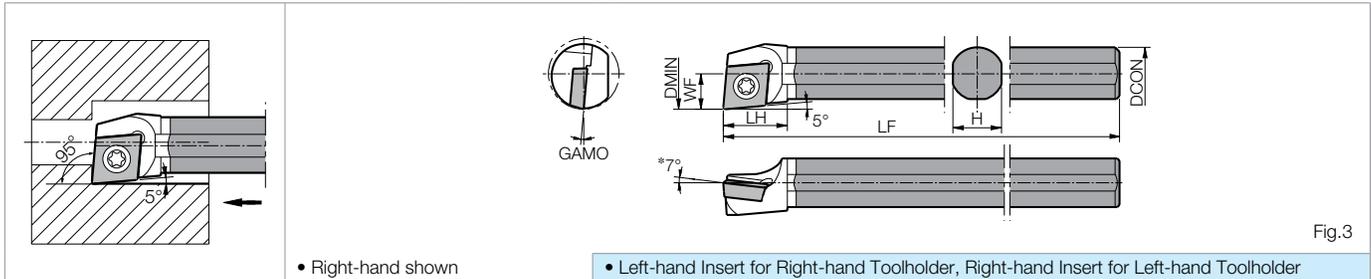
S-SCLP Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 3$)



C-SCLP Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 7$)



F
BORING
MICRO BORING
POSITIVE INSERTS
AD BARS
NEGATIVE INSERTS

● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts	
	R	L			DMIN	DCON	H	LF	LH	WF	G					Clamp Screw	Wrench
																	
Excellent Bar	●		inch	0.472	0.375	0.336	4.75	0.900	0.236	#10-32	5°	1/64	Yes	Fig.1	SB-3STR	FT-8	
	●			0.632	0.500	0.461	4.75	1.140	0.315	1/4-28	4°		Yes		SB-4TR	FT-15	
	●			0.709	0.625	0.586	6.00	1.220	0.354	5/16-24	3°		Yes				
Steel	● ●		inch	0.472	0.375	-	6.00	1.000	0.236	-	5°	1/64	No	Fig.2	SB-3STR	FT-10	
	● ●			0.630	0.500	-	6.00	1.180	0.315	-	4°		No		SB-4TR	FT-15	
	● ●			0.788	0.625	-	7.00	1.380	0.394	-	3°		No				
	● ●			0.984	0.750	-	8.00	1.560	0.492	-	0°		No				
	● ●			1.338	1.000	-	12.00	1.750	0.669	-	0°		No				
Carbide	●		inch	0.472	0.375	0.334	6.00	1.000	0.236	-	5°	1/64	No	Fig.3	SB-3STR	FT-10	
	●			0.630	0.500	0.480	8.00	1.180	0.315	-	4°		No		SB-4TR	FT-15	
	●			0.788	0.625	0.584	10.00	1.380	0.394	-	3°		No				
	●			0.984	0.750	0.710	10.00	1.560	0.492	-	0°		No				

● Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Medium	Finishing-Medium	Low Carbon Steel/Finishing	Low Carbon Steel/Finishing-Medium	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	● B61	● B61	● B61	● B61	● B61	● B61	● B61	● B61	● C25	● C14
Insert										
Toolholder	CPMT2515..	CPMT2515..	CPMH2515..	CPMH2515..	CPMH2515..	CPMT2515..	-	CPMB2515..	CPMH2515..	CPGB2515..
...SCLP%2.5 ...SCLP%2.5E	CPMT32..	CPMT32..	CPMH32..	CPMH32..	CPMH32..	CPMT32..	CPMT32..	CPMB32..	CPMH32..	CPGB32..
...SCLP%3 ...SCLP%3E										

Recommended Cutting Conditions ● F110-F111
Applicable Sleeve ● F102-F104

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A-SDUC-AE Excellent Bar (Copying)

(Max. Overhang Length $L/D = \sim 5.5$)

Inner Hole Dia. of (Ø2.5mm) for A16Q-SDUC%07-14AE
 Inner Hole Dia. of (Ø3.0mm) for A20R-SDUC%11-20AE

Outer Hole Dia. (Ø5mm)

Fig.1 Fig.2

Shank Dia. DCON	Coolant Hole Dia.
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø5mm
Ø20mm	Ø5mm
Ø25mm	Ø5mm

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SDUC-A Steel Bar (Copying)

(Max. Overhang Length $L/D = \sim 4$)

Fig.3 Fig.4

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

E-SDUC-A Carbide Shank Bar (Copying)

(Max. Overhang Length $L/D = \sim 7$)

Fig.5

Shank Dia. DCON	Coolant Hole Dia.
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø4mm
Ø0.750" Ø20mm	Ø6mm
Ø1.000" Ø25mm	Ø6mm

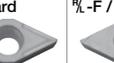
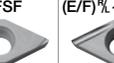
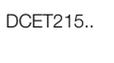
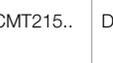
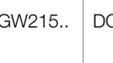
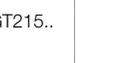
- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

- F
- BORING
- MICRO BORING
- POSITIVE INSERTS
- AD BARS
- NEGATIVE INSERTS

● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts								
	R	L			DMIN	DCON	H	LF	LH	WF					WF ₂	Clamp Screw	Wrench						
																							
Excellent Bar	A06M-SDUC% 2AE	●	●	inch	0.551	0.375	0.336	6.000	0.748	0.341	0.130	5°	1/64	Yes	Fig.1	SB-2560TR	FT-8						
	A08M-SDUC% 2AE	●	●		0.630	0.500	0.461	6.000	0.827	0.360	0.130	5°											
	A10R-SDUC% 2AE	●	●		0.787	0.625	0.586	8.000	0.827	0.459	0.130	5°											
	A12S-SDUC% 3AE	●	●		1.063	0.750	0.711	10.000	0.866	0.650	0.240	5°											
	A16T-SDUC% 3AE	●	●		1.300	1.000	0.961	12.000	0.945	0.748	0.240	5°											
	A10L-SDUC% 07-14AE	●	●		mm	14	10	9	140	19	8.7	3.3						5°	0.4	Yes	Fig.2	SB-2560TR	FT-8
	A16Q-SDUC% 07-14AE	●	●			14	16	15	180	28	10.8	4.4						5°					
	A12M-SDUC% 07-16AE	●	●			16	12	11	150	21	9.7	3.3						5°					
	A16Q-SDUC% 07-20AE	●	●			20	16	15	180	21	11.7	3.3						5°					
	A20R-SDUC% 11-20AE	●	●			20	20	19	200	48	15.6	6.1						5°					
	A16Q-SDUC% 11-23AE	●	●			23	16	15	180	21	14.5	6.1						5°					
	A20R-SDUC% 11-27AE	●	●			27	20	19	200	23	16.5	6.1						5°					
A25S-SDUC% 11-32AE	●	●	32	25		24	250	24	19.0	6.1	5°												
S10L-SDUC% 07-14A	●	●	mm	14		10	9	140	19	8.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8						
S16Q-SDUC% 07-14A	●	●		14		16	15	180	28	10.8	4.4	5°											
S12M-SDUC% 07-16A	●	●		16		12	11	150	21	9.7	3.3	5°											
S16Q-SDUC% 07-20A	●	●		20		16	15	180	21	11.7	3.3	5°											
S20R-SDUC% 11-20A	●	●		20	20	19	200	48	15.6	6.1	5°												
S16Q-SDUC% 11-23A	●	●		23	16	15	180	21	14.5	6.1	5°												
S20R-SDUC% 11-27A	●	●		27	20	19	200	23	16.5	6.1	5°												
S25S-SDUC% 11-32A	●	●		32	25	24	250	24	19.0	6.1	5°												
E06N-SDUC% 2A	●	□		inch	0.551	0.375	0.336	6.300	0.776	0.341	0.130	5°						1/64	Yes	Fig.5	SB-2560TR	FT-8	
E06N-SDUC% 2A-2/3	□	□			0.551	0.375	0.336	4.200	0.776	0.341	0.130	5°											
E08Q-SDUC% 2A	●	□			0.630	0.500	0.461	7.100	0.894	0.360	0.098	5°											
E08Q-SDUC% 2A-2/3	□	□			0.630	0.500	0.461	4.800	0.894	0.360	0.098	5°											
E10X-SDUC% 2A	●	□	0.787		0.625	0.586	8.700	1.091	0.459	0.130	5°												
E10X-SDUC% 2A-2/3	□	□	0.787		0.625	0.586	5.800	1.091	0.459	0.130	5°												
E10N-SDUC% 07-14A	●	●	14		10	9	160	20	8.7	3.3	5°												
E10N-SDUC% 07-14A-2/3	●	●	14		10	9	105	20	8.7	3.3	5°												
E12Q-SDUC% 07-16A	●	●	16		12	11	180	23	9.7	3.3	5°												
E12Q-SDUC% 07-16A-2/3	●	●	16		12	11	120	23	9.7	3.3	5°												
E16X-SDUC% 07-20A	●	●	20		16	15	220	28	11.7	3.3	5°												
E16X-SDUC% 07-20A-2/3	●	●	20		16	15	145	28	11.7	3.3	5°												
E16X-SDUC% 11-23A	●	●	23	16	15	220	28	14.5	6.1	5°													
E16X-SDUC% 11-23A-2/3	●	●	23	16	15	145	28	14.5	6.1	5°													
E20S-SDUC% 11-27A	●	●	27	20	19	250	32	16.5	6.1	5°													
E20S-SDUC% 11-27A-2/3	●	●	27	20	19	165	32	16.5	6.1	5°													
E25T-SDUC% 11-32A	●	●	32	25	24	300	32	19.0	6.1	5°													
E25T-SDUC% 11-32A-2/3	●	●	32	25	24	200	38	19.0	6.1	5°													

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B63	● B63	● B64	● B64	● B64	● B66, B67	● B68, B69	● B68
Insert	CF	SKS	WP (Wiper)	PP	GK	HQ	Standard	%-F / -FSF	(E/F)%-U	F%-USF
Toolholder										
...
Application	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● B71	● C25	● C15
Insert	(E/F)%-J	XP	XQ	MQ	Without Chipbreaker	AP	%-A3	AH	PCD	CBN
Toolholder										
...
Application	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● B71	● C25	● C15
Insert	(E/F)%-J	XP	XQ	MQ	Without Chipbreaker	AP	%-A3	AH	PCD	CBN
Toolholder										
...

When using WP chipbreaker, program corrections are required. ● R51

* TPMX-WP insert will not fit in A-SDQC-AE, S-SDQC-A, and E-SDQC-A type holders.

Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F102-F104

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

A-SDQC-AE Excellent Bar (Copying)

(Max. Overhang Length L/D = ~5.5)

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Shank Dia. DCON	Coolant Hole Dia.
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø5mm
Ø0.750" Ø20mm	Ø5mm
Ø25mm	Ø5mm

S-SDQC-A Steel Bar (Copying)

(Max. Overhang Length L/D = ~4)

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

E-SDQC-A Carbide Shank Bar (Copying)

(Max. Overhang Length L/D = ~7)

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Shank Dia. DCON	Coolant Hole Dia.
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts	
	R	L			DMIN	DCON	H	LF	LH	WF					WF ₂	Clamp Screw	Wrench
Excellent Bar	●	●	inch	0.512	0.375	0.336	6.0	0.736	0.295	0.083	10°	1/64	Yes	Fig.1	SB-2560TR	FT-8
	●	●		0.630	0.500	0.461	6.0	0.866	0.364	0.102	8°					
	●	●		0.787	0.625	0.586	8.0	0.984	0.443	0.102	6°					
	●	●	mm	0.980	0.750	0.711	10.0	1.220	0.565	0.146	5°	0.4	Yes	Fig.1	SB-4065TR	FT-15
	●	●		13	10	9	140	19	7.50	2.1	10°					
	●	●		16	12	11	150	22	9.25	2.6	8°					
	●	●		20	16	15	180	25	11.30	2.6	6°					
	●	●		25	20	19	200	31	14.40	3.7	5°					
Steel	●	●	mm	30	25	24	250	38	16.90	3.7	4°	0.4	No	Fig.2	SB-4065TR	FT-15
	●	●		13	10	9	140	19	7.50	2.1	10°					
	●	●		16	12	11	150	22	9.25	2.6	8°					
	●	●		20	16	15	180	25	11.30	2.6	6°					
	●	●		25	20	19	200	31	14.40	3.7	5°					
Carbide	□	□	inch	0.512	0.375	0.336	6.3	0.787	0.295	0.079	10°	1/64	Yes	Fig.3	SB-2560TR	FT-8
	□	□		0.512	0.375	0.336	4.2	0.787	0.295	0.079	10°					
	□	●		0.630	0.500	0.461	7.1	0.906	0.364	0.102	8°					
	□	□	mm	0.630	0.500	0.461	4.8	0.906	0.364	0.102	8°	0.4	Yes	Fig.3	SB-2560TR	FT-8
	□	□		0.787	0.625	0.586	8.7	1.102	0.443	0.102	6°					
	□	□		0.787	0.625	0.586	5.8	1.102	0.443	0.102	6°					
	●	●		13	10	9	160	20	7.50	2.1	10°					
	●	●		13	10	9	105	20	7.50	2.1	10°					
	●	●	mm	16	12	11	180	23	9.25	2.6	8°	0.4	Yes	Fig.3	SB-2560TR	FT-8
	●	●		16	12	11	120	23	9.25	2.6	8°					
	●	●		20	16	15	220	28	11.30	2.6	6°					
	●	●		20	16	15	145	28	11.30	2.6	6°					
	●	●		25	20	19	250	32	14.40	3.7	5°					
	●	●		25	20	19	165	32	14.40	3.7	5°					
	●	●		30	25	24	300	38	16.90	3.7	4°					
●	●	30		25	24	200	38	16.90	3.7	4°						

Applicable Inserts **F53**

A-SDZC-AE Excellent Bar (Back Boring)

(Max. Overhang Length L/D = ~5.5)

Inner Hole Dia. (Ø2.5mm) for A16Q-SDZC% 07-14AE
Inner Hole Dia. (Ø3.0mm) for A20R-SDZC% 11-20AE
Outer Hole Dia. (Ø5mm)

• Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

S-SDZC-A Steel Bar (Back Boring)

(Max. Overhang Length L/D = ~4)

• Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

E-SDZC-A Carbide Shank Bar (Back Boring)

(Max. Overhang Length L/D = ~7)

• Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

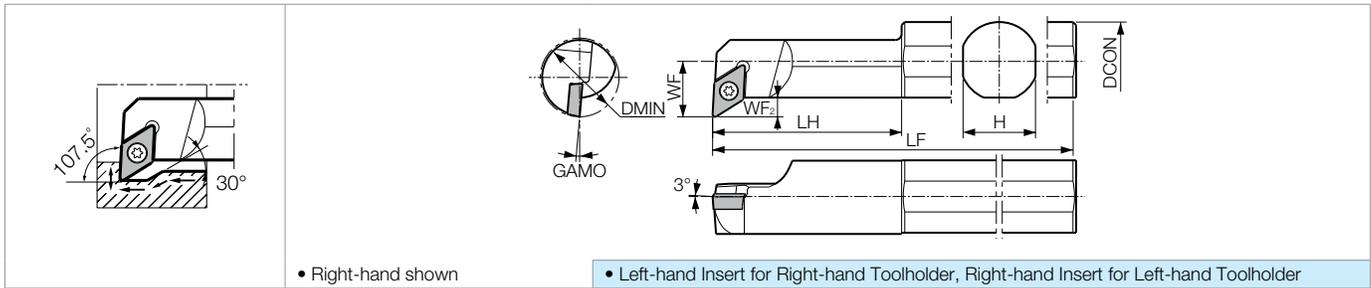
Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts	
	R	L		DMIN	DCON	H	LPR	LF	LH	WF					WF ₂	Clamp Screw	Wrench
Excellent Bar	●	●	14	10	9	140	130.5	14.0	8.7	3.3	5°	0.4	Yes	Fig.2	SB-2545TR	FT-8
	●	●	14	16	15	180	170.0	30.0	10.8	4.4	5°	0.4	Yes	Fig.1	SB-2545TR	FT-8
	●	●	16	12	11	150	139.5	14.0	9.7	3.3	5°	0.4	Yes	Fig.2	SB-2560TR	FT-8
	●	●	20	16	15	180	169.5	14.0	11.7	3.3	5°	0.4	Yes	Fig.1	SB-4065TR	FT-15
	●	●	20	20	19	200	185.0	40.0	15.6	6.1	5°	0.4	Yes	Fig.1	SB-4065TR	FT-15
	●	●	23	16	15	180	165.0	15.0	14.5	6.1	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15
	●	●	27	20	19	200	185.0	15.0	16.5	6.1	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15
	●	●	32	25	24	250	235.0	15.0	19.0	6.1	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15
Steel	●	●	14	10	9	140	130.5	14.0	8.7	3.3	5°	0.4	No	Fig.4	SB-2545TR	FT-8
	●	●	14	16	15	180	170.0	30.0	10.8	4.4	5°	0.4	No	Fig.3	SB-2545TR	FT-8
	●	●	16	12	11	150	139.5	14.0	9.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8
	●	●	20	16	15	180	169.5	14.0	11.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8
	●	●	20	20	19	200	185.0	40.0	15.6	6.1	5°	0.4	No	Fig.3	SB-4065TR	FT-15
	●	●	23	16	15	180	165.0	15.0	14.5	6.1	5°	0.4	No	Fig.4	SB-4065TR	FT-15
	●	●	27	20	19	200	185.0	15.0	16.5	6.1	5°	0.4	No	Fig.4	SB-4065TR	FT-15
	●	●	32	25	24	250	235.0	15.0	19.0	6.1	5°	0.4	No	Fig.4	SB-4065TR	FT-15
Carbide	●		14	10	9	160	150.5	10.5	8.7	3.3	5°	0.4	Yes	Fig.5	SB-2545TR	FT-8
	●		16	12	11	180	169.5	12.5	9.7	3.3	5°	0.4	Yes	Fig.5	SB-2560TR	FT-8
	●		20	16	15	220	209.5	17.5	11.7	3.3	5°	0.4	Yes	Fig.5	SB-2560TR	FT-8
	●		23	16	15	220	205.0	13.0	14.5	6.1	5°	0.4	Yes	Fig.5	SB-4065TR	FT-15
	●		27	20	19	250	235.0	17.0	16.5	6.1	5°	0.4	Yes	Fig.5	SB-4065TR	FT-15

Applicable Inserts **F53**

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

S-SDUC Steel Bar (Copying)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH	WF				WF2	Clamp Screw	Wrench
Steel	●	●	inch	0.564	0.500	0.480	6.00	1.125	0.346	0.145	5°	1/64	No			
	S08M-SDUC%2	●		●	0.564	0.625	0.584	7.00	1.125	0.346	0.145					5°	SB-2560TR	FT-8
	S10X-SDUC%2	●		●	0.750	0.750	0.710	8.00	1.500	0.476	0.224	5°		1/32	SB-4085TR	FT-15
	S12R-SDUC%3	●		●	0.980	1.000	0.945	9.00	2.360	0.693	0.240	5°				
S16X-SDUC%3	●	●														

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B62	● B62	● B63	● B63	● B64	● B64	● B64	● B66, B67	● B68, B69	● B68
Insert	CF	SKS	WP (Wiper)	PP	GK	HQ	Standard	%-F / -FSF	(E/F)%-U	F%-USF
Toolholder										
...	SDUC%2	DCGT215..	DCGT215..	DCMX215..	DCMT215..	DCMT215..	DCMT215..	DCMT215..	DCMT215..	DCET215..
...	SDUC%3	DCGT325..	DCGT325..	DCMX325..	DCMT325..	DCMT325..	DCMT325..	DCMT325..	DCGT325..	DCET325..
Application	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B70, B71	● B65	● B65	● B65	● B71	● B71	● B71	● B71	● C25	● C15
Insert	(E/F)%-J	XP	XQ	MQ	Without Chipbreaker	AP	%-A3	AH	PCD	CBN
Toolholder										
...	SDUC%2	DCET215..	DCMT215..	-	DCMT215..	DCGW215..	DCGT215..	-	DCMT215..	DCMW215..
...	SDUC%3	DC_T325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

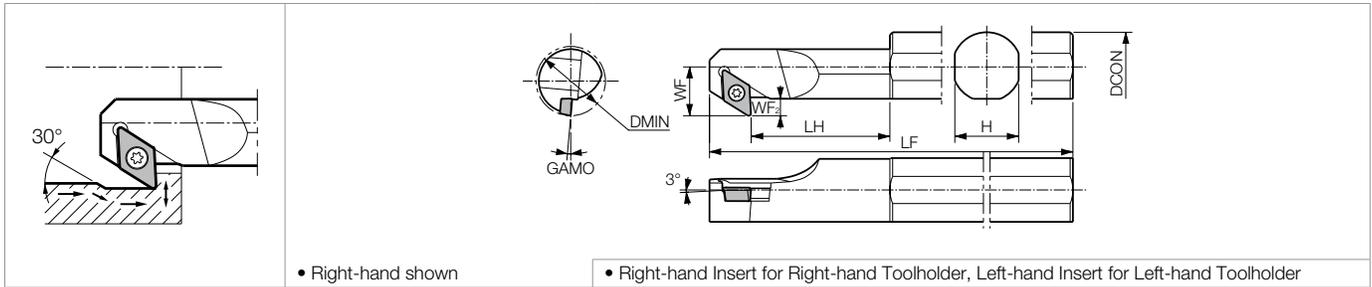
When using WP chipbreaker, program corrections are required. ● R51

Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F102-F104

S-SDZC Steel Bar (Back Boring)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts	
	R	L			DMIN	DCON	H	LF	LH	WF				WF ₂	Clamp Screw	Wrench
Steel S10Q-SDZC%2	●		inch	0.550	0.625	0.596	7.00	1.18	0.410	0.173	5°	1/64	No	SB-2560TR	FT-8
S10X-SDZC%2	●	●		0.630	0.625	0.596	7.00	1.52	0.449	0.173	5°				
S12R-SDZC%3	●			0.787	0.750	0.710	8.00	1.60	0.595	0.240	5°	1/32	No	SB-4085TR	FT-15
S16X-SDZC%3	●	●		0.984	1.000	0.960	9.00	2.09	0.693	0.240	5°				

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	➔ B62	➔ B62	➔ B63	➔ B63	➔ B64	➔ B64	➔ B64	➔ B66, B67	➔ B68, B69	➔ B68
Insert	CF	SKS	WP (Wiper)	PP	GK	HQ	Standard	%-F / -FSF	(E/F)%-U	F%-USF
Toolholder										
...	DCGT215..	DGCT215..	DCMX215..	DCMT215..	DCMT215..	DCMT215..	DCGT215..	DC□T215..	DCGT215..	DCET215..
...	DCGT325..	DGCT325..	DCMX325..	DCMT325..	DCMT325..	DCMT325..	DCMT325..	DC□T325..	DCGT325..	DCET325..
Application	Low Feed	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	➔ B70, B71	➔ B65	➔ B65	➔ B65	➔ B71	➔ B71	➔ B71	➔ B71	➔ C25	➔ C15
Insert	(E/F)%-J	XP	XQ	MQ	Without Chipbreaker	AP	%-A3	AH	PCD	CBN
Toolholder										
...	DCET215..	DCMT215..	-	DCMT215..	DCGW215..	DCGT215..	-	-	DCMT215..	DCMW215..
...	DC_T325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

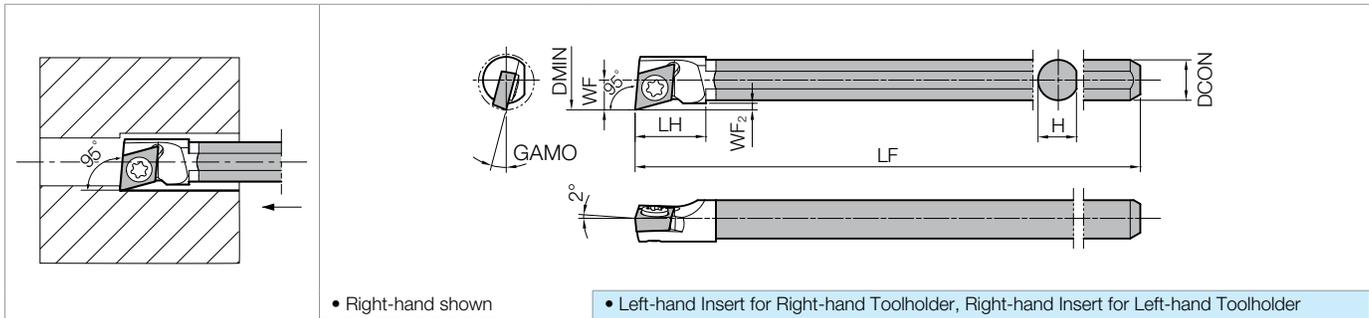
When using WP chipbreaker, program corrections are required. ➔ R51

Recommended Cutting Conditions ➔ F110-F111
Applicable Sleeve ➔ F102-F104

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

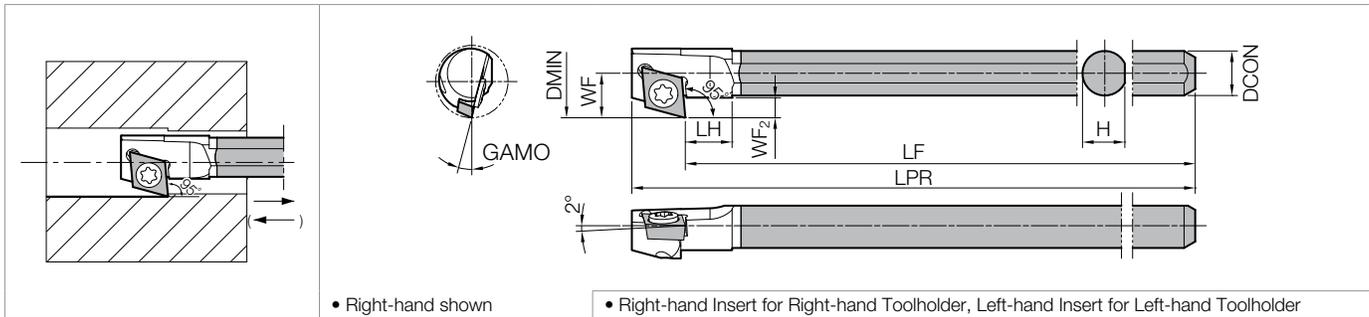
C-SJLC Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 7$)



C-SJZC Carbide Shank Bar (Back Boring)

(Max. Overhang Length $L/D = \sim 7$)



※ When using R-hand Toolholder, Use R-hand insert for machining in this direction (→)
Use L-hand insert for machining in this direction (←)

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							GAMO	Standard Corner-R (RE)	Spare Parts		
	R	L		DMIN	DCON	H	LPR	LF	LH	WF			WF ₂	Clamp Screw	Wrench
C04X-SJLC [●] 03-055	●	●	5.5	4	3.8	-	91	7	2.95	0.65	15°	0.03	SB-1635TR	FT-6	
C04X-SJZC [●] 03-065	●	●	6.5	4	3.8	93	88.1	4	4.00	1.80	15°	0.03			

Applicable Inserts

Application	Finishing	Finishing / Precision
Ref. Page	● B73	● B73
Insert	[●] /F	[●] /FSF
Toolholder		
...-SJLC [●] 03-...	JCGT1109..	JCET1109..
...-SJZC [●] 03-...	JCGT1109..	JCET1109..

Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F101, F103, F104

Features of C-SJLC

1. Well balanced design minimizing bore diameter yet maintaining a smaller insert radius.
2. High flexibility of tool pass during pecking.
3. Good surface finish at internal facing.

Features of C-SJZC

1. Back boring bars for workpieces which require high concentric circle accuracy and are unavailable for chuck change.
2. Available for back boring and pecking.
3. Large clearance between cutting edge and holder (1.8mm).

A-STLC-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length L/D = ~5.5)

Shank Dia. DCON	Coolant Hole Dia.
Ø8mm	Ø2.5mm
Ø10mm	Ø3.0mm
Ø12mm	Ø4.0mm
Ø16mm	Ø5.0mm
Ø20mm	Ø5.0mm

Fig.1

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-STLC-A Steel Bar (Boring / Internal Facing)

(Max. Overhang Length L/D = ~4)

Fig.2

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts	
	R	L		DMIN	DCON	H	LF	LH	WF	WF ₂					Clamp Screw	Wrench
Excellent Bar	●	●	10	8	7	120	16	5.0	0.5	14°	0.4	Yes	Fig.1	SB-2250TR	FT-7	
	A08X-STLC% 09-10AE	●	●	12	10	9	140	20	6.2	0.9						12°
	A10L-STLC% 09-12AE	●	●	12	10	9	140	20	6.2	0.9	12°	0.4	Yes	Fig.1	SB-2560TR	FT-8
	A10L-STLC% 11-12AE	●	●	14	12	11	150	24	7.2	0.7	10°					
	A12M-STLC% 11-14AE	●	●	18	16	15	180	30	9.2	0.7	8°					
	A16Q-STLC% 11-18AE	●	●	22	20	19	200	36	11.2	0.7	6°					
A20R-STLC% 11-22AE	●	●	10	8	7	120	16	5.0	0.5	14°	0.4	No	Fig.2	SB-2250TR	FT-7	
Steel	●	●	12	10	9	140	20	6.2	0.9	12°						
S08X-STLC% 09-10A	●	●	12	10	9	140	20	6.2	0.9	12°	0.4	No	Fig.2	SB-2560TR	FT-8	
S10L-STLC% 09-12A	●	●	14	12	11	150	24	7.2	0.7	10°						
S10L-STLC% 11-12A	●	●	18	16	15	180	30	9.2	0.7	8°						
S12M-STLC% 11-14A	●	●	22	20	19	200	36	11.2	0.7	6°						
S16Q-STLC% 11-18A	●	●														
S20R-STLC% 11-22A	●	●														

Applicable Insert

Application	Finishing	Finishing-Medium
Ref. Page	➔ B77	➔ B77
Insert	WP (Wiper)	HQ
Toolholder		
...-STLC% 09-...	TCMX1815..	TCMT1815..
...-STLC% 11-...	TCMX215..	TCMT215..

When using WP chipbreaker, program corrections are required. ➔ R51

Recommended Cutting Conditions ➔ F110-F111

Applicable Sleeve ➔ F101-F104

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

A/S-STLB(P)-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 5.5$)

Technical drawing showing the A/S-STLB(P)-AE bar in right-hand (Fig.1) and left-hand (Fig.2) views. Dimensions include DMIN, WFL, LH, LF, H, and DCON. A coolant hole is shown in the left-hand view. The right-hand view shows a 90° angle and the GAMO logo. The left-hand view shows a 5° angle and the GAMO logo.

Shank Dia. DCON	Coolant Hole Dia.
Ø0.312" Ø8mm	Ø2.5mm
Ø0.375" Ø10mm	Ø3.0mm
Ø0.500" Ø12mm	Ø4.0mm
Ø0.625" Ø16mm	Ø5.0mm
Ø0.750" Ø20mm	Ø5.0mm
Ø1.000" Ø25mm	Ø5.0mm

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-STLB(P)-A Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 4$)

Technical drawing showing the S-STLB(P)-A bar in right-hand (Fig.3) and left-hand (Fig.4) views. Dimensions include DMIN, WFL, LH, LF, H, and DCON. The right-hand view shows a 90° angle and the GAMO logo. The left-hand view shows a 5° angle and the GAMO logo.

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

C/E-STLB(P)-A(N) Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 7$)

Technical drawing showing the C/E-STLB(P)-A(N) bar in right-hand (Fig.5) and left-hand (Fig.6) views. Dimensions include DMIN, WFL, LH, LF, H, and DCON. A coolant hole is shown in the left-hand view. The right-hand view shows a 90° angle and the GAMO logo. The left-hand view shows a 5° angle and the GAMO logo.

Shank Dia. DCON	Coolant Hole Dia.
Ø8mm	Ø3mm
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

F
BORING
MICRO BORING
POSITIVE INSERTS
AD BARS
NEGATIVE INSERTS

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts					
	R	L		DMIN	DCON	H	LF	LH	WF	WF ₂					Clamp Screw	Wrench				
				 																
Excellent Bar	S04H-STLB% 1.2AE	●	●	inch	0.312	0.250	0.211	4	0.472	0.150	0.025	12.0°	0.008	No	Fig.1	SB-2035TR	FT-6			
	A05K-STLB% 1.2AE	●	●		0.392	0.312	0.273	5	0.630	0.201	0.031	12.0°	0.008	Yes	Fig.2					
	A05K-STLP% 1.8AE	●	●		0.392	0.312	0.273	5	0.630	0.197	0.022	10.0°	1/64	Yes	Fig.2					
	A06M-STLP% 1.8AE	●	●		0.480	0.375	0.336	6	0.787	0.244	0.036	8.0°								
	A06M-STLP% 2AE	●	●		0.480	0.375	0.336	6	0.787	0.236	0.030	10.0°								
	A08M-STLP% 2AE	●	●		0.580	0.500	0.461	6	0.945	0.283	0.032	7.0°								
	A10R-STLP% 2AE	●	●		0.700	0.625	0.586	8	1.181	0.362	0.036	3.5°								
	A12S-STLP% 2AE	●	●		0.825	0.750	0.711	10	1.417	0.421	0.031	2°								
	A16T-STLP% 3AE	●	●		1.280	1.000	0.961	12	1.811	0.539	0.031	0°	1/64	Yes	Fig.2			SB-4065TR	FT-15	
	S06H-STLB% 06-08AE	●	●		mm	8	6	5.0	100	12	3.8	0.5	12°	0.2	No			Fig.1	SB-2035TR	FT-6
	A08X-STLP% 08-10AE	●	●			10	8	7.0	120	16	5.0	0.5	10°	0.4	Yes			Fig.2	SB-1TR	FT-6
	A08X-STLP% 09-10AE	●	●			10	8	7.0	120	16	5.0	0.5	10°							
	A10L-STLP% 09-12AE	●	●			12	10	9.0	140	20	6.2	0.9	8°							
	A10L-STLP% 11-12AE	●	●			12	10	9.0	140	20	6.0	0.7	10°							
	A12M-STLP% 11-14AE	●	●			14	12	11.0	150	24	7.2	0.8	7°	0.4	Yes			Fig.2	SB-3060TR	FT-10
	A12M-STLP% 09-16AE	●	●			16	12	11.0	150	24	8.0	0.6	5°	0.4	Yes			Fig.2	SB-2545TR	FT-8
	A16Q-STLP% 11-18AE	●	●			18	16	15.0	180	30	9.2	0.7	3.5°	0.4	Yes			Fig.2	SB-3060TR	FT-10
	A20R-STLP% 11-22AE	●	●			22	20	19.0	200	36	11.2	0.7	2°							
	A20R-STLP% 16-25AE	●	●			25	20	19.0	200	36	13.0	0.7	0°	0.4	Yes			Fig.2	SB-4065TR	FT-15
	A25S-STLP% 16-27AE	●	●			27	25	24.0	250	46	13.7	0.7	0°							
Steel	S06H-STLB% 06-08A	●	●	mm		8	6	5.0	100	12	3.8	0.5	12°	0.2	No	Fig.3	SB-2035TR	FT-6		
	S08X-STLP% 08-10A	●	●			10	8	7.0	120	16	5.0	0.5	10°	0.4	No	Fig.4	SB-1TR	FT-6		
	S08X-STLP% 09-10A	●	●			10	8	7.0	120	16	5.0	0.5	10°							
	S10L-STLP% 09-12A	●	●			12	10	9.0	140	20	6.2	0.9	8°							
	S10L-STLP% 11-12A	●	●			12	10	9.0	140	20	6.0	0.7	10°	0.4	No	Fig.4	SB-3060TR	FT-10		
	S12M-STLP% 11-14A	●	●			14	12	11.0	150	24	7.2	0.8	7°							
	S12M-STLP% 09-16A	●	●			16	12	11.0	150	24	8.0	0.6	5°	0.4	No	Fig.4	SB-2545TR	FT-8		
	S16Q-STLP% 11-18A	●	●			18	16	15.0	180	30	9.2	0.7	3.5°	0.4	No	Fig.4	SB-3060TR	FT-10		
	S20R-STLP% 11-22A	●	●			22	20	19.0	200	36	11.2	0.7	2°							
	S25S-STLP% 16-27A	●	●		27	25	24.0	250	46	13.7	0.7	0°	0.4	No	Fig.4	SB-4065TR	FT-15			
	Carbide	C06J-STLB% 06-08AN	●		●	mm	8	6	5.4	110	10	3.8	0.5	12°	0.2	No	Fig.5	SB-2035TR	FT-6	
		E08L-STLP% 08-10AN	●		●		10	8	7.0	140	14	5.0	0.5	10°	0.4	Yes	Fig.6	SB-2545TR	FT-8	
		E08L-STLP% 09-10AN	●		●		10	8	7.0	140	14	5.0	0.5	10°						
		E10N-STLP% 09-12AN	●		●		12	10	9.0	160	18	6.2	0.9	8°	0.4	Yes	Fig.6	SB-2545TR	FT-8	
E10N-STLP% 09-12AN-2/3		●	●	12	10		9.0	105	18	6.2	0.9	8°								
E10N-STLP% 09-12AN-1/2		●	●	12	10		9.0	80	18	6.2	0.9	8°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E10N-STLP% 11-12AN		●	●	12	10		9.0	160	18	6.0	0.7	10°								
E10N-STLP% 11-12AN-2/3		●	●	12	10		9.0	105	18	6.0	0.7	10°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E10N-STLP% 11-12AN-1/2		●	●	12	10		9.0	80	18	6.0	0.7	10°								
E12Q-STLP% 11-14A		●	●	14	12		11.0	180	23	7.2	0.8	7°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E12Q-STLP% 11-14A-2/3		●	●	14	12		11.0	120	23	7.2	0.8	7°								
E12Q-STLP% 11-14A-1/2		●	●	14	12		11.0	90	23	7.2	0.8	7°	0.4	Yes	Fig.6	SB-2545TR	FT-8			
E12Q-STLP% 09-16A		●	●	16	12		11.0	180	23	8.0	0.6	5°								
E12Q-STLP% 09-16A-2/3		●	●	16	12		11.0	120	23	8.0	0.6	5°	0.4	Yes	Fig.6	SB-2545TR	FT-8			
E12Q-STLP% 09-16A-1/2		●	●	16	12		11.0	90	23	8.0	0.6	5°								
E16X-STLP% 11-18A		●	●	18	16		15.0	220	28	9.2	0.7	3.5°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E16X-STLP% 11-18A-2/3		●	●	18	16		15.0	145	28	9.2	0.7	3.5°								
E16X-STLP% 11-18A-1/2		●	●	18	16		15.0	110	28	9.2	0.7	3.5°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E20S-STLP% 11-22A		●	●	22	20		19.0	250	32	11.2	0.7	2°								
E20S-STLP% 11-22A-2/3		●	●	22	20		19.0	165	32	11.2	0.7	2°	0.4	Yes	Fig.6	SB-3060TR	FT-10			
E20S-STLP% 11-22A-1/2	●	●	22	20	19.0	125	32	11.2	0.7	2°										
E20S-STLP% 16-25A	●	●	25	20	19.0	250	32	13.0	0.7	0°	0.4	Yes	Fig.6	SB-4065TR	FT-15					
E20S-STLP% 16-25A-2/3	●	●	25	20	19.0	165	32	13.0	0.7	0°										
E20S-STLP% 16-25A-1/2	●	●	25	20	19.0	125	32	13.0	0.7	0°	0.4	Yes	Fig.6	SB-4065TR	FT-15					
E25T-STLP% 16-27A	●	●	27	25	24.0	300	38	13.7	0.7	0°										
E25T-STLP% 16-27A-2/3	●	●	27	25	24.0	200	38	13.7	0.7	0°										

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Applicable Inserts ● F62

● Applicable Inserts

Application	Minute D.O.C.	Finishing	※Finishing	※Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision
Ref. Page	☛ B76, B80	☛ B76, B80	☛ B80	☛ B80	☛ B80	☛ B81	☛ B76	☛ B81	☛ B76, B82, B83	☛ B85
Insert	CF	PF	WP (Wiper)	ℓ-WP (Wiper)	PP	GP	DP	HQ	ℓ	ℓ-FSF
Toolholder										
...-STLB%1.2... ...-STLB%06-...	TBGT121..	TBGT121..	-	-	-	-	TBMT121..	-	TBGT121..	-
...-STLP%08-...	TPGT1515..	-	-	-	-	-	-	-	TPGH1515..	TPET1515..
...-STLP%1.8... ...-STLP%09-...	TPGT1815..	TPGT1815..	TPMX1815..	-	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	-
...-STLP%2... ...-STLP%11-...	-	-	TPMX22..	TPMX22..	TPMT22..	TPMT22..	-	TPMT22..	TPGH22..	TPET22..
...-STLP%16-...	-	-	-	-	-	TPMT32..	-	TPMT32..	TPGH32..	-
Application	※Finishing	Medium	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	☛ B85	☛ B84	☛ B86	☛ B81	☛ B81	☛ B76, B86	☛ B86	☛ C26-C28	☛ C28	☛ C16
Insert	ℓ-P	ℓ-H	Fℓ-USF	XP	XQ	Without Chipbreaker	AP	PCD	APD	CBN
Toolholder										
...-STLB%1.2... ...-STLB%06-...	-	-	-	-	-	TBGW121..	-	TBMT121.. TBGW121..	-	-
...-STLP%08-...	TPEH1515..	-	TPET1515..	-	-	TPGB1515..	-	TPMH1515.. TPGB1515..	-	TPGB1515..
...-STLP%1.8... ...-STLP%09-...	TPEH1815..	TPGH1815..	-	TPMT1815..	-	TPGB1815..	-	TPMH1815.. TPGB1815..	-	TPGB1815..
...-STLP%2... ...-STLP%11-...	TPEH22..	TPGH22..	TPET22..	TPMT22..	TPMT22..	TPGB22..	TPGT22..	TPMH22.. TPGB22..	TPMT22..	TPGB22..
...-STLP%16-...	-	TPGH32..	-	TPMT32..	TPMT32..	TPGB32..	-	TPMH32.. TPGB32..	-	TPGB32..

※For P chipbreaker inserts, **Left-hand** Insert for **Left-hand** Toolholder, **Right-hand** Insert for **Right-hand** Toolholder

※When using **WP** chipbreaker, program corrections are required. ☛ **R51**

Recommended Cutting Conditions ☛ **F110-F111**

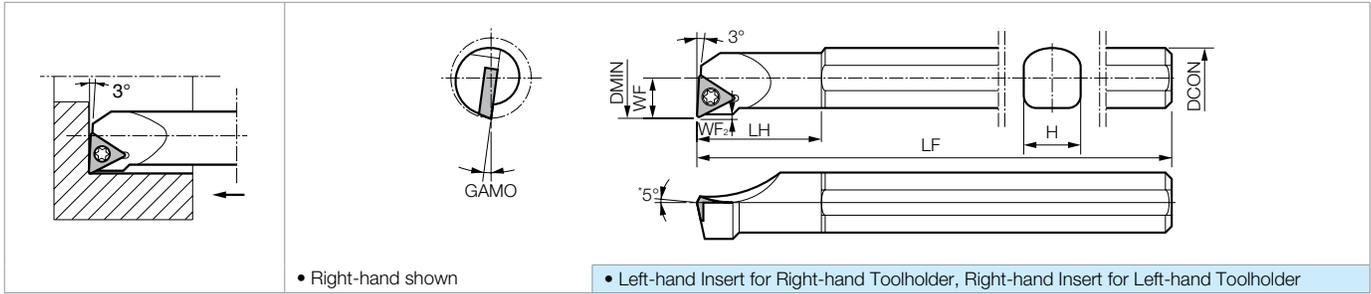
Applicable Toolholders ☛ **F61**

Applicable Sleeve ☛ **F101-F104**

F
BORING
MICRO BORING
POSITIVE INSERTS
AD BARS
NEGATIVE INSERTS

S-STUP(B) Steel Bar (Boring)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH	WF				WF ₂	Clamp Screw	Wrench
Steel	S04H-STUP $\frac{1}{2}$	●	□	inch	0.312	0.250	0.224	4.00	0.50	0.148	0.023	12°	1/64	No	SB-1STR	FT-6
	S05K-STUP $\frac{1}{2}$	●	□		0.392	0.313	0.270	5.00	0.75	0.196	0.020	13°	1/64	No	SB-1TR	FT-6
	S06M-STUP $\frac{1}{2}$	●	□		0.472	0.375	0.356	6.00	1.01	0.236	0.015	13°	1/64	No	SB-2TR	FT-8
	S08M-STUP $\frac{1}{2}$	●	●		0.630	0.500	0.480	6.00	1.18	0.315	0.090	10°				
	S10X-STUP $\frac{1}{2}$	●	●		0.787	0.625	0.584	7.00	1.38	0.394	0.100	7°	1/64	No	SB-3TR	FT-10
	S12R-STUP $\frac{1}{2}$	●	●		0.912	0.750	0.710	8.00	1.58	0.456	0.115	5°				

Applicable Inserts

Application	Minute D.O.C.	Finishing	※Finishing	※Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision
Ref. Page	➔ B76, B80	➔ B76, B80	➔ B80	➔ B80	➔ B80	➔ B81	➔ B76	➔ B81	➔ B76, B82, B83	➔ B85
Insert	CF	PF	WP (Wiper)	W (Wiper)	PP	GP	DP	HQ	W	W-FSF
Toolholder										
...	...-STUB $\frac{1}{2}$...	TBGT121..	TBGT121..	-	-	-	TBMT121..	-	TBGT121..	-
...	...-STUB $\frac{1}{2}$...	TPGT1515..	-	-	-	-	-	-	TPGH1515..	TPET1515..
...	...-STUB $\frac{1}{2}$...	TPGT1815..	TPGT1815..	TPMX1815..	-	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..
...	...-STUB $\frac{1}{2}$...	-	-	TPMX22..	TPMX22..	TPMT22..	TPMT22..	-	TPMT22..	TPGH22..
Application	※Finishing	Medium	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	➔ B85	➔ B84	➔ B86	➔ B81	➔ B81	➔ B76, B86	➔ B86	➔ C26-C28	➔ C28	➔ C16
Insert	W-P	W-H	F-W-USF	XP	XQ	Without Chipbreaker	AP	PCD	APD	CBN
Toolholder										
...	...-STUB $\frac{1}{2}$...	-	-	-	-	TBGW121..	-	TBMT121.. TBGW121..	-	-
...	...-STUB $\frac{1}{2}$...	-	-	TPET1515..	-	TPGB1515..	-	TPMH1515.. TPGB1515..	-	TPGB1515..
...	...-STUB $\frac{1}{2}$...	TPEH1815..	TPGH1815..	-	TPMT1815..	TPGB1815..	-	TPMH1815.. TPGB1815..	-	TPGB1815..
...	...-STUB $\frac{1}{2}$...	TPEH22..	TPGH22..	TPET22..	TPMT22..	TPGB22..	TPGT22..	TPMH22.. TPGB22..	TPMT22..	TPGB22..

※For P chipbreaker inserts, Left-hand Insert for Left-hand Toolholder, Right-hand Insert for Right-hand Toolholder

Recommended Cutting Conditions ➔ F110-F111

※When using WP chipbreaker, program corrections are required. ➔ B51

Applicable Sleeve ➔ F101-F104

S-STWP-E Excellent Bar (Copying)

(Max. Overhang Length L/D = ~5)

• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-STWP Steel Bar (Copying)

(Max. Overhang Length L/D = ~3)

• Right-hand shown

• Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

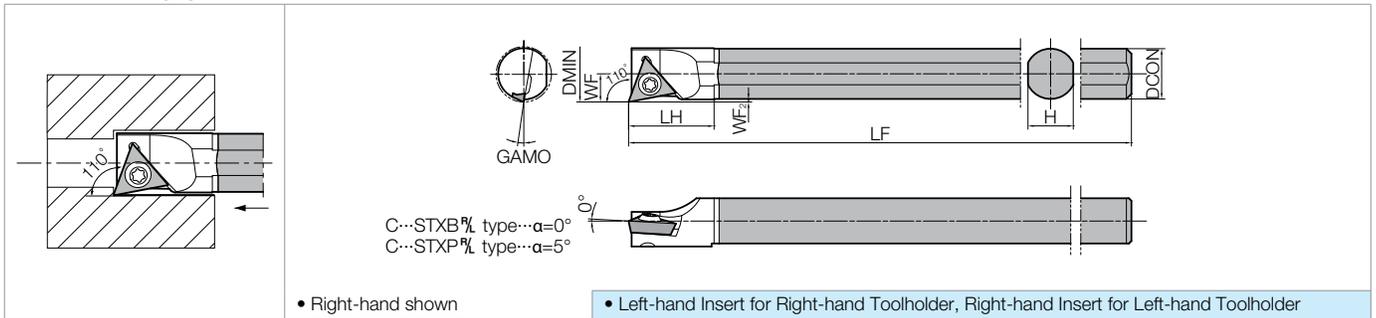
Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts		
	R	L			DMIN	DCON	H	LPR	LF	LH			WF	WF2	Clamp Screw	Wrench
S06M-STWP% 2	●		inch	0.476	0.375	0.350	6.00	5.795	0.91	0.238	0.056	0°	1/64	SB-3STR	FT-10
S08M-STWP% 2	●			0.630	0.500	0.476	6.00	5.795	1.20	0.315	0.070	0°			
S10X-STWP% 2	●			0.786	0.625	0.600	7.00	6.795	1.40	0.393	0.086	0°			
S12R-STWP% 2	●			0.970	0.750	0.726	8.00	7.795	1.60	0.485	0.115	0°			
S16R-STWP% 2	●			1.240	1.000	0.974	8.00	7.795	2.00	0.620	0.125	0°			
S10M-STWP% 11-12E	●	●	mm	12	10	9.2	150	144.5	23	6.0	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWP% 11-16E	●	●		16	12	11.0	150	144.5	30	8.0	1.5	0°			
S16R-STWP% 11-20E	●	●		20	16	15.0	200	194.5	35	10.0	2.0	0°	0.1	SB-3TR	FT-10
S20X-STWP% 11-25E	●	●		25	20	19.0	220	214.5	40	12.5	2.5	0°			
S20X-STWP% 16-25E	●	●		25	20	19.0	220	212.3	40	14.0	4.0	0°	0.8	SB-4TR	FT-15
S25X-STWP% 16-32E	●	●		32	25	23.0	270	262.3	42	16.5	4.0	0°			
S10M-STWP% 11-12	●			12	10	9.2	150	144.5	23	6.0	1.0	0°	0.1	SB-3STR	FT-10
S12M-STWP% 11-16	●			16	12	11.0	150	144.5	30	8.0	1.5	0°			
S16Q-STWP% 11-20	●			20	16	15.0	180	174.5	35	10.0	2.0	0°	0.1	SB-3TR	FT-10
S20R-STWP% 11-25	●			25	20	19.0	200	194.5	40	12.5	2.5	0°			

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Low Carbon Steel / Finishing	Low Carbon Steel / Finishing-Medium
Ref. Page	● B80	● B81	● B81	● B82, B83	● B85	● B84	● B86	● B81	● B81
Insert	PP	GP	HQ	%	%-FSF	%-H	F%-USF	XP	XQ
Toolholder									
Application	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials	* TPMX-WP insert will not fit in S-STWP-E and S-STWP type holders.			
Ref. Page	● B86	● B86	● C26-C28	● C28	● C16	Recommended Cutting Conditions ● F110-111			
Insert	Without Chipbreaker	AP	PCD	APD	CBN	Applicable Sleeve ● F102-F104			
Toolholder									
Application	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials				
Ref. Page	● B86	● B86	● C26-C28	● C28	● C16				
Insert	Without Chipbreaker	AP	PCD	APD	CBN				
Toolholder									

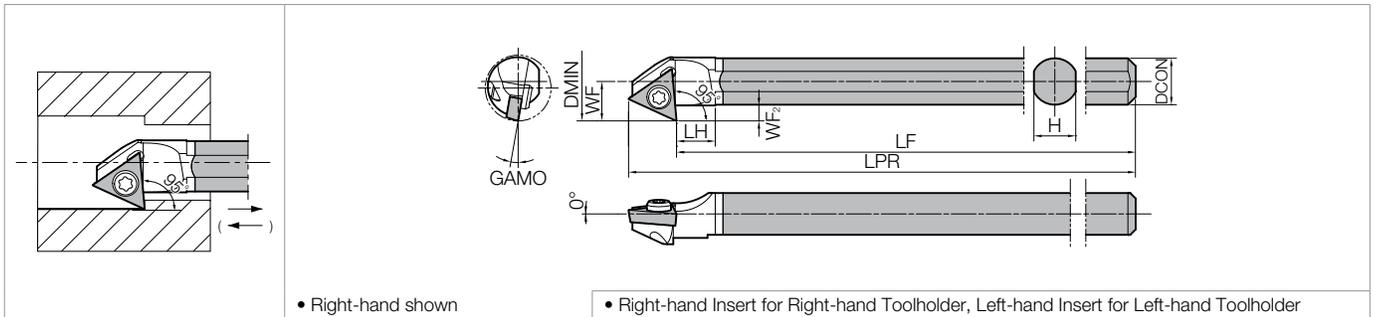
C-STXP(B) Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length L/D = ~7)



C-STZB Carbide Shank Bar (Back Boring)

(Max. Overhang Length L/D = ~7)



※ When using R-hand Toolholder, Use R-hand insert for machining in this direction (→)
Use L-hand insert for machining in this direction (←)

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							GAMO	Standard Corner-R (FE)	Spare Parts		
	R	L		DMIN	DCON	H	LPR	LF	LH	WF			WF ₂	Clamp Screw	Wrench
C06J-STXB% 06-075	●	●	7.5	6	5.4	-	110	11	3.75	0.5	10°	0.03	SB-1STR	FT-6	
C08X-STXP% 08-09	●	●	9.0	8	7.0	-	143	14	4.60	0.5	10°	0.03	SB-1TR		
C10X-STXP% 09-11	●	●	11.0	10	9.0	-	164	17	5.60	0.5	10°	0.03	SB-2TR		
C06J-STZB% 06-085	●		8.5	6	5.4	110	104.3	5	5.10	2.0	10°	0.03	SB-1STR		

Applicable Inserts

Application	Minute ap	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Low Carbon Steel / Finishing
Ref. Page	● B76, B80	● B80	● B81	● B76	● B81	● B76, B82, B83	● B85	● B86	● B81
Insert	CF	PP	GP	DP	HQ	%	%-FSF	F%-USF	XP
Toolholder									
...	TBGT121..	-	-	TBMT121..	-	TBGT121..	-	-	-
...	TPGT1515..	-	-	-	-	TPGH1515..	TPET1515..	TPET1515..	-
...	TPGT1815..	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	-	-	TPMT1815..
...	TBGT121..	-	-	TBMT121..	-	TBGT121..	-	-	-
Application	Cast Iron	Non-ferrous Metals	Hardened Materials						
Ref. Page	● B76, B86	● C26-C28	● C16						
Insert	Without Chipbreaker	PCD	CBN						
Toolholder									
...	TBGW121..	TBMT121..	-						
...	TPGB1515..	TPMH1515.. TPGB1515..	TPGB1515..						
...	TPGB1815..	TPMH1815.. TPGB1815..	TPGB1815..						
...	TBGW121..	TBMT121..	-						

※ TPMX-WP insert will not fit in C-STXP type holders.

Recommended Cutting Conditions ● F110-111

Applicable Sleeve ● F101-F104

C...STXP(B) Type Boring Bar Cutting Conditions

Toolholder Part Number	Insert Part Number (Grades)	Vc : sfm	D.O.C.	f (ipr)	Coolant
C06J-STXB% 06-075	TBGT0601003 L/R (PR930)	100-330	0.0008-0.0039	0.0008-0.0016	Yes
C08X-STXP% 08-09	TPGH080201 L/R (PR930)	100-330	0.0020-0.0059	0.0012-0.0031	Yes
C10X-STXP% 09-11	TPGH090201 L/R (PR930)	100-330	0.0020-0.0059	0.0012-0.0031	Yes

(Workpiece Material: Alloy Steel)

INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

A-SVJP(C)(B)-AE Excellent Bar (Internal Spherical Machining / Internal Facing / Copying) (Max. Overhang Length L/D = ~5.5)

* No shim for SVJP(C) %08 or SVJB %11.

Shank Dia. DCON	Coolant Hole Dia.
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø0.750"	Ø5mm
Ø20mm	Ø5mm
Ø1.000"	Ø5mm
Ø25mm	Ø5mm
Ø32mm	Ø7mm
Ø40mm	Ø9mm

Please see [F67](#) for Cutting Instructions • Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SVJP(C)(B)-A Steel Bar (Internal Spherical Machining / Internal Facing / Copying) (Max. Overhang Length L/D = ~4)

* No shim for SVJP(C) %08 / SVJB %11.

Please see [F67](#) for Cutting Instructions • Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts	
	R	L		DMIN	DCON	H	LF	LU	LH	WF					Clamp Screw	Wrench
A12S-SVJB %2AE	●	●	inch	0.984	0.750	0.711	10	1.476	-	0.079	5°	1/64	Yes	Fig.1	SB-2050TR	FT-6
A16T-SVJB %2AE	●	●		1.180	1.000	0.961	12	1.772	-	0.138	5°					
A12M-SVJP %08-16AE	●	●	mm	16	12	11	150	26	33	2.0	5°	0.2	Yes	Fig.1	SB-2050TR	FT-6
A12M-SVJC %08-16AE	●	●		16	12	11	150	26	33	2.0	5°					
A16Q-SVJC %08-20AE	●	●		20	16	15	180	36	43	2.0	5°	0.4	Yes	Fig.1	SB-2050TR	FT-6
A20R-SVJB %11-25AE	●	●		25	20	19	200	37.5	48	2.0	5°					
A25S-SVJB %11-30AE	●	●		30	25	24	250	45	58	3.5	5°	0.4	Yes	Fig.1	SB-2570TR	FT-8
A32S-SVJB %16-40AE	●	●		40	32	31	250	60	74	3.5	8°					
A40T-SVJB %16-50AE	●	●		50	40	39	300	75	91	4.5	7°	0.4	Yes	Fig.2	SB-40125TRN	FT-15
S12M-SVJP %08-16A	●	●		16	12	11	150	26	33	2.0	5°						0.2	No	Fig.3	SB-2050TR	FT-6
S12M-SVJC %08-16A	●	●	16	12	11	150	26	33	2.0	5°						
S16Q-SVJC %08-20A	●	●	mm	20	16	15	180	36	43	2.0	5°	0.4	No	Fig.3	SB-2050TR	FT-6
S20R-SVJB %11-25A	●	●		25	20	19	200	37.5	48	2.0	5°					
S25S-SVJB %11-30A	●	●		30	25	24	250	45	58	3.5	5°	0.4	No	Fig.3	SB-2570TR	FT-8
S32S-SVJB %16-40A	●	●		40	32	31	250	60	74	3.5	8°					
S40T-SVJB %16-50A	●	●		50	40	39	300	75	91	4.5	7°	0.4	No	Fig.4	SB-40125TRN	FT-15

Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Non-ferrous Metals	Non-ferrous Metals
Ref. Page	B94	B89, B92	B89, B92	B89	B89, B92	B90	B89, B95	B96	B93	B93
Insert	CK	VF	PP	GP	HQ	%-F	%-FSF	F%-USF	AP	%-A3
Toolholder										
...	VPGT1515..	-	-	-	-	-	VPET1515..	VPET1515..	-	-
...	-	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	-	-
...	-	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	-	-	-
...	-	VBMT33..	VBMT33..	VBMT33..	VBMT33..	-	-	-	VCGT33..	VCGT33..

Application	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	B93	C28	C17
Insert	AH	PCD	CBN
Toolholder			
...	-	-	-
...	-	VCMT1515..	VCGW1515..
...	-	VBMT22..	VBGW22..
...	VCGT33..	VBMT33..	VBGW33..

* Use of VBG1103..-Y / VBG1604..-Y with A-SVJB-AE / S-SVJB-A is not recommended.

Spare Parts (See [P27](#) for spare parts of old products.)

Part Number	Spare Parts		
	Shim	Shim Screw	Wrench (for Shim Screw)
<input type="checkbox"/> 32S-SVJB %16-40A			
<input type="checkbox"/> 40T-SVJB %16-50A	SVN-32N *(SVN-32S)	SS-4N	LW-4

* Insert with Corner-R (RE) of 0.008" or 1/64", shim in parentheses () is recommended (sold separately)

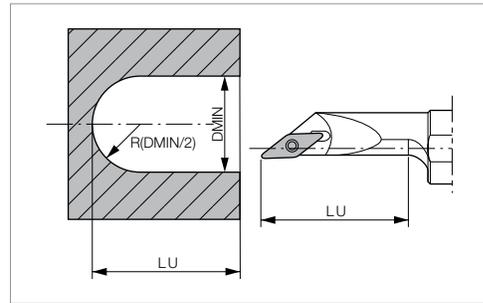
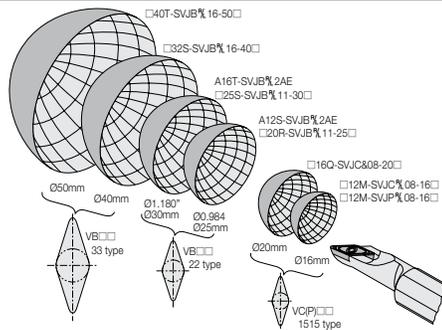
Recommended Cutting Conditions [F110-F111](#)

Applicable Sleeve [F102-F104](#)

A...SVJP(C)-○, S...SVJP(C)-○ Excellent Bar (Internal Spherical Machining / Internal Facing)

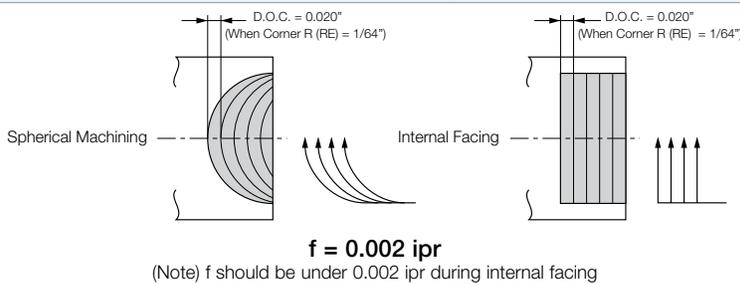
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

1. Application Range

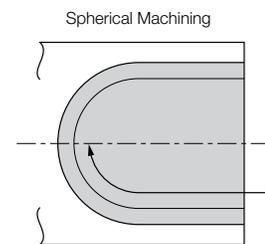


2. Machining Method

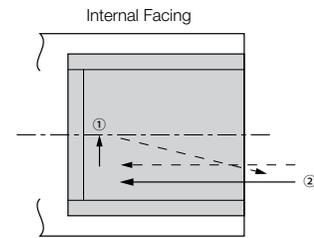
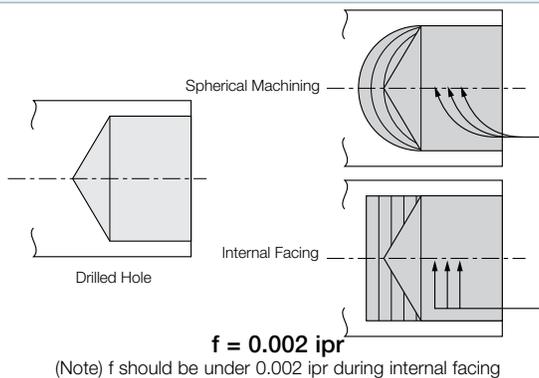
In Cases with No Existing Hole



Finishing

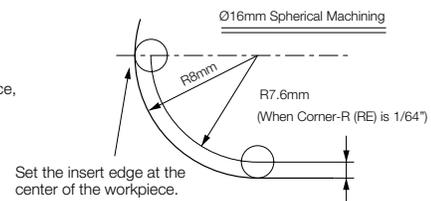
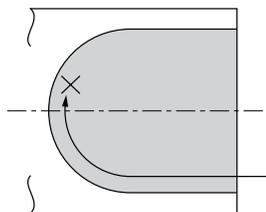


In Cases with Drilled Hole

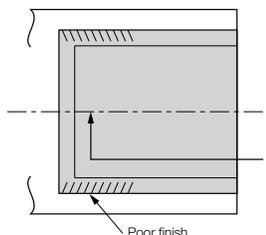


Machining Process
 1. First, finish the internal face.
 2. Next, finish the internal diameter.

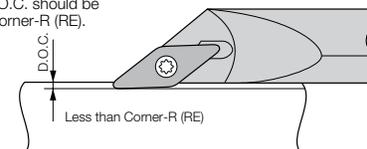
3. Caution



Adjust the machining program radius to a smaller Corner-R (RE) value.



For internal profiling, D.O.C. should be less than the value of Corner-R (RE).



[Burrs may occur, if D.O.C. is bigger than Corner-R (RE)]

A-SVP(C)(B)-AE Excellent Bar (Copying / Undercutting)

(Max. Overhang Length L/D = ~5.5)

Shank Dia. DCON	Coolant Hole Dia.
Ø0.375" Ø10mm	Ø3mm
Ø0.500" Ø12mm	Ø4mm
Ø0.625" Ø16mm	Ø5mm
Ø0.750" Ø20mm	Ø5mm
Ø1.000" Ø25mm	Ø5mm
Ø32mm	Ø5mm

* No shim for SVPC%08 or SVPB%11.

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SVP(C)(B)-A Steel Bar (Copying / Undercutting)

(Max. Overhang Length L/D = ~4)

* No shim for SVPC%08 or SVPB%11.

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

E-SVP(C)(B)-A Carbide Shank Bar (Copying / Undercutting)

(Max. Overhang Length L/D = ~7)

Shank Dia. DCON	Coolant Hole Dia.
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

* No shim for SVPC%08 or SVPB%11.

- Right-hand shown
- Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

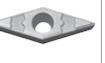
Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH	WF					WF ₂	Clamp Screw	Wrench
Excellent Bar	●	●	inch	0.630	0.375	0.336	6	0.945	0.335	0.118	8°	1/64	Yes	Fig.1	SB-2570TR	FT-8	
	●	●		0.790	0.500	0.461	6	1.142	0.433	0.177	8°						
	●	●		0.980	0.625	0.586	8	1.378	0.531	0.197	5°						
	●	●		1.180	0.750	0.711	10	1.575	0.610	0.197	5°						
	●	●		1.240	1.000	0.961	12	2.008	0.709	0.197	13°						
	●	●		14	10	9	140	24	8.5	3.0	8°						0.4	Yes	Fig.1	SB-2050TR	FT-6
Steel	●	●	mm	18	12	11	150	29	11.0	4.5	8°						
	●	●		22	16	15	180	35	13.5	5.0	5°						
	●	●		26	20	19	200	41	15.5	5.0	5°						
	●	●		31	25	24	250	51	18.0	5.0	13°						
	●	●		40	32	31	250	54	23.0	6.5	9°						
	●	●		14	10	9	140	24	8.5	3.0	8°	0.4	No	Fig.3	SB-2050TR	FT-6	
Carbide	●	●	mm	18	12	11	180	23	11.0	4.5	8°						
	●	●		22	16	15	220	28	13.5	5.0	5°						
	●	●		26	20	19	250	32	15.5	5.0	5°						
	●	●		31	25	24	300	38	18.0	5.0	13°						
	●	●		14	10	9	160	20	8.5	3.0	8°						
	●	●		18	12	11	180	23	11.0	4.5	8°						
●	●	22	16	15	220	28	13.5	5.0	5°								
●	●	26	20	19	250	32	15.5	5.0	5°								
●	●	31	25	24	300	38	18.0	5.0	13°								

Spare Parts (See [P27](#) for spare parts of old products.)

Part Number	Spare Parts		
	Shim	Shim Screw	Wrench (for Shim Screw)
25-SVPB%16-31A	 SVN-32N *(SVN-32S)	 SS-4N	 LW-4
32S-SVPB%16-40A			
A16T-SVPB%3AE			

* Insert with Corner-R (RE) of 0.008" or 1/64", shim in parentheses () is recommended (sold separately)

Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Low Feed / Precision	Non-ferrous Metals
Ref. Page	-	B89, B92	B89, B92	B89	B89, B92	B90	B89	B90, B91	-	B93
Insert										
Toolholder										
...-SVPC%1.5AE...-SVPC%08-...	-	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	-	-
...-SVPB%2AE...-SVPB%11-...	-	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-
...-SVPB%3AE...-SVPB%16-...	-	VBMT33..	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	-	VCGT33..
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials						
Ref. Page	B93	B93	C28	C17						
Insert										
Toolholder										
...-SVPC%1.5AE...-SVPC%08-...	-	-	VCMT1515..	VCGW1515..						
...-SVPB%2AE...-SVPB%11-...	-	-	VBMT22..	VBGW22..						
...-SVPB%3AE...-SVPB%16-...	VCGT33..	VCGT33..	VBMT33..	VBGW33..						

Recommended Cutting Conditions [F110-F111](#)
 Applicable Sleeve [F102-F104](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A-SVUC(B)-AE Excellent Bar (Copying)

(Max. Overhang Length $L/D = \sim 5.5$)

Inner Hole Dia. (Ø3mm) of A12M-SVUC%08-16AE
 Inner Hole Dia. (Ø3mm) of A16Q-SVUB%11-20AE
 Inner Hole Dia. (Ø3mm) for A20R-SVUB%11-25AE
 Straight Hole Dia. (Ø5mm) of A32S-SVUB%16-40AE

Shank Dia. DCON	Outer Hole Dia.	Coolant Hole Dia.
Ø0.500* Ø12mm	Ø4mm	-
Ø0.625* Ø16mm	Ø5mm	-
Ø0.750* Ø20mm	Ø5mm	-
Ø1.000* Ø25mm	-	Ø5mm
Ø32mm	-	Ø5mm

* No shim for SVUC%08 / SVUB%11.
 • Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SVUC(B)-A Steel Bar (Copying)

(Max. Overhang Length $L/D = \sim 4$)

* No shim for SVUC%08 / SVUB%11.
 • Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

E-SVUC(B)-A Carbide Shank Bar (Copying)

(Max. Overhang Length $L/D = \sim 7$)

* Shim is attached only for SVUBR16
 • Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Shank Dia. DCON	Coolant Hole Dia.
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm
Ø25mm	Ø6mm

A-SVZC(B)-AE Excellent Bar (Back Boring)

(Max. Overhang Length $L/D = \sim 5.5$)

Inner Hole Dia. (Ø3mm) of A12M-SVZC%08-16AE
 Inner Hole Dia. (Ø3mm) of A16Q-SVZB%11-20AE
 Inner Hole Dia. (Ø3mm) for A20R-SVZB%11-25AE
 Straight Hole Dia. (Ø5mm) of A32S-SVZB%16-40AE

Shank Dia. DCON	Outer Hole Dia.	Coolant Hole Dia.
Ø12mm	Ø4mm	-
Ø16mm	Ø5mm	-
Ø20mm	Ø5mm	-
Ø25mm	-	Ø5mm
Ø32mm	-	Ø5mm

* No shim for SVZC%08 / SVZB%11
 • Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

S-SVZC(B)-A Steel Bar (Back Boring)

(Max. Overhang Length $L/D = \sim 4$)

* No shim for SVZC%08 / SVZB%11
 • Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions								GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts			
	R	L			DMIN	DCON	H	LPR	LF	LH	WF	WF ₂					Clamp Screw	Wrench		
																				
Excellent Bar	A08M-SVUC%1.5AE	●	●	inch	0.630	0.500	0.461	-	6	1.004	0.453	0.217	8°	1/64	Yes	Fig.1	SB-2050TR	FT-6		
	A10R-SVUB%2AE	●	●		0.790	0.625	0.586	-	8	1.280	0.630	0.315	8°	1/64	Yes	Fig.1	SB-2570TR	FT-8		
	A12S-SVUB%2AE	●	●		0.980	0.750	0.711	-	10	1.595	0.709	0.315	7°	1/64	Yes	Fig.1	SB-2570TR	FT-8		
	A16T-SVUB%3AE	●	●		1.340	1.000	0.961	-	12	1.583	0.807	0.335	13°	1/64	Yes	Fig.2	SB-40125TRN	FT-15		
	A12M-SVUC%08-16AE	●	●		mm	16	12	11	-	150	25.5	11.5	5.5	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6	
	A16Q-SVUB%11-20AE	●	●			20	16	15	-	180	32.5	16.0	8.0	8°	0.4	Yes	Fig.1	SB-2570TR	FT-8	
	A20R-SVUB%11-25AE	●	●			25	20	19	-	200	40.5	18.0	8.0	7°	0.4	Yes	Fig.1	SB-2570TR	FT-8	
	A25S-SVUB%16-34AE	●	●			34	25	24	-	250	40.0	20.5	8.5	13°	0.4	Yes	Fig.2	SB-40125TRN	FT-15	
A32S-SVUB%16-40AE	●	●	40	32		31	-	250	84.0	28.0	12.0	9°	0.4	Yes	Fig.1	SB-40125TRN	FT-15			
S12M-SVUC%08-16A	●	●	16	12		11	-	150	25.5	11.5	5.5	8°	0.4	No	Fig.3	SB-2050TR	FT-6			
S16Q-SVUB%11-20A	●	●	20	16		15	-	180	32.5	16.0	8.0	8°	0.4	No	Fig.3	SB-2570TR	FT-8			
S20R-SVUB%11-25A	●	●	25	20		19	-	200	40.5	18.0	8.0	7°	0.4	No	Fig.3	SB-2570TR	FT-8			
Steel	S25S-SVUB%16-34A	●	●	mm	34	25	24	-	250	40.0	20.5	8.5	13°	0.4	No	Fig.4	SB-40125TRN	FT-15		
	S32S-SVUB%16-40A	●	●		40	32	31	-	250	84.0	28.0	12.0	9°	0.4	No	Fig.3	SB-40125TRN	FT-15		
	E12Q-SVUC%08-18A	●	●		mm	18	12	11	-	180	23.0	11.5	5.5	8°	0.4	Yes	Fig.5	SB-2050TR	FT-6	
	E16X-SVUB%11-25A	●	●			25	16	15	-	220	28.0	16.0	8.0	8°	0.4	Yes	Fig.5	SB-2570TR	FT-8	
	E20S-SVUB%11-29A	●	●			29	20	19	-	250	32.0	18.0	8.0	7°	0.4	Yes	Fig.5	SB-2570TR	FT-8	
	E25T-SVUB%16-34A	●	●			34	25	24	-	300	38.0	21.0	8.5	13°	0.4	Yes	Fig.5	SB-40125TRN	FT-15	
	A08M-SVZC%1.5AE	●	●			inch	0.630	0.500	0.461	-	6	1.004	0.453	0.217	8°	1/64	Yes	Fig.6	SB-2050TR	FT-6
	A10R-SVZB%2AE	●	●				0.790	0.625	0.586	-	8	1.280	0.630	0.315	8°	1/64	Yes	Fig.6	SB-2570TR	FT-8
A12S-SVZB%2AE	●	●	0.980	0.750			0.711	-	10	1.595	0.709	0.315	7°	1/64	Yes	Fig.6	SB-2570TR	FT-8		
A16T-SVZB%3AE	●	●	1.340	1.000			0.961	-	12	1.181	0.807	0.335	13°	1/64	Yes	Fig.7	SB-40125TRN	FT-15		
A12M-SVZC%08-16AE	●	●	mm	16	12		11	150	142.5	25.5	11.5	5.5	8°	0.4	Yes	Fig.6	SB-2050TR	FT-6		
A16Q-SVZB%11-20AE	●	●		20	16		15	180	170	32.5	16.0	8.0	8°	0.4	Yes	Fig.6	SB-2570TR	FT-8		
A20R-SVZB%11-25AE	●	●		25	20		19	200	190	40.5	18.0	8.0	7°	0.4	Yes	Fig.6	SB-2570TR	FT-8		
A25S-SVZB%16-34AE	●	●		34	25		24	250	232.5	30.0	20.5	8.5	13°	0.4	Yes	Fig.7	SB-40125TRN	FT-15		
A32S-SVZB%16-40AE	●	●		40	32	31	250	232.5	72.5	28.0	12.0	9°	0.4	Yes	Fig.6	SB-40125TRN	FT-15			
S12M-SVZC%08-16A	●	●		16	12	11	150	142.5	25.5	11.5	5.5	8°	0.4	No	Fig.8	SB-2050TR	FT-6			
S16Q-SVZB%11-20A	●	●		20	16	15	180	170	32.5	16.0	8.0	8°	0.4	No	Fig.8	SB-2570TR	FT-8			
S20R-SVZB%11-25A	●	●		25	20	19	200	190	40.5	18.0	8.0	7°	0.4	No	Fig.8	SB-2570TR	FT-8			
Steel	S25S-SVZB%16-34A	●	●	mm	34	25	24	250	232.5	30.0	20.5	8.5	13°	0.4	No	Fig.9	SB-40125TRN	FT-15		
	S32S-SVZB%16-40A	●	●		40	32	31	250	235	72.5	28.0	12.0	9°	0.4	No	Fig.8	SB-40125TRN	FT-15		

● Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Low Feed / Precision	Non-ferrous Metals
Ref. Page	-	● B89, B92	● B89, B92	● B89	● B89, B92	● B90	● B89	● B90, B91	-	● B93
Toolholder	CK	VF	PP	GP	HQ	%-F	%-FSF	%-Y	F%-USF	AP
...	...	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	-	-
...	...	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-
...	...	VBMT33..	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	-	VCGT33..
...	...	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	-	-
...	...	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-
...	...	VBMT33..	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	-	VCGT33..
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials						
Ref. Page	● B93	● B93	● C28	● C17						
Toolholder	%-A3	AH	PCD	CBN						
...	...	-	VCMT1515..	VCGW1515..						
...	...	-	VBMT22..	VBGW22..						
...	VCGT33..	VCGT33..	VBMT33..	VBGW33..						
...	...	-	VCMT1515..	VCGW1515..						
...	...	-	VBMT22..	VBGW22..						
...	VCGT33..	VCGT33..	VBMT33..	VBGW33..						

Part Number	Spare Parts		
	Shim	Shim Screw	Wrench (for Shim Screw)
□25□-SVUB%16-34A□ □32S-SVUB%16-40A□ □25S-SVZB%16-34A□ □32S-SVZB%16-40A□ A16T-SVUB%3AE A16T-SVZB%3AE	SVN-32N *(SVN-32S)	SS-4N	LW-4

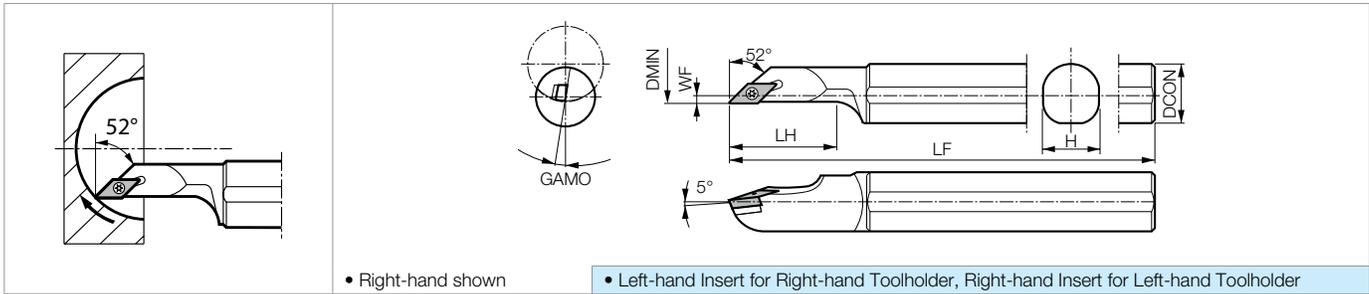
* Insert with Corner-R (RE) of 0.008" or 1/64", shim in parentheses () is recommended (sold separately)

Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F102-F104

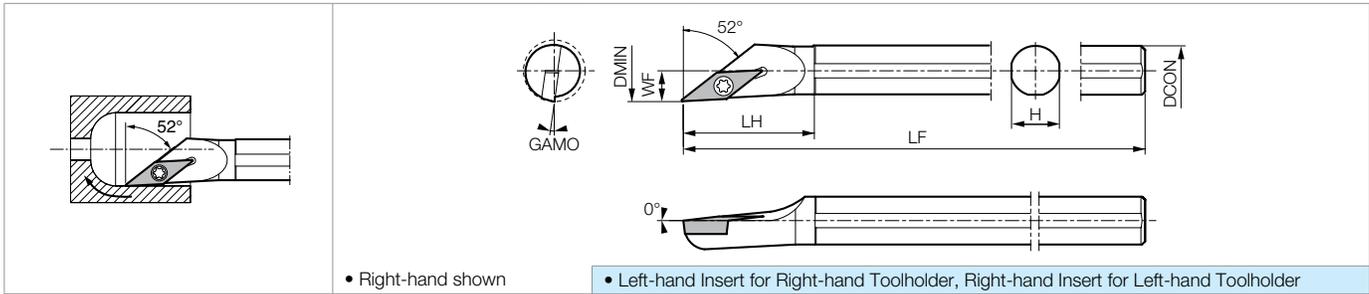
S-SVJB-E Excellent Bar (Internal Spherical Machining / Internal Facing)

(Max. Overhang Length L/D = ~5)



S-SVJB Steel Bar (Internal Spherical Machining / Internal Facing)

(Max. Overhang Length L/D = ~3)

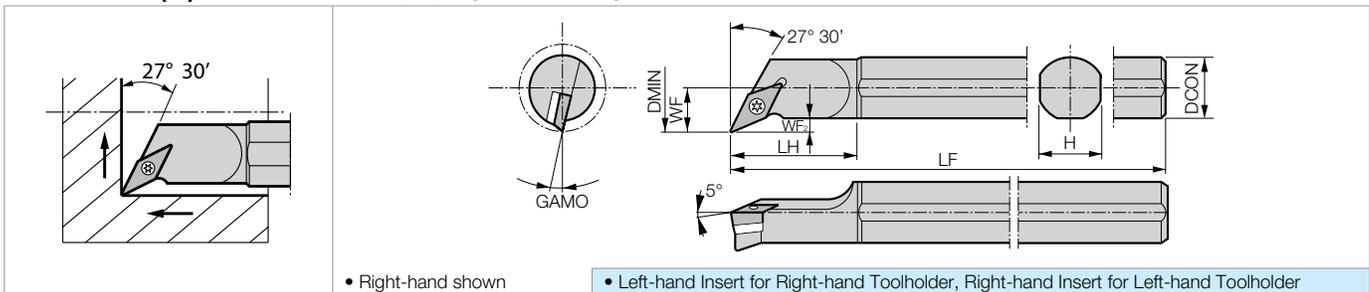


Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts				
	R	L		DMIN	DCON	H	LF	LH	WF	Clamp Screw				Wrench	Shim	Shim Screw	Wrench	
Excellent Bar	●	●		1.18	1.00	0.97	10.00	2.92	-	5°	1/64	No	SB-2570TR	FT-8	-	-	-	
				S20S-SVJB%3E	1.57	1.25	1.18	10.0	2.92	-	8°		1/32	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
Steel	●	●	inch	0.620	0.500	0.480	6.00	1.25	0.310	8°	1/64	No	SB-2570TR	FT-8	-	-	-	
				S10X-SVJB%2	0.780	0.625	0.584	7.00	1.44	0.390	8°			SB-4085TR	FT-15	-	-	-
				S12R-SVJB%3	0.984	0.750	0.710	8.00	1.86	0.492	8°		1/32					

S-SVPB(C)-E Excellent Bar (Copying / Undercutting)

(Max. Overhang Length L/D = ~5)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts					
	R	L		DMIN	DCON	H	LF	LH	WF	WF2				Clamp Screw	Wrench	Shim	Shim Screw	Wrench	
Excellent Bar	●	●	inch	0.63	0.38	0.33	6.0	0.98	0.315	0.138	8°	1/64	No	SB-2050TR	FT-6	-	-	-	
				S08M-SVPB%2E	0.79	0.50	0.46	6.00	1.10	0.315	0.163	8°	1/64	No	SB-2570TR	-	-	-	-
				S10Q-SVPB%2E	0.98	0.63	0.59	7.00	1.10	0.492	0.194	5°							
				S16X-SVPB%3E	1.34	1.00	0.97	9.00	2.26	0.807	0.335	13°	1/32	No	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
				S20S-SVPB%3E	1.57	1.25	1.18	10.0	2.17	0.866	0.256	9°							

S-SVUC(B)-E Excellent Bar (Copying)

(Max. Overhang Length L/D = ~5)

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SVZC(B)-E Excellent Bar (Back Boring)

(Max. Overhang Length L/D = ~5)

• Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts				
	R	L		DMIN	DCON	H	LF	LH	WF	WF ₂				Clamp Screw	Wrench	Shim	Shim Screw	Wrench
Excellent Bar	●		inch	0.63	0.50	0.46	6.00	1.10	0.433	0.217	8°	1/64	No	SB-2050TR	FT-6	-	-	-
	●	●		0.79	0.63	0.59	7.00	1.28	0.610	0.315	8°	1/64	No	SB-2570TR	FT-8	-	-	-
	●	●		0.98	0.75	0.71	8.00	1.59	0.689	0.355	7°	1/64	No	SB-2570TR	FT-8	-	-	-
	●	●		1.34	1.00	0.97	9.00	1.97	0.689	0.195	13°	1/32	No	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
	●			1.57	1.25	1.18	10.00	3.31	1.080	0.472	9°	1/64	No	SB-2570TR	FT-8	-	-	-
	●			0.79	0.63	0.59	7.00	1.50	0.610	0.315	8°	1/64	No	SB-2570TR	FT-8	-	-	-
	●			0.98	0.75	0.71	8.00	1.73	0.689	0.355	7°	1/64	No	SB-2570TR	FT-8	-	-	-
	●	●		1.57	1.25	1.18	10.0	2.85	1.08	0.472	9°	1/64	No	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6

Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hardened Materials
Ref. Page	● B89, B92	● B89, B92	● B89	● B89, B92	● B90	● B89	● B90, B91	● B93	● B93	● C28	● C17
Insert	VF	PP	GP	HQ	%-F	%-FSF	%-Y	AH	%-A3	PCD	CBN
Toolholder											
...-SVPC% 1.5E ...-SVUC% 1.5E ...-SVZC% 1.5E	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	-	-	VCMT1515..	VCGW1515..
...-SVJB% 2 ...-SVJB% 2E ...-SVPB% 2E ...-SVUB% 2E ...-SVZB% 2E	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
...-SVJB% 3 ...-SVJB% 3E ...-SVPB% 3E ...-SVUB% 3E ...-SVZB% 3E	VBMT33..	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33..

Recommended Cutting Conditions ● F110-F111
Applicable Sleeve ● F100~ F102

S/A-SWUB(P)-AE Excellent Bar (Boring)

(Max. Overhang Length $L/D = \sim 5.5$)

Shank Dia. DCON	Coolant Hole Dia.
Ø8mm	Ø2.5mm
Ø0.375" Ø10mm	Ø3.0mm
Ø0.500" Ø12mm	Ø4.0mm
Ø0.625" Ø16mm	Ø5.0mm
Ø0.750" Ø20mm	Ø5.0mm
Ø1.000"	Ø5.0mm

0° for A08X-SWUB%08-10AE, A10L-SWUB%08-12AE

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

S-SWUB(P)-A Steel Bar (Boring)

(Max. Overhang Length $L/D = \sim 4$)

Shank Dia. DCON	Coolant Hole Dia.
Ø5mm	-
Ø6mm	-
Ø7mm	-
Ø8mm	Ø3mm
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm

0° for S08X-SWUB%08-10A, S10L-SWUB%08-12A

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

C/E-SWUB(P)-A(N) Carbide Shank Bar (Boring)

(Max. Overhang Length $L/D = \sim 7$)

Shank Dia. DCON	Coolant Hole Dia.
Ø5mm	-
Ø6mm	-
Ø7mm	-
Ø8mm	Ø3mm
Ø10mm	Ø3mm
Ø12mm	Ø4mm
Ø16mm	Ø4mm
Ø20mm	Ø6mm

0° for E08L-SWUB%08-10A, E10N-SWUB%08-12A, E10N-SWUB%08-12A-2/3, E10N-SWUB%08-12A-1/2

• Right-hand shown • Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								GAMO	Standard Corner-R (RE)	Coolant Hole	Drawing	Spare Parts							
	R	L		DMIN	DCON	H	LF	LH	WF	WF ₂	Clamp Screw					Wrench							
																							
Excellent Bar	●	●	inch	0.240	0.375	0.336	4	0.827	0.118	-	15.0°	0.01	No	Fig.1	SB-2035TR	FT-6							
	S06H-SWUB%1.2AE	S06H-SWUB%1.5AE		0.312	0.375	0.336	4	1.102	0.157	-	15.0°												
	A06M-SWUB%1.5AE	0.472		0.375	0.336	6	0.787	0.236	-	10.0°													
	A08M-SWUB%2AE	0.630		0.500	0.461	6	0.945	0.276	-	4.0°													
	A10R-SWUB%3AE	0.770		0.625	0.586	8	1.181	0.354	-	3.5°													
	A12S-SWUB%3AE	0.930		0.750	0.711	10	1.417	0.413	-	2°													
	A16T-SWUB%3AE	1.200		1.000	0.961	12	1.811	0.531	-	0°													
	S10H-SWUB%06-06AE	●		●	mm	6	10	9	100	21	3.0						-	15.0°	0.2	No	Fig.1	SB-2035TR	FT-6
	S10H-SWUB%06-07AE	7		10		9	100	25	3.5	-	13.0°												
	S10H-SWUB%08-08AE	8		10		9	100	28	4.0	-	15.0°												
	A08X-SWUB%08-10AE	10		8		7	120	16	5.0	-	13.0°												
	A10L-SWUB%08-12AE	12		10		9	140	20	6.0	-	10.0°												
A12M-SWUB%11-14AE	14	12	11	150		24	7.0	-	4.0°														
A16Q-SWUB%11-18AE	18	16	15	180		30	9.0	-	1.0°														
A16Q-SWUB%16-18AE	18	16	15	180		30	9.0	-	3.5°														
A20R-SWUB%16-22AE	22	20	19	200		36	11.0	-	2.0°														
S10H-SWUB%06-06A	●	●	mm	6		10	9	100	21	3.0	-	15.0°	0.2	No	Fig.3	SB-2035TR	FT-6						
S10H-SWUB%06-07A	7	10		9		100	25	3.5	-	13.0°													
S10H-SWUB%08-08A	8	10		9		100	28	4.0	-	15.0°													
S08X-SWUB%08-10A	10	8		7	120	16	5.0	-	13.0°														
S10L-SWUB%08-12A	12	10		9	140	20	6.0	-	10.0°														
S12M-SWUB%11-14A	14	12		11	150	24	7.0	-	4.0°														
S16Q-SWUB%11-18A	18	16		15	180	30	9.0	-	1.0°														
S16Q-SWUB%16-18A	18	16		15	180	30	9.0	-	3.5°														
S20R-SWUB%16-22A	22	20		19	200	36	11.0	-	2.0°														
C05H-SWUB%06-06AN	●	●		mm	6	5	4.4	100	9	3.0	-	15.0°						0.2	No	Fig.5	SB-2035TR	FT-6	
C06J-SWUB%06-07AN	7	6			5.4	110	10	3.5	-	13.0°													
C07K-SWUB%08-08AN	8	7			6.4	125	11	4.0	-	15.0°													
E08L-SWUB%08-10AN	10	8	7		140	14	5.0	-	13.0°														
E10N-SWUB%08-12AN	12	10	9		160	18	6.0	-	10.0°														
E10N-SWUB%08-12AN-2/3	12	10	9		105	18	6.0	-	10.0°														
E10N-SWUB%08-12AN-1/2	12	10	9		80	18	6.0	-	10.0°														
E12Q-SWUB%11-14A	14	12	11		180	23	7.0	-	4.0°														
E12Q-SWUB%11-14A-2/3	14	12	11		120	23	7.0	-	4.0°														
E12Q-SWUB%11-14A-1/2	14	12	11		90	23	7.0	-	4.0°														
E16X-SWUB%11-18A	18	16	15		220	28	9.0	-	1.0°														
E16X-SWUB%11-18A-2/3	18	16	15		145	28	9.0	-	1.0°														
E16X-SWUB%11-18A-1/2	18	16	15	110	28	9.0	-	1.0°															
E16X-SWUB%16-18A	18	16	15	220	28	9.0	-	3.5°															
E16X-SWUB%16-18A-2/3	18	16	15	145	28	9.0	-	3.5°															
E16X-SWUB%16-18A-1/2	18	16	15	110	28	9.0	-	3.5°															
E20S-SWUB%16-22A	22	20	19	250	32	11.0	-	2.0°															
E20S-SWUB%16-22A-2/3	22	20	19	165	32	11.0	-	2.0°															
E20S-SWUB%16-22A-1/2	22	20	19	125	32	11.0	-	2.0°															

● Applicable Inserts

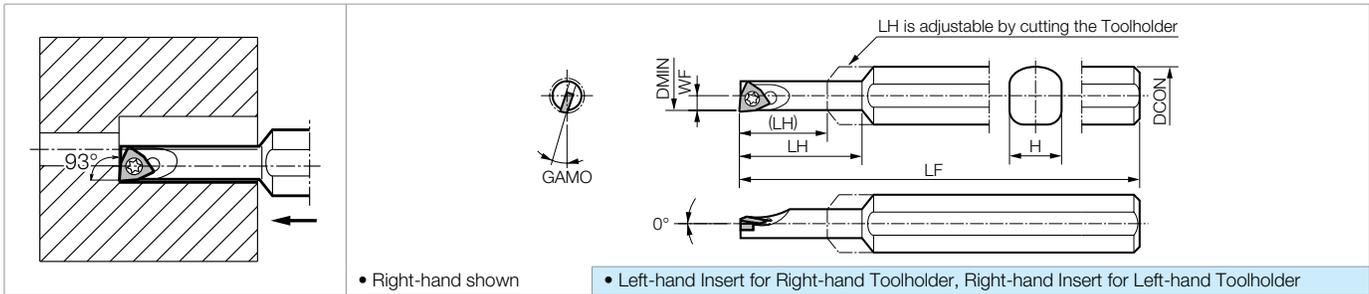
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	● B97	● B97	● B99	● B97	● B99	● B97, B98	● B98	● B98, B99	● C29	● C18
Insert	CF 	%-PF 	GP 	%-DP 	HQ 	%-F 	%-P 	Without Chipbreaker 	PCD 	CBN 
Toolholder	WBGT121..	WBGT121..	-	WBMT121..	-	WB□121..	-	WBGW121..	WBMT121..	WBGW121..
...	...	WBGT1515..	-	WBMT1515..	-	WB□1515..	WBET1515..	WBGW1515..	WBMT1515..	WBGW1515..
...	-	-	WPMT215..	-	WPMT215..	-	-	WPGW215..	WPMT215..	-
...	-	-	WPMT32..	-	WPMT32..	-	-	WPGW32..	-	-

Recommended Cutting Conditions ● F110-F111

Applicable Sleeve ● F101-F104

S-SWUB Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH				WF	Clamp Screw	Wrench
	Steel					inch									
S06H-SWUB 1.2	●	●		0.240	0.375	0.356	4.00	0.825	0.115	15°	0.004	No	SB-2040TR	FT-6	
S06X-SWUB 1.5	●	●		0.312	0.375	0.356	4.33	1.102	0.156	15°	1/64	No	SB-2050TR	FT-6	

Applicable Inserts

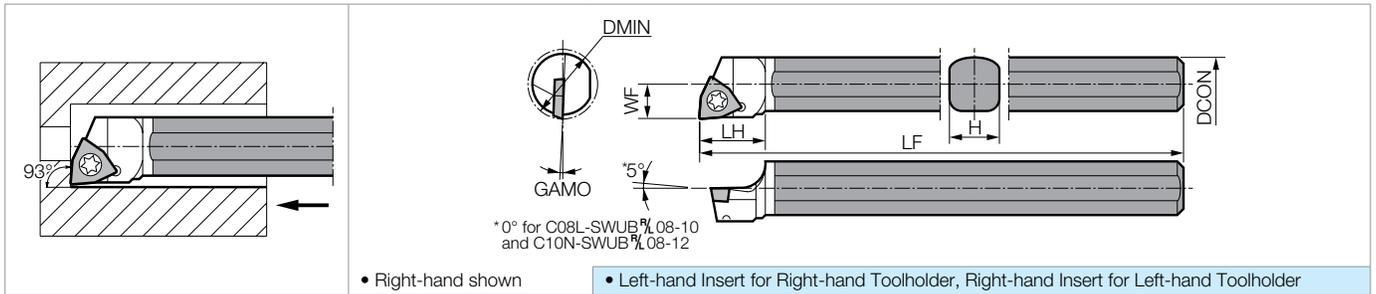
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	▶ B97	▶ B97	▶ B97	▶ B97, B98	▶ B98	▶ B98, B99	▶ C29	▶ C18
Insert	CF	1/4-PF	1/4-DP	1/4-F	1/4-P	Without Chipbreaker	PCD	CBN
Toolholder								
...-SWUB 1.2	WBGT121..	WBGT121..	WBMT121..	WBCT121..	-	WBGW121..	WBMT121..	WBGW121..
...-SWUB 1.5	-	WBGT1515..	WBMT1515..	WBCT1515..	WBET1515..	WBGW1515..	WBMT1515..	WBGW1515..

Recommended Cutting Conditions ▶ **F110-F111**

Applicable Sleeve ▶ **F101-F104**

C-SWUB Carbide Shank Bar (Boring)

(Max. Overhang Length $L/D = \sim 7$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					GAMO	Standard Corner-R (RE)	Coolant Hole	Spare Parts		
	R	L			DMIN	DCON	H	LF	LH				WF	Clamp Screw	Wrench
	Carbide					inch									
C0325K-SWUB%1.2	●	●		0.240	0.203	0.180	5.00	0.50	0.118	15°	1/64	No	SB-2040TR	FT-6	
C045K-SWUB%1.5	●	●		0.312	0.281	0.252	5.00	0.55	0.157	15°	1/64	No	SB-2050TR	FT-6	

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	➔ B97	➔ B97	➔ B97	➔ B97, B98	➔ B98	➔ B98, B99	➔ C29	➔ C18
Insert	CF	%-PF	%-DP	%-F	%-P	Without Chipbreaker	PCD	CBN
Toolholder								
...-SWUB%1.2	WBGT121..	WBGT121..	WBMT121..	WB□121..	-	WBGW121..	WBMT121..	WBGW121..
...-SWUB%1.5	-	WBGW1515..	WBMT1515..	WB□1515..	WBET1515..	WBGW1515..	WBMT1515..	WBGW1515..

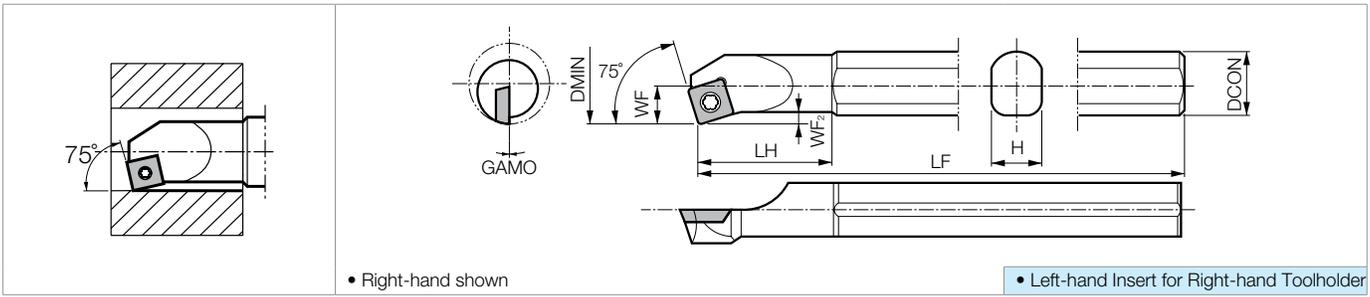
Recommended Cutting Conditions ➔ **F110-F111**

Applicable Sleeve ➔ **F101-F104**

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING** **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

S-SSKP (Boring)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

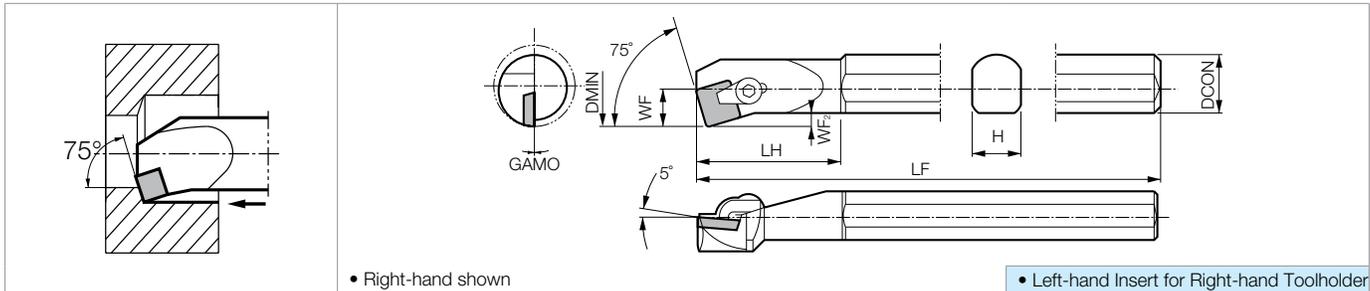
Part Number	Stock	Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts	
				DMIN	DCON	H	LF	LH	WF			WF ₂	Clamp Screw	Wrench
S16Q-SSKPR09-20	●	mm	20	16	14	180	30	10.0	2.0	-3°	0.8	SB-4TR	FT-15

Applicable Inserts

Application	Finishing
Ref. Page	● B75
Insert	
Toolholder	SPGH32..

S-CSKP (Boring)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

Part Number	Stock	Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts					
				DMIN	DCON	H	LF	LH	WF			WF ₂	Clamp Set	Wrench			
S16N-CSKPR09-20	●	mm	20	16	14	160	40	10.0	2.0	0°	0.8						
S20Q-CSKPR09-27	●		27	20	18	180	45	13.5	3.5	0°					CPS-2	FH-2.5	-
S25X-CSKPR12-34	●		34	25	23	220	60	17.0	4.5	0°					CPS-3	-	LW-3

Applicable Inserts

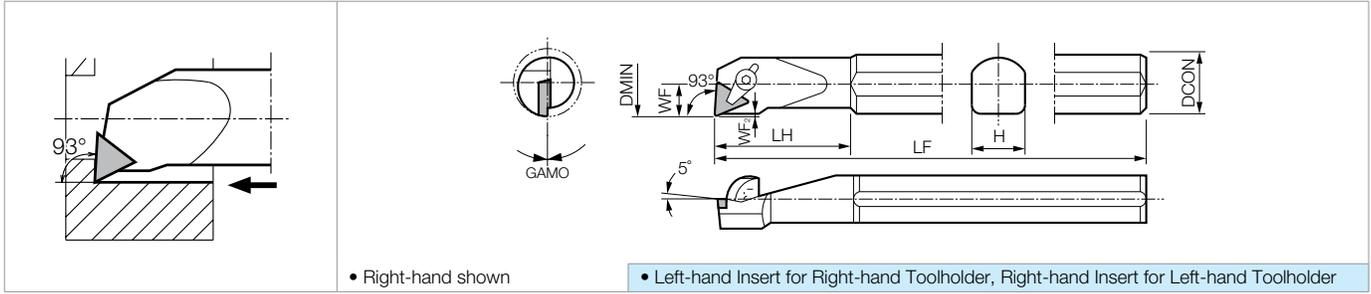
Application	Medium	Medium	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals
Ref. Page	● B75	● B75	● B75	● B75	● B113	● C29
Insert	G	Standard	%	Without Chipbreaker	Ceramic	PCD
Toolholder						
...-CSKPR09...	SPMR32..	SPMR32..	SPGR32..	SPM32.. SPG32..	SPG32..	-
...-CSKPR12...	SPMR42..	SPMR42..	SPGR42..	SPM42.. SPG42..	SPG42..	SPG42..

Recommended Cutting Conditions ● F110-F111

Applicable Sleeves ● F103-F104

S-CTUP Steel Bar (Boring)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts							
	R	L			DMIN	DCON	H	LF	LH	WF			WF ₂	Clamp Set		Wrench		Shim	Shim Screw	
S10X-CTUP%2	●	□	inch	0.625	0.625	0.584	7.00	1.25	0.313	0.03	0°	1/64	-	CPS-2S	FT-15	-	-	-	-	
S12X-CTUP%2	●	□		1.060	0.750	0.710	7.00	1.50	0.520	0.05	0°	1/64	-	CPS-2	-	LW-2.5	-	-	-	
S16R-CTUP%3	●	□		1.350	1.000	0.910	8.00	2.10	0.669	0.04	0°	1/32	-	CPS-3	-	LW-3	-	-	-	
S12L-CTUP%09-16	●		mm	16	12	11	140	32	8.0	0.5	0°	0.4	CPS-1	-	FH-2	-	-	-	-	
S16N-CTUP%11-20	●	●		20	16	14	160	30	10.0	0.5	0°	0.4	-	CPS-2	FH-2.5	-	-	-	-	
S20Q-CTUP%11-27	●	●		27	20	18	180	40	13.5	1.3	0°									
S25X-CTUP%16-34	●	●		34	25	23	220	60	17.0	1.0	0°	0.8	-	CPS-3	-	LW-3	-	-	-	
S32S-CTUP%16-43	●	●		43	32	30	250	70	21.5	1.0	0°	0.8	-	CPS-3	-	LW-3	KPT-32	SP3X10		
S40X-CTUP%16-50	●	●		50	40	37	315	80	25.0	1.0	0°									

Applicable Inserts

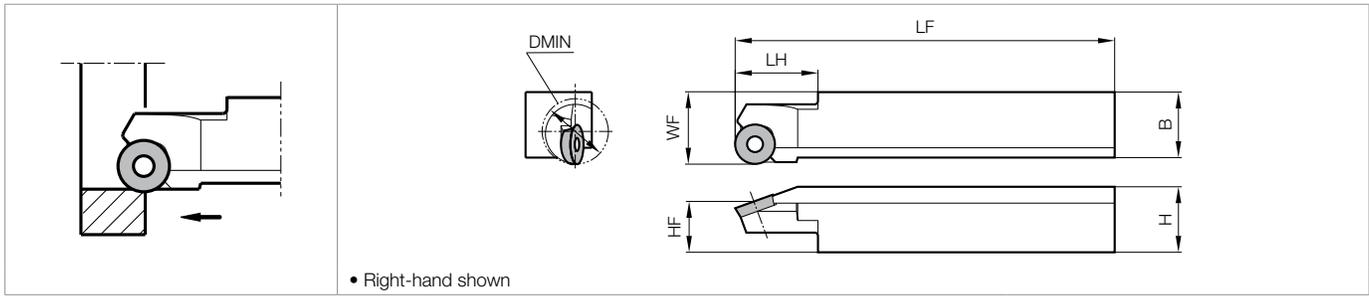
Application	Finishing	Finishing-Medium	Medium	Medium	Finishing	Finishing-Medium	Cast Iron	Cast Iron	Non-ferrous Metals	Hardened Materials
Ref. Page	● B87	● B87	● B87	● B87	● B87	● B88	● B88	● B113	● C29	● C18
Insert	GP	HQ	G	Standard	%-F	%-□	Without Chipbreaker	Ceramic	PCD	CBN
Toolholder										
...-CTUPR09-...	-	-	TPMR1815..	-	TPGR1815..	-	TPG1815..	-	-	-
...-CTUP%2 ...-CTUP%11-...	TPMR22..	TPMR22..	TPMR22..	TPMR22..	-	TPGR22..	TPM22.. TPG22..	TPG22..	TPG22..	TPG22..
...-CTUP%3 ...-CTUP%16-...	TPMR32..	TPMR32..	TPMR32..	TPMR32..	-	TPGR32..	TPM32.. TPG32..	TPG32..	TPG32..	TPG32..

Recommended Cutting Conditions ● F110-F111

Applicable Sleeves ● F102-F104

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

SRCP-B (Boring)



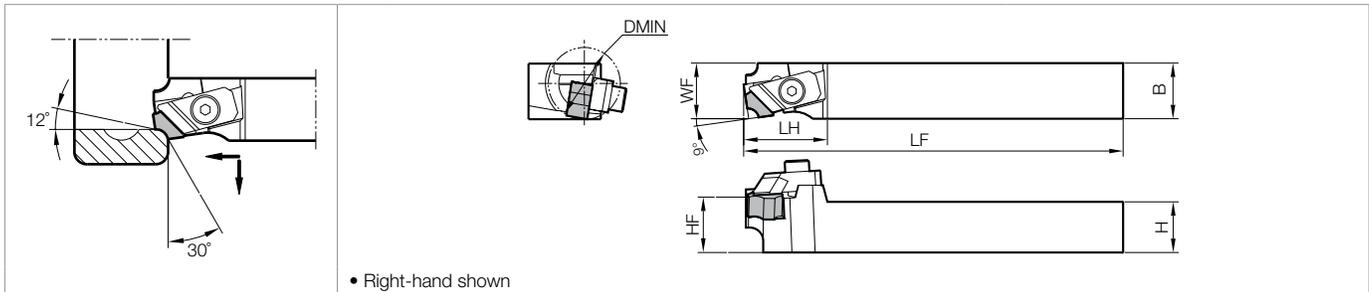
Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)						Spare Parts			Applicable Inserts ● B103
	R	L		DMIN	H	HF	B	LF	LH	WF	Clamp Screw	Wrench	
SRCP% 2020B-12-A20	●	●	20	20	15.5	20	125	25	22	SB-4TR	FT-15	-	RPMT1203M0-BB
2525B-16-A32	●	△	32	25	20.0	25	150	31	27	SB-5090TR	-	LTW-20	RPMT1604M0-BB

Applicable Inserts

Insert	Part Number	Dimensions (mm)		
		IC	S	D1
	RPMT 1203M0-BB	12.0	3.18	4.4
	1604M0-BB	16.0	4.76	5.5

CBSN-B (Internal Corner Filleting)



Toolholder Dimensions

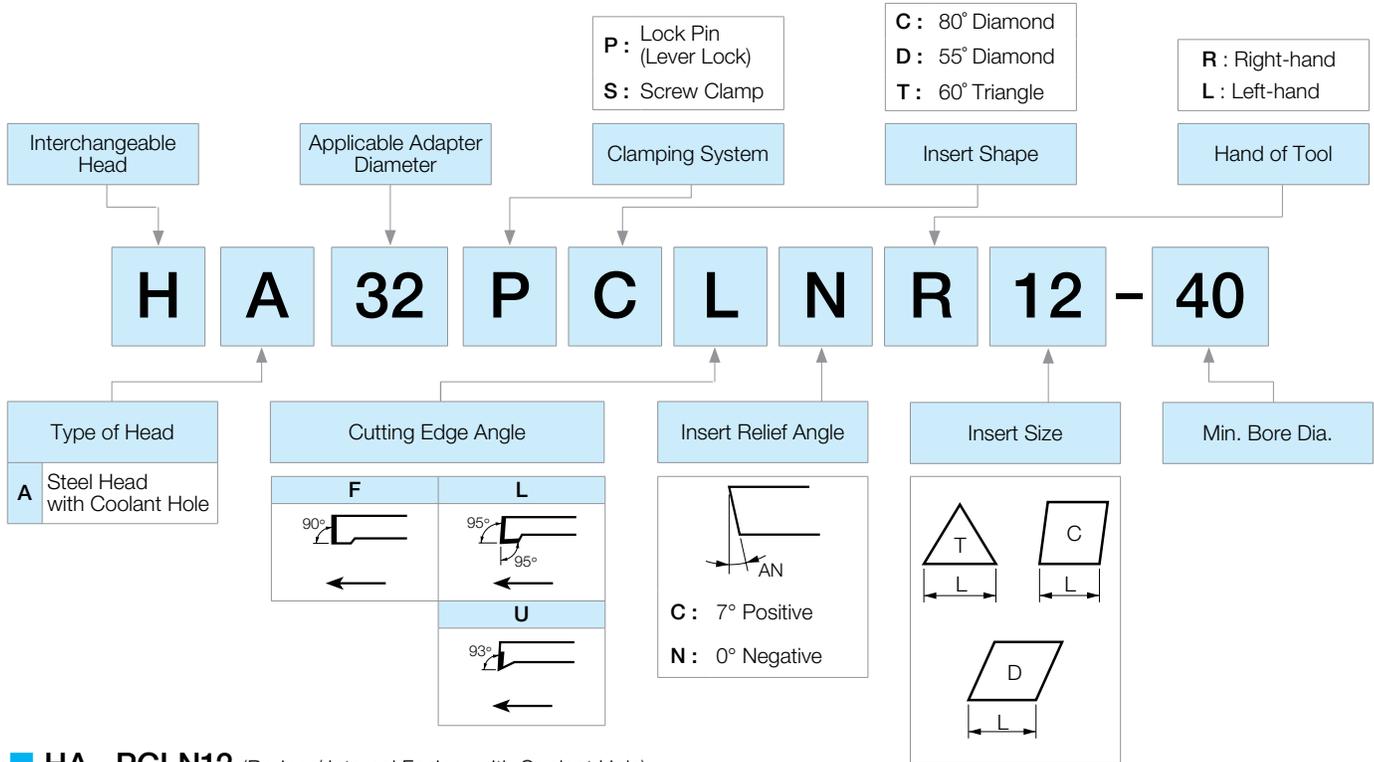
Part Number	Stock		Min. Bore Dia.	Dimensions (mm)						Spare Parts		Applicable Inserts ● B103
	R	L		DMIN	H	HF	B	LF	LH	WF	Clamp Set		Wrench
CBSN% 2020B-12-A20	●	△	20	20	21	20	125	32	20	CP-RC%	LW-5	SNMF120400-21
2525B-12-A20	●	△	20	25	26	25	150	32	25			

• Clamp Set: CP-RCR for Right-hand Toolholder, and CP-RCL for Left-hand Toolholder.

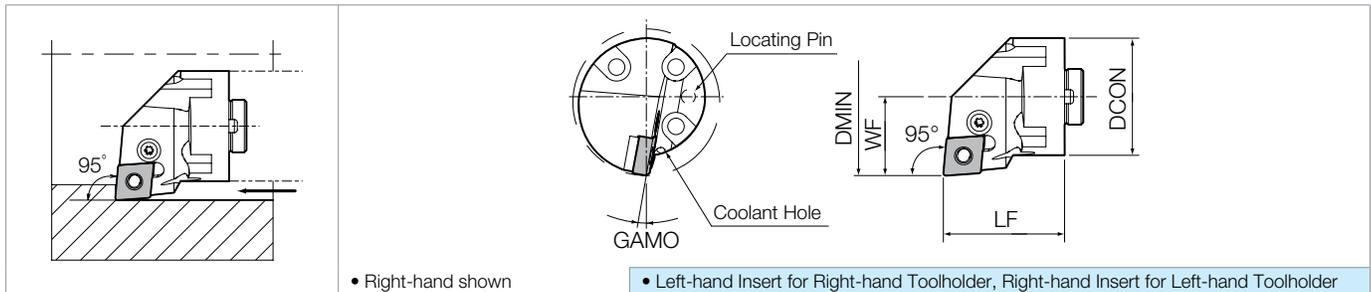
Applicable Inserts

Insert	Part Number	Dimensions (mm)			
		INSL	S	CDX	RE
	SNMF 120406-21	12.70	4.76	1.5	0.6
	120410-21			3.0	1.0
	120416-21			3.1	1.6
	120421-21			3.2	2.1
	120426-21			3.3	2.6

Identification System for Interchangeable Heads



HA...PCLN12 (Boring / Internal Facing, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)				GAMO	Standard Corner-F(R/E)	Spare Parts						Applicable Boring Adapter F84
	R	L		DMIN	DCON	LF	WF			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PCLN% 12-40	●	●	40	32	41	22	10'	0.8	LL-2K	LS-2P	LC-4K	LSP-3K	*PC-2K	DTPM-15	AD32U	
HA40PCLN% 12-50	●	●	50	40	41	27	10'								AD40V	
HA50PCLN% 12-63	●	●	63	50	41	35	10'								AD50W	

* Punch (*PC-2K): Not included. Purchase separately.

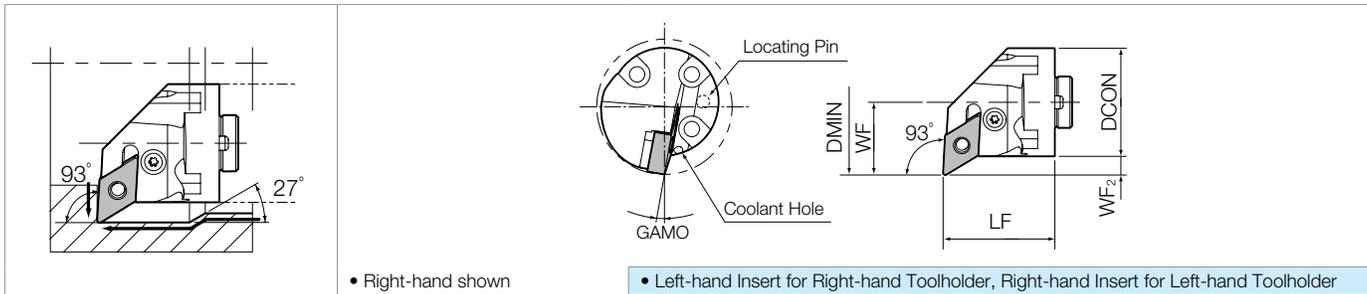
Applicable Inserts

Toolholder Part Number	Insert Part Number		Ref. to Page			
			Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PCLN% 12-40	CN□A	43..	B16~B22	B106	C23	C6, C7
HA40PCLN% 12-50	CN□G					
HA50PCLN% 12-63	CN□M					

Recommended Cutting Conditions F110-F111

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
BORING F
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

HA...PDUN15 (Copying, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)				GAMO	Standard Corner-R (RE)	Spare Parts						Applicable Boring Adapter • F84	
	R	L	DMIN	DCON	LF	WF			WF ₂	Lever	Lock Screw	Shim	Shim Pin	*Punch		Wrench
HA32PDUN% 15-43	●	●	43	32	41	25	9	12°	0.8							AD32U
HA40PDUN% 15-50	●	●	50	40	41	27	7	10°								AD40V
HA50PDUN% 15-63	●	●	63	50	41	35	10	10°								AD50W

* Punch (*PC-2K): Not included. Purchase separately.

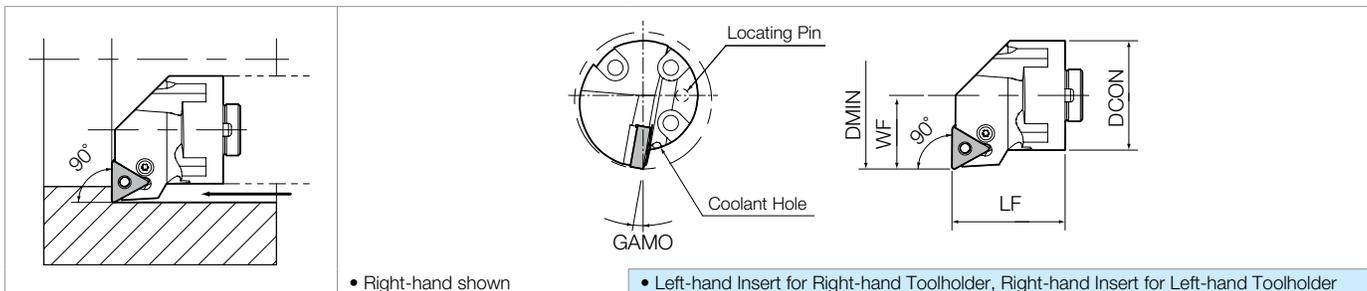
* Shim: LD-4K43 is attached to Toolholder. When using DN□□1506 Insert, purchase LD-4K separately.

Applicable Inserts

Toolholder Part Number	Insert Part Number				Ref. to Page			
	Shim: LD-4K43		Shim: LD-4K		Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN
HA32PDUN% 15-43	DN□A DN□G DN□M	43..	DN□A DN□G DN□M	44..	• B23-B30	• B107	• C23	• C8, C9
HA40PDUN% 15-50								
HA50PDUN% 15-63								

Recommended Cutting Conditions • **F110-F111**

HA...PTFN16 (Internal, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)				GAMO	Standard Corner-R (RE)	Spare Parts						Applicable Boring Adapter • F84
	R	L	DMIN	DCON	LF	WF			Lever	Lock Screw	Shim	Shim Pin	*Punch	Wrench	
HA32PTFN% 16-40	●	●	40	32	41	22	10°	0.8							AD32U
HA40PTFN% 16-50	●	●	50	40	41	27	10°								AD40V
HA50PTFN% 16-63	●	●	63	50	41	35	8°								AD50W

* Punch (*PC-2K): Not included. Purchase separately.

Applicable Inserts

Toolholder Part Number	Insert Part Number	Ref. to Page				
		Cermet / Coated Carbide / Carbide	Ceramic	PCD	CBN	
HA32PTFN% 16-40	TN□A TN□G TN□M	33..	• B36-B43	• B111	• C23	• C11
HA40PTFN% 16-50						
HA50PTFN% 16-63						

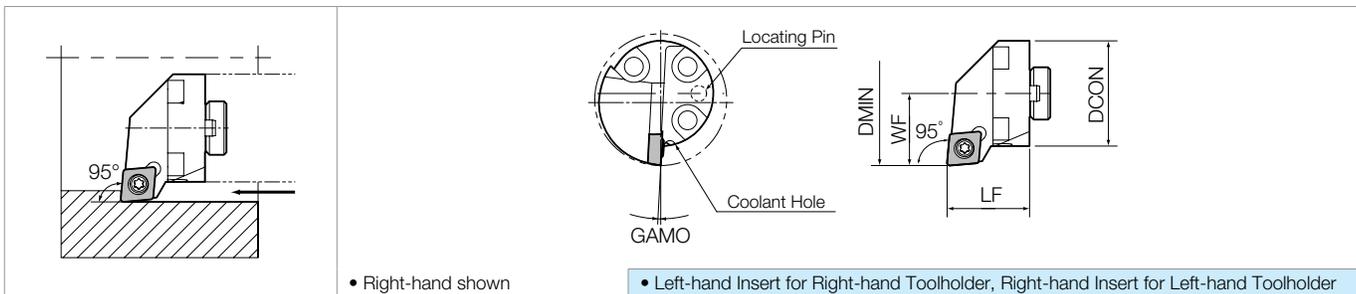
Reference

Wrenches (LTP-10, LTP-15) are Torx Plus.
The size of Torx Plus is engraved on the long shaft.

Wrench Part Number	LTP-10	LTP-15
Engraved Size	10IP	15IP

Recommended Cutting Conditions
• **F110-F111**

HA...SCLC09 (Boring / Internal Facing, with Coolant Hole)



Toolholder Dimensions

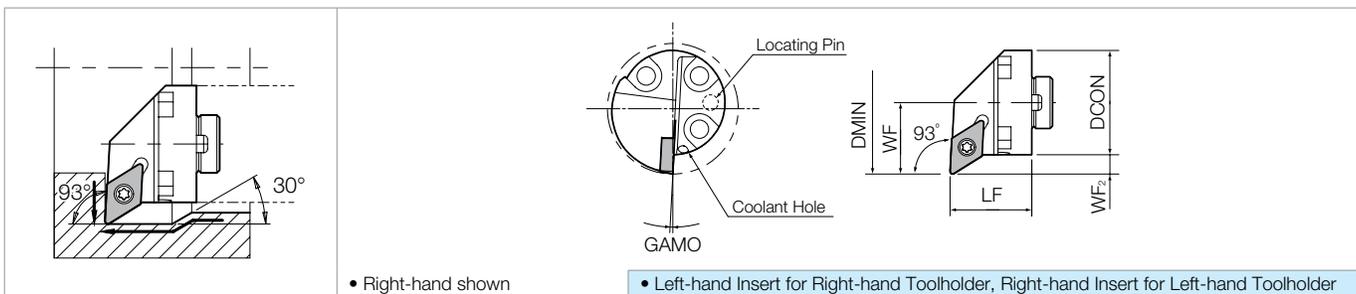
Part Number	Stock		Min. Bore Dia.	Dimensions (mm)				GAMO	Standard Corner-R (RE)	Spare Parts		Applicable Boring Adapter • F84	Applicable Inserts
	R	L		DMIN	DCON	LF	WF			Clamp Screw	Wrench		
HA32SCLC% 09-40	●	●	40	32	25	22	3"	0.8			AD32U	CC..325..	

Applicable Inserts

Insert Part Number	Ref. to Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
CC..325..	• B53-B55, B57-B60	• C24	• C14

Recommended Cutting Conditions • **F110-F111**

HA...SDUC11 (Copying, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Spare Parts		Applicable Boring Adapter • F84	Applicable Inserts
	R	L		DMIN	DCON	LF	WF	WF ₂			Clamp Screw	Wrench		
HA32SDUC% 11-40	●	●	40	32	25	22	6	3"	0.8			AD32U	DC..325..	

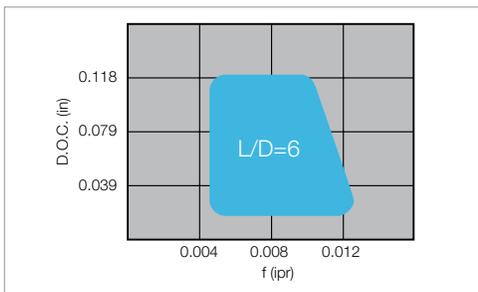
Applicable Inserts

Insert Part Number	Ref. to Page		
	Cermet / Coated Carbide / Carbide	PCD	CBN
DC..325..	• B62-B71	• C25	• C15

Recommended Cutting Conditions • **F110-F111**

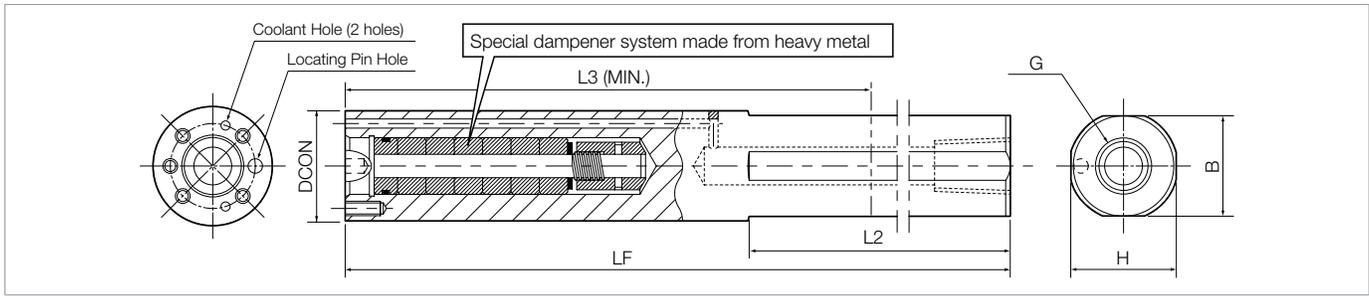
Possible Machining Area (Guide-Line for Overhang Length of AD Bars)

(1410 Vc = 500sfm D.O.C. = 0.020-0.118" f = 0.004 -0.012ipr TNMG332)



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Boring Adapter (with Coolant Hole / Anti-Vibration Dampener System)



Toolholder Dimensions

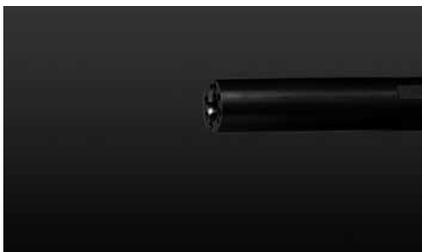
Part Number	Stock	Dimensions (mm)							Spare Parts		
		DCON	H	B	LF	L2	L3 (MIN)	G	Clamp Bolt	Wrench (Sold Separately)	
AD 32U	●	32	31	29	310	200	200	Rp3/8	HH5X20 (3 pcs)	HH5X30 (1 pcs)	LW-4
AD 40V	●	40	39	37	360	248	228	Rp3/8			
AD 50W	●	50	47	47	410	280	276	Rp3/8	HH6X20 (3 pcs)	HH6X30 (1 pcs)	LW-5

Note) L3 (MIN.) dimension indicates the minimum length in case of the back end of boring adapter is cut for use. Do not shorten it to less than L3 (MIN.).

Combinations of Boring Adapter and Interchangeable Head

Interchangeable Head Part Number	Boring Adapter		
	Base Part Number	Clamp Bolt	Wrench
HA32 PCLN $\frac{1}{2}$ 12-40	AD32U	HH5X20	HH5X30
PDUN $\frac{1}{2}$ 15-43			
PTFN $\frac{1}{2}$ 16-40		HH5X20	
SCLC $\frac{1}{2}$ 09-40		LW-4	
SDUC $\frac{1}{2}$ 11-40		LW-4	
HA40 PCLN $\frac{1}{2}$ 12-50	AD40V	HH5X20	HH5X30
PDUN $\frac{1}{2}$ 15-50			
PTFN $\frac{1}{2}$ 16-50			
HA50 PCLN $\frac{1}{2}$ 12-63	AD50W	HH6X20	HH6X30
PDUN $\frac{1}{2}$ 15-63			
PTFN $\frac{1}{2}$ 16-63			

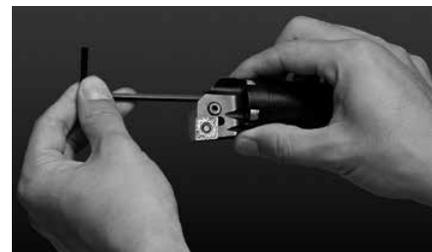
How to Exchange Heads



1. Remove the boring head.



2. Align the boring head with the installing position.



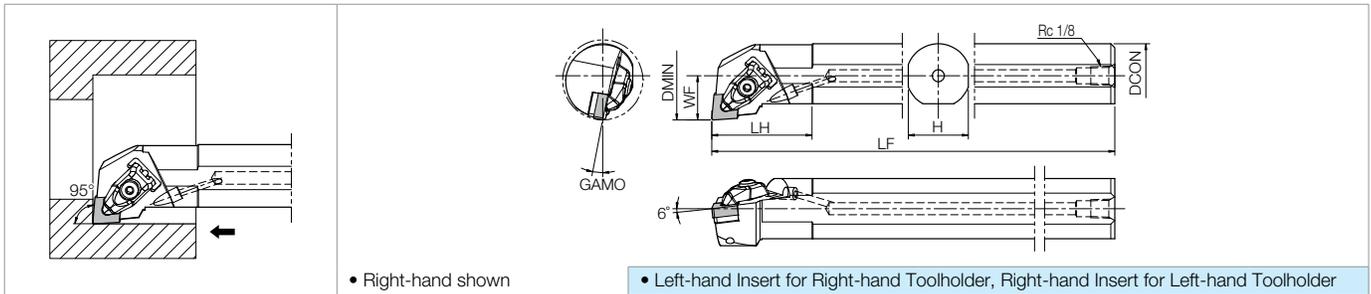
3. Tighten three screws to clamp the boring head.

For lever lock type Interchangeable head, use 2 short bolts for upper clamping hole and 1 long bolt for lower clamping hole.

HA32 SCLC $\frac{1}{2}$ 09-40 and
HA32 SDUC $\frac{1}{2}$ 11-40
use HH5 X 20 for all 3 bolts.

A-DCLN (Boring / Internal Facing)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					GAMO	Standard Corner-R (RE)	Spare Parts							
	R	L			DMIN	DCON	H	LF	LH			WF	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (Sold Separately)
A16T-DCLNR4	●		inch	1.25	1.00	0.905	12.0	1.575	0.640	12°	1/32								
A20T-DCLNR4	●			1.50	1.25	1.181	12.0	1.614	0.765	11°		CP-3D	CS-3D	SP-3D	DC-42	SB-4085TR	DN10	LW-3	FT-15
A24T-DCLNR4	●			1.75	1.50	1.374	12.0	2.362	0.905	13°									
A25R-DCLN% 12-32	●	●	mm	32	25	23	200	42	17	11°	0.8								
A32S-DCLN% 12-40	●	●		40	32	30	250	50	22	11°		CP-3D	CS-3D	SP-3D	DC-42	SB-4085TR	DN10	LW-3	FT-15
A40T-DCLN% 12-50	●	●		50	40	37	300	60	27	11°		CP-3D	CS-3D	SP-3D	DC-42	SB-4085TR	DN20	LW-3	FT-15

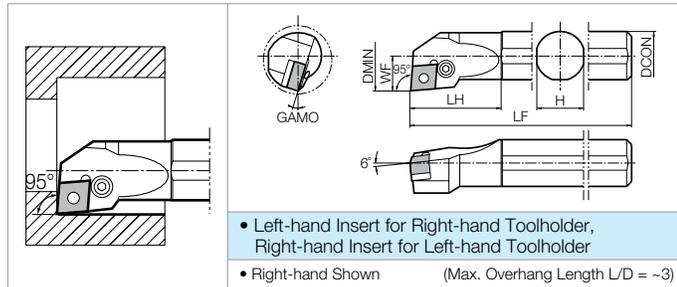
*When using inserts whose corner-R (RE) is greater than 1.60mm, it will be necessary additional modifications of the shim in order to prevent workpiece and shim from interfering each other.
 *Not applicable to high-pressure coolant.

Applicable Inserts

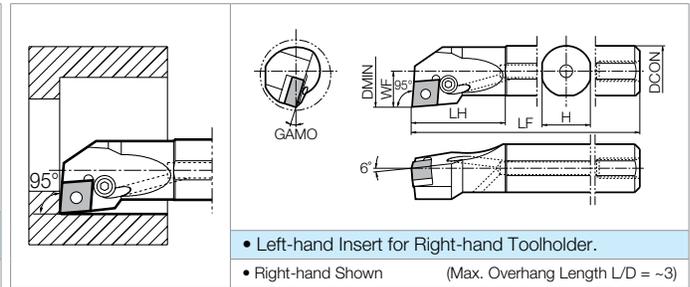
Application	Finishing	Finishing-Medium	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing
Ref. Page	● B16	● B16	● B16	● B16	● B16	● B16	● B17	● B17	● B17	● B17	● B17
Insert	WF (Wiper)	WE (Wiper)	PP	GP	PQ	HQ	CQ	CJ	GS	PG	
Toolholder											
...
Application	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed	Medium	Low Carbon Steel / Small D.O.C.	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel / Roughing	Low Carbon Steel / Roughing
Ref. Page	● B17	● B18	● B18	● B18	● B19	● B22	● B19	● B19	● B19	● B19	● B19
Insert	PS	PT	Standard	PH	PX	%	XF	XP	XQ	XS	
Toolholder											
...
Application	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Ref. Page	● B20	● B20	● B20	● B21	● B21	● B21	● B21	● B21	● B21	● B21	● B21
Insert	MQ	MS	MU	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	
Toolholder											
...
Application	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloys	Hard Materials				
Ref. Page	● B106	● B22	● B22	● C23	● B20	● B20	● C6, C7				
Insert	Ceramic	%-A3	AH	PCD	SQ	SG	CBN				
Toolholder											
...

Recommended Cutting Conditions ● F110-F111

S-PCLN \circ (Boring / Internal Facing)



A-PCLN Twin-Hole Bar (Boring / Internal Facing, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions					GAMO	Standard Corner-R (RE)	Spare Parts						
	R	L		Unit	DMIN	DCON	H	LF			LH	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PCLN% 09-20	●	●	mm	20	16	15	150	34	11.0	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PCLN% 09-27	●	●		27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
S25R-PCLN% 09-32	●	●		32	25	24	200	42	15.7	15°		LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
S20S-PCLN% 4	●		inch	1.55	1.25	1.17	10.00	2.00	0.75	10°	1/32	LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
S24T-PCLN% 4	●			2.02	1.50	1.42	12.00	2.50	1.00			LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
S25R-PCLN% 12-32	●	●	mm	32	25	24	200	42	16.3	16°	0.8	LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
S32S-PCLN% 12-40	●	●		40	32	30	250	50	21.0	10°		LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
S40T-PCLN% 12-50	●	●		50	40	37	300	60	25.0	10°		LL-2N	LS-2N	LC-42N%	LSP-2	PC-2	LW-3
A10M-PCLN% 3	●	●	inch	0.79	0.63	0.59	6.00	1.34	-	16°	1/32	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A12Q-PCLN% 3	●	●		1.06	0.75	0.71	7.00	1.46	-	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A16Q-PCLN% 3	●	●		1.26	1.00	0.97	7.00	1.65	-	15°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A16M-PCLN% 09-20	●		mm	20	16	15	150	34	11.0	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PCLN% 09-27	●			27	20	19	180	37	14.2	17°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5
A25R-PCLN% 09-32	●			32	25	24	200	42	15.7	15°		LL-1N	LS-1SN	LC-32N	LSP-1	PC-1	FH-2.5

LC-42NR for Right-hand Toolholder, LC-42NL for Left-hand Toolholder.

Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing
Ref. Page	● B16	● B16	● B16	● B16	● B16	● B16	● B16	● B17	● B17	● B17	● B17
Insert	WF (Wiper)	WE (Wiper)	PP	GP	PQ	HQ	CQ	CJ	GS	PG	
Toolholder											
...	...	...	...	CNMG33..	...	CNMG33..	...	...	CNMG33..	...	...
...	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..
Application	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed	Finishing	Medium	Low Carbon Steel / Small D.O.C.	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	
Ref. Page	● B17	● B18	● B18	● B18	● B19	● B22	● B22	● B19	● B19	● B19	
Insert	PS	PT	PH	Standard	PX	%-S	%	XF	XP	XQ	
Toolholder											
...	...	...	...	...	...	CNGG33..	CNGG33..	...	...	...	...
...	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMM43..	...	CNGG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..
Application	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	
Ref. Page	● B19	● B20	● B20	● B20	● B21	● B21	● B21	● B21	● B21	● B21	
Insert	XS	MQ	MS	MU	KQ	KG	KH	C	ZS	GC	
Toolholder											
...
...	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..	CNMG43..
Application	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Hard Materials				
Ref. Page	● B21	● B106	● B22	● B22	● C23	● B20	● C6, C7				
Insert	Without Chipbreaker	Ceramic	%-A3	AH	PCD	SQ	CBN				
Toolholder											
...				
...	CNMA43..	CNMA43..	CNGG43..	CNMG43..	CNMM43..	CNMG43..	CNGA43..				

Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PCLN% 09-20	SHC1640-70, SHC1650-95	
A20Q-PCLN% 09-27	SHC2040-70, SHC2050-95	SJS-8
A25R-PCLN% 09-32	SHC2540-70, SHC2550-95	

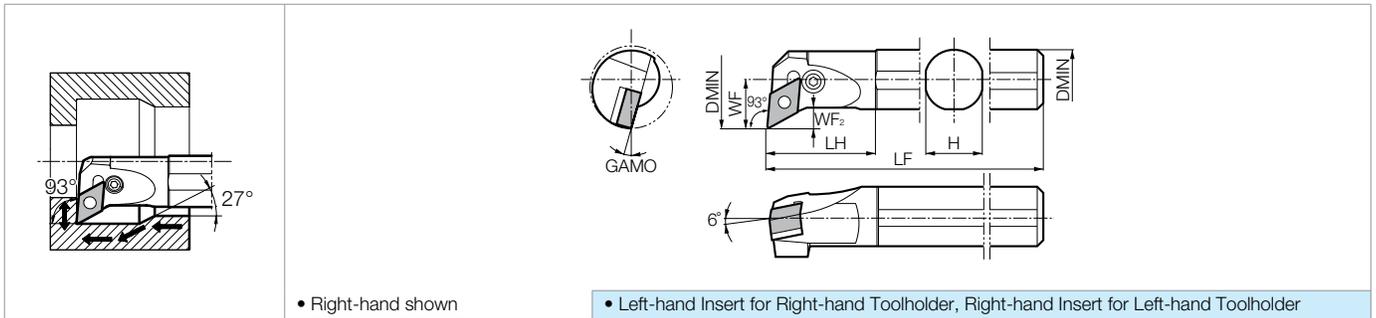
Recommended Cutting Conditions ● F110-F111

For Coolant Sleeve, Coolant Joint, ref. to page ● F103-F104

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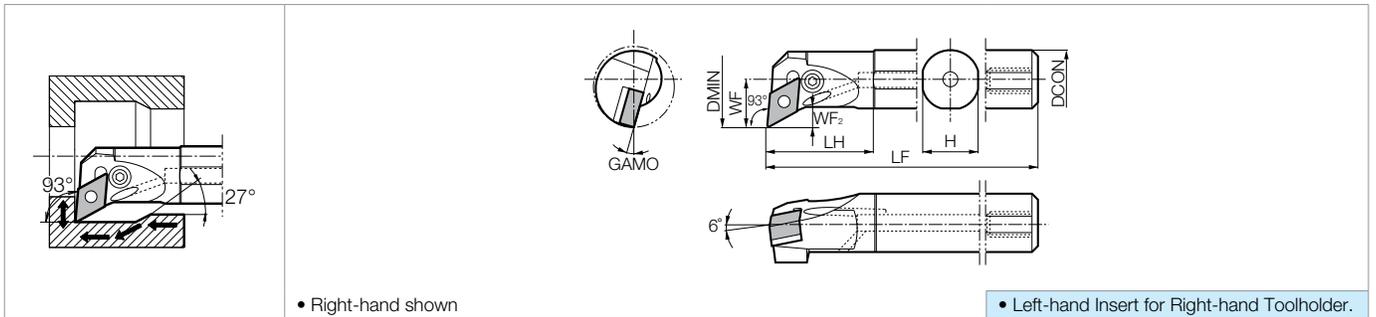
S-PDUN3/11 (Copying)

(Max. Overhang Length L/D = ~3)



A-PDUN3/11 Twin-Hole Bar (Copying, with Coolant Hole)

(Max. Overhang Length L/D = ~3)



※ When using R-hand Toolholder, Use R-hand insert for machining in this direction (→)
Use L-hand insert for machining in this direction (←)

Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts						
	R	L			DMIN	DCON	H	LF	LH	WF			WF ₂	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
A12Q-PDUN%3	●	●	inch	1.06	0.75	0.71	7.00	1.37	-	-	17°	1/32							
A16R-PDUN%3	●	●		1.26	1.00	0.97	8.00	1.37	-	-	15°		LL-1D	LS-1S	LD-32	LSP-1	PC-1	FH-2.5	
A20S-PDUN%3	●	●		1.57	1.25	1.18	10.00	1.37	-	-	12°								
S20Q-PDUN%11-27	●	●	mm	27	20	19	180	35	16	7.6	17°	0.4							
S25R-PDUN%11-32	●	●		32	25	24	200	40	17	7.6	15°		LL-1DN	LS-1SN	LD-32N	LSP-1	PC-1	FH-2.5	
S32S-PDUN%11-40	●	●		40	32	31	250	45	22	8.5	12°								
A20Q-PDUN%11-27	●	●		27	20	19	180	35	16	7.6	17°								
A25R-PDUN%11-32	●	●		32	25	24	200	40	17	7.6	15°	0.4	LL-1DN	LS-1SN	LD-32N	LSP-1	PC-1	FH-2.5	
A32S-PDUN%11-40	●	●		40	32	31	250	45	22	8.5	12°								

Applicable Inserts

Application	Finishing	Finishing-Medium	Medium-Roughing	Finishing	Medium
Ref. Page	● B23	● B24	● B24	● B30	● B30
Insert	GP	HQ	GS	%-S	%
Toolholder					
...-PDUN%3 ...-PDUN%11-...	DNMG33..	DNMG33..	DNMG33..	DNGG33..	DNGG33..

Recommended Cutting Conditions ● F110-F111

Applicable Coolant Sleeve / Joint

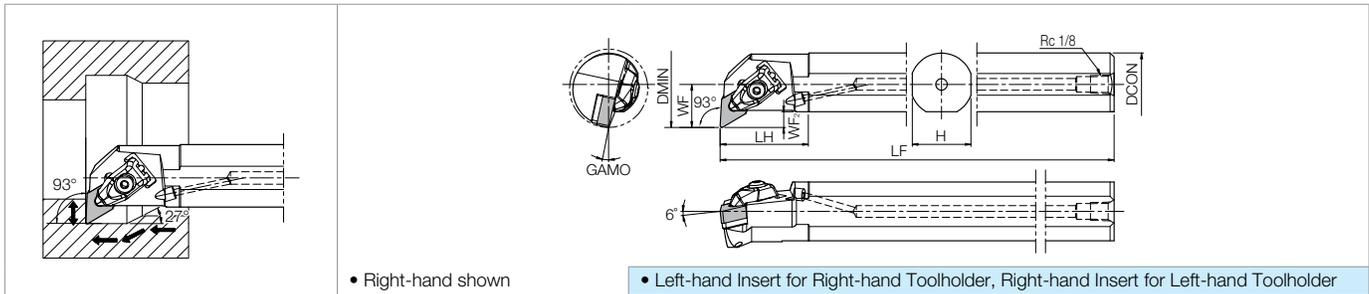
Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A20Q-PDUNR11-27	SHC2040-70, SHC2050-95	SJS-8
A25R-PDUNR11-32	SHC2540-70, SHC2550-95	
A32S-PDUNR11-40	-	

· For Coolant Sleeve, Coolant Joint, ref. to page ● F103-F104

INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

A-DDUN (Boring / Copying with Coolant)

(Max. Overhang Length $L/D = \sim 3$)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts								
	R	L		Unit	DMIN	DCON	H	LF	LH			WF	WF ₂	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
A16T-DDUN%4	●		inch	1.500	1.000	0.905	12	1.575	0.750	0.297	15°	1/32	CP-3D	CS-3D	SP-3D	DD-42 *DD-42-16	SB-4085TR	DN10	LW-3	FT-15
A20T-DDUN%4	●		inch	1.750	1.250	1.181	12	1.772	0.905	0.299	13°									
A32S-DDUN%15-40	●	●	mm	40	32	30	250	45	22	8.0	12°	0.8	CP-3D	CS-3D	SP-3D	DD-42 *DD-42-16	SB-4085TR	DN10	LW-3	FT-15
A40T-DDUN%15-50	●	●		50	40	37	300	55	27	8.5	12°									
A50U-DDUN%15-63	●	●		63	50	47	350	65	35	10.5	12°									

When using inserts whose corner-R(RE) is greater than 1.60mm, please purchase a shim (DD-42-16) with * mark and use it in order to prevent workpiece and shim from interfering each other.
*Not applicable to high-pressure coolant.

Applicable Inserts

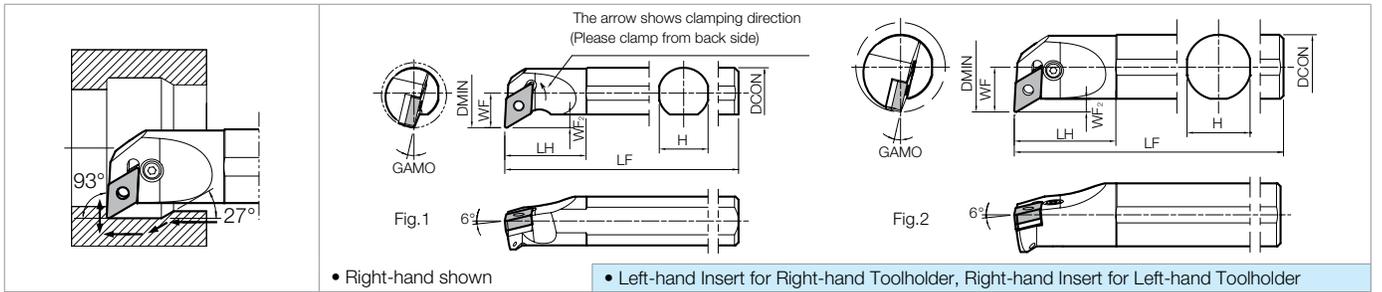
Application	*Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Ref. Page	● B23	● B23	● B23	● B24	● B24	● B24	● B25	● B25	● B25	● B26
Insert	WF (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder										
...	DNMX43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..
Application	Roughing	Single Sided Roughing / High Feed Rate	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
Ref. Page	● B26	● B26	● B30	● B26	● B26	● B26	● B27	● B28	● B28	● B27
Insert	PH	PX	PL	XP	XQ	XS	MQ	MS	MU	TK
Toolholder										
...	DNMG43..	DNMM43..	DNGG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals
Ref. Page	● B29	● B29	● B29	● B29	● B29	● B29	● B107	● B30	● B30	● C23
Insert	KQ	KG	KH	C	ZS	GC	Ceramic	%-A3	AH	PCD
Toolholder										
...	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNMG43..	DNGA43..	DNMG43..	DNMG43.. DNGG43..	DNMM43..
Application	Heat-resistant Alloys	Heat-resistant Alloys	Hard Materials							
Ref. Page	● B28	● B28	● C8, C9							
Insert	SQ	SG	CBN							
Toolholder										
...	DNMG43..	DNMG43..	DNGA43..							

* When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See ● R50
● WF chipbreaker cannot be used for S-PDQN15 type holders.

Recommended Cutting Conditions ● F110-F111

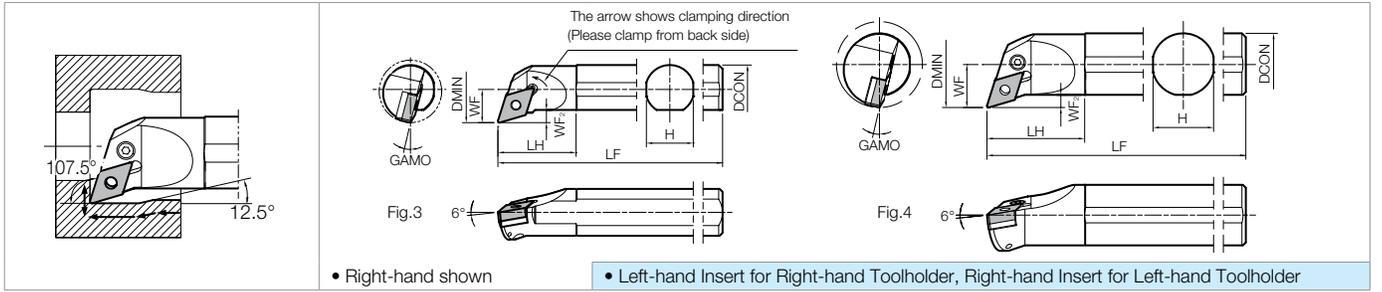
S-PDUN15 (Copying)

(Max. Overhang Length L/D = ~3)



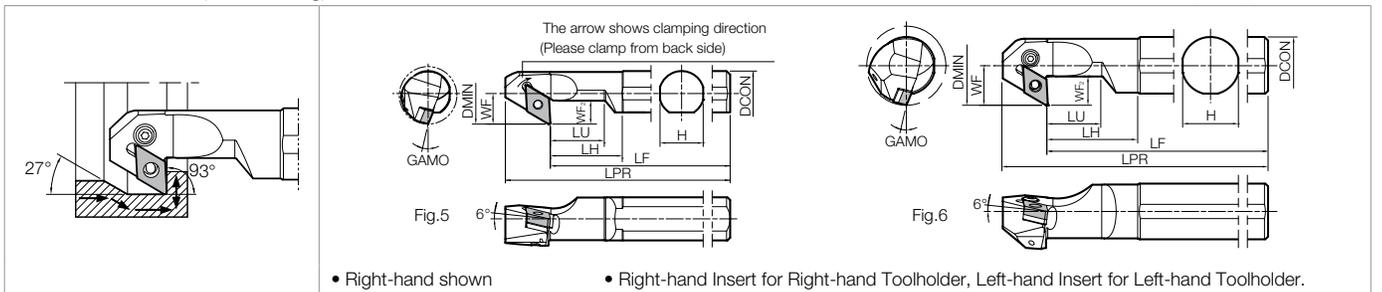
S-PDQN15 (Copying)

(Max. Overhang Length L/D = ~3)



S-PDZN15 (Back Boring)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)								GAMO	Standard Corner-R (RE)	Drawing	Applicable Inserts	
	R	L		DMIN	DCON	H	LPR	LF	LH	LU	WF				WF ₂	F88
S25R-PDUN% 15-32	●	●	32	25	24	-	200	40	-	17	6.5	13°	0.8	Fig.1	DN□A DN□G DN□M DNMX	43..
S32S-PDUN% 15-44	●	●	44	32	31	-	250	50	-	22	6.5	13°	0.8	Fig.2		
S40T-PDUN% 15-54	●	●	54	40	39	-	300	65	-	27	7.5	12°	0.8	Fig.3		
S25R-PDQN% 15-32	●	●	32	25	24	-	200	40	-	17	6.5	13°	0.8	Fig.4	DN□A DN□G DN□M	
S32S-PDQN% 15-44	●	●	44	32	31	-	250	50	-	22	6.5	13°	0.8	Fig.4		43..
S40T-PDQN% 15-54	●	●	54	40	39	-	300	65	-	27	7.5	12°	0.8	Fig.4		
S25R-PDZN% 15-32	●	●	32	25	24	225	200	40	30	17	13	13°	0.8	Fig.5	DN□A DN□G DN□M DNMX	
S32S-PDZN% 15-44	●	●	44	32	31	275	250	50	30	22	16	13°	0.8	Fig.6		43..
S40T-PDZN% 15-54	●	●	54	40	39	325	300	65	50	27	16	12°	0.8	Fig.6		

Spare Parts

Toolholder Part Number	Spare Parts									
	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Lock Pin	Shim	Shim Screw	Wrench (for Shim Screw)
S25R - PD□N% 15-32	-	-	-	-	-	LW-3	PP-4	PD-42	SB-2050TR	FT-6
S32S - PD□N% 15-44	LL-3N	LS-2N	LD-42	LSP-2	PC-2	LW-3	-	-	-	-
S40T - PD□N% 15-54			*LD-42-20							

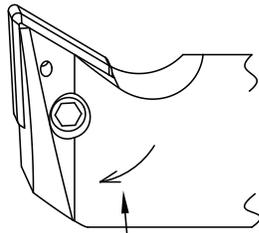
Shim When using inserts whose corner-R (RE) = 1.60mm or larger for S25R-PD□N% 15-32, use shim modified by additional processing to prevent interference between workpiece and shim. When using inserts whose corner-R (RE) = 1.60mm or larger for S32S-PD□N% 15-44 and S40T-PD□N% 15-54, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

● How to Change S25R-PD□N% 15-32 Inserts

● How to Assemble Spare Parts

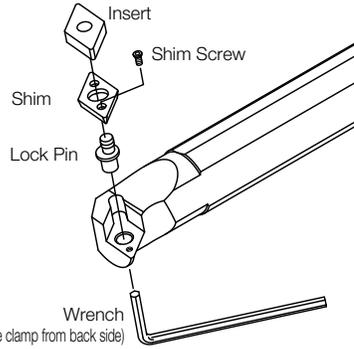
· Please replace S25R-PD□N% 15-32 insert from the back side



The arrow shows clamping direction
 Recommended torque for insert clamp
 3.5N·m (for LW-3)

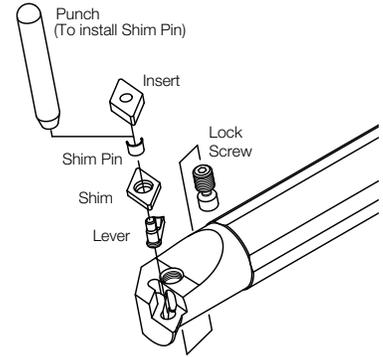
Back side of toolholder

· S25R-PD□N% 15-32 (Pin Lock)



Wrench
 (Please clamp from back side)

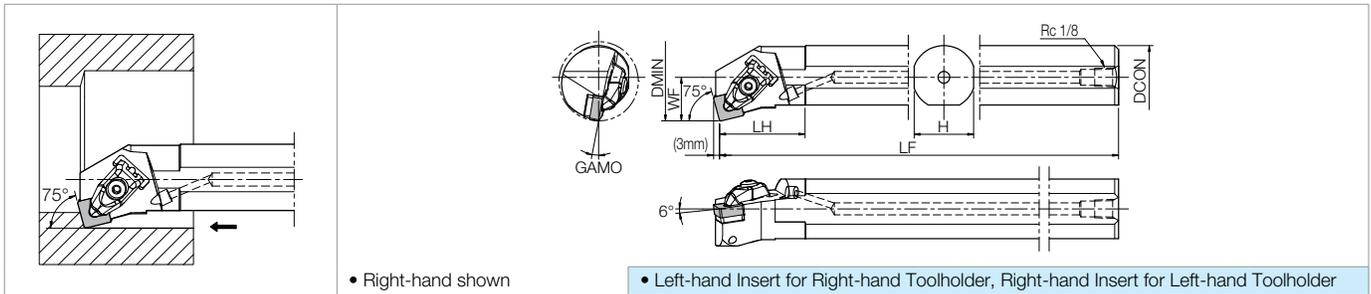
· S32S-PD□N% 15-44 (Lever Lock)
 · S40T-PD□N% 15-54 (Lever Lock)



F	BORING
MICRO BORING	
POSITIVE INSERTS	
AD BARS	
NEGATIVE INSERTS	

A-DSKN (Boring / with Coolant)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Spare Parts							
	R	L		DMIN	DCON	H	LF	LH			WF	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench For Clamp	Wrench (sold separately) For Shim
A25R-DSKN% 12-32	●	●	32	25	23	200	43	17	11°	0.8								
A32S-DSKN% 12-40	●	●	40	32	30	250	43	22	11°	0.8	CP-3D	CS-3D	SP-3D	DS-42	SB-4085TR	DN10	LW-3	FT-15
A40T-DSKN% 12-50	●	●	50	40	37	300	53	27	11°	0.8	CP-3D	CS-3D	SP-3D	DS-42	SB-4085TR	DN20	LW-3	FT-15

*Not applicable to high-pressure coolant.

Applicable Inserts

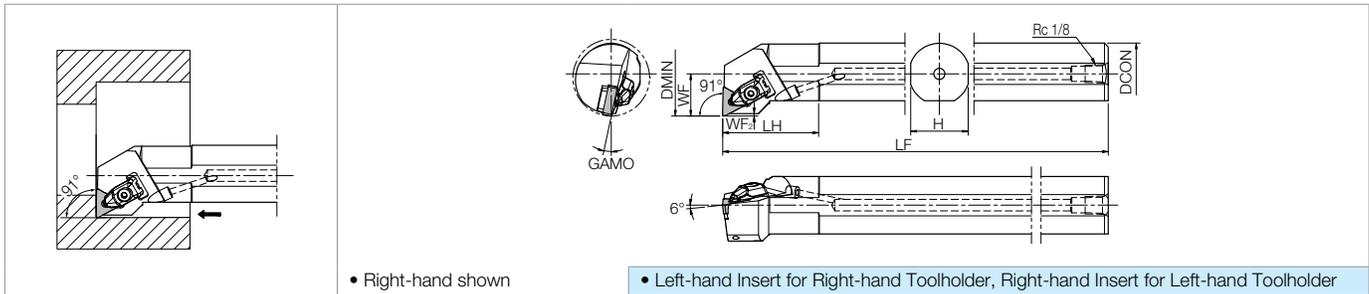
Application	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided / Roughing / High Feed Rate
Ref. Page	● B32	● B32	● B32	● B32	● B32	● B32	● B33	● B33
Insert	PQ	PG	PS	HS	PT	Standard	PH	PX
Toolholder								
...DSKN% 12...	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMM43..
Application	Finishing-Roughing	Medium-Roughing / Low Cutting Force	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Cast Iron
Ref. Page	● B35	● B35	● B33	● B33	● B33	● B34	● B34	● B34
Insert	%-□	%-25R	XP	XQ	XS	MQ	MS	C
Toolholder								
...DSKN% 12...	SNGG43..	SNGG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SNMG43..
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Heat-resistant Alloys	Hardened Materials
Ref. Page	● B34	● B34	● B34	● B34	● B35	● B109	● B34	● C10
Insert	KH	KG	ZS	GC	Without Chipbreaker	Ceramic	SG	CBN
Toolholder								
...DSKN% 12...	SNMG43..	SNMG43..	SNMG43..	SNMG43..	SN□A43..	SN□A43..	SNMG43..	SNGA43..

Recommended Cutting Conditions ● F110-F111

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

A-DTFN (Boring / with Coolant)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)						GAMO	Standard Corner-R (RE)	Spare Parts							
	R	L		DMIN	DCON	H	LF	LH	WF			WF2	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench For Clamp	Wrench (sold separately) For Shim
A25R-DTFN % 16-32	●	●	32	25	23	200	42	17	0.8	12°	0.8	CP-2D	CS-2D	SP-3D	DT-32	SB-3080TR	DN10	LW-2.5	FT-10
A32S-DTFN % 16-40	●	●	40	32	30	250	50	22	1.2	12°									
A40T-DTFN % 22-50	●	●	50	40	37	300	60	27	1.5	12°	0.8	CP-3D	CS-3D	SP-3D	DT-42	SB-4085TR	DN20	LW-3	FT-15

*Not applicable to high-pressure coolant.

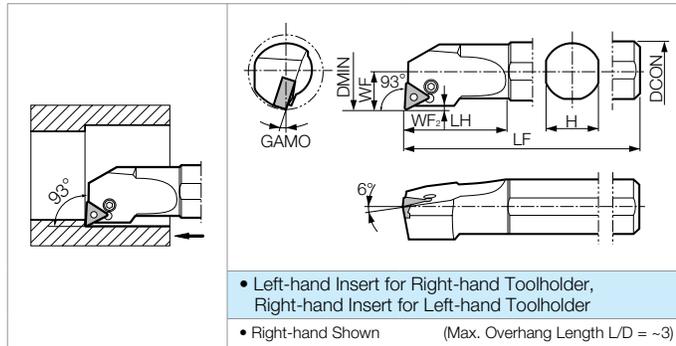
Applicable Inserts

Application	*Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing
Ref. Page	● B36	● B36	● B36	● B36	● B36	● B36	● B36	● B36	● B36	● B37
Insert	WF (Wiper)	PP	GP	PQ	HQ	CQ	GS	PG	PS	HS
Toolholder										
...-DTFN % 16-...	TNMX33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..
...-DTFN % 22-...	-	-	-	-	-	TNMG43..	-	-	TNMG43..	TNMG43..
Application	Single Sided Roughing High Feed Rate	Single Sided Roughing High Feed Rate	Roughing	Finishing	Medium-Roughing	Low Carbon Steel / Finishing	Low Carbon Steel / Medium-Roughing	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
Ref. Page	● B37	● B37	● B37	● B42	● B42, B43	● B38	● B38	● B38	● B39	● B39
Insert	PT	GT	Standard	%-S	%-□	XP	XQ	XS	MQ	MS
Toolholder										
...-DTFN % 16-...	TNMG33..	TNMG33..	TNMG33..	TNGG33..	TNGG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..
...-DTFN % 22-...	-	-	TNMG43..	-	TNGG43..	-	-	-	-	-
Application	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Ref. Page	● B39	● B39	● B40	● B40	● B40	● B40	● B40	● B40	● B40	● B111
Insert	MU	%-ST	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic
Toolholder										
...-DTFN % 16-...	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33.. TNGA33..	TNMG33..
...-DTFN % 22-...	-	-	-	-	-	-	-	-	-	-
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials					
Ref. Page	● B41	● B41	● C23	● B39	● C11					
Insert	%-A3	AH	PCD	SG	CBN					
Toolholder										
...-DTFN % 16-...	TNGG33..	TN_G33..	TNMM33..	TNMG33..	TNGA33..					
...-DTFN % 22-...	-	-	-	-	-					

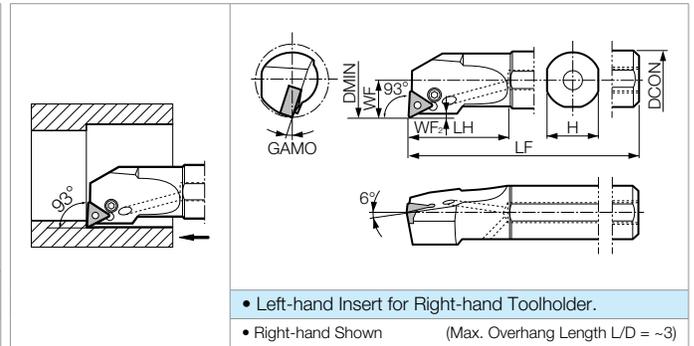
* When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See ● R50

Recommended Cutting Conditions ● F110-F111

S-PTUN11/16 (Boring)



A-PTUN11 Twin-Hole Bar (Internal, with Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							GAMO	Standard Corner-R (RE)	Spare Parts					
	R	L		DMIN	DCON	H	LF	LH	WF	WF ₂			Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S16M-PTUN%11-20	●	●	20	16	15	150	34	11.0	0.3	18°	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5	
S20Q-PTUN%11-25	●	●	25	20	19	180	37	13.2	0.2	17°								
S25R-PTUN%11-32	●	●	32	25	24	200	42	15.7	0.3	16°								
S16M-PTUN%16-20	●	●	20	16	15	150	34	11.0	1.3	18°								
S20Q-PTUN%16-25	●	●	25	20	19	180	37	13.2	1.3	17°								
S25R-PTUN%16-30	●	●	30	25	24	200	42	15.5	1.3	13°								
S32S-PTUN%16-40	●	●	40	32	30	250	50	22.0	0.7	13°								
S40T-PTUN%16-50	●	●	50	40	37	300	60	27.0	0.6	11°								
A16M-PTUN%11-20	●		20	16	15	150	34	11.0	0.3	18°								
A20Q-PTUN%11-25	●		25	20	19	180	37	13.2	0.2	17°								
A25R-PTUN%11-32	●		32	25	24	200	42	15.7	0.3	16°								

* When using inserts whose corner-R(RE) = 1.6mm or larger, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing	Single Sided Roughing High Feed Rate
Ref. Page	● B36	● B36	● B36	● B36	● B36	● B36	● B36	● B36	● B37	● B37
Insert	PP	GP	PQ	HQ	CQ	GS	PG	PS	HS	PT
Toolholder										
...-PTUN%11-...	-	TNMG23..	-	TNMG23..	-	TNMG23..	-	-	-	-
...-PTUN%16-...	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..
Application	Single Sided Roughing High Feed Rate	Roughing	Finishing	Medium-Roughing	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
Ref. Page	● B37	● B37	● B42	● B42, B43	● B38	● B38	● B38	● B39	● B39	● B39
Insert	GT	Standard	%-S	%-□	XP	XQ	XS	MQ	MS	MU
Toolholder										
...-PTUN%11-...	-	-	TNGG23..	TNGG23..	-	-	-	-	-	-
...-PTUN%16-...	TNMG33..	TNMG33..	TNGG33..	TNGG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..
Application	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals
Ref. Page	● B39	● B40	● B40	● B40	● B40	● B40	● B40	● B40	● B111	● B41
Insert	%-ST	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic	AH
Toolholder										
...-PTUN%11-...	-	-	-	-	-	-	-	-	-	-
...-PTUN%16-...	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33..	TNMG33.. TNGA33..	TNGA33..	TN_G33..
Application	Non-ferrous Metals	Non-ferrous Metals	Hard Materials	Recommended Cutting Conditions ● F110-F111						
Ref. Page	● B41	● C23	● C11							
Insert	%-A3	PCD	CBN							
Toolholder										
...-PTUN%11-...	-	-	-							
...-PTUN%16-...	TNGG33..	TNMM33..	TNGA33..							

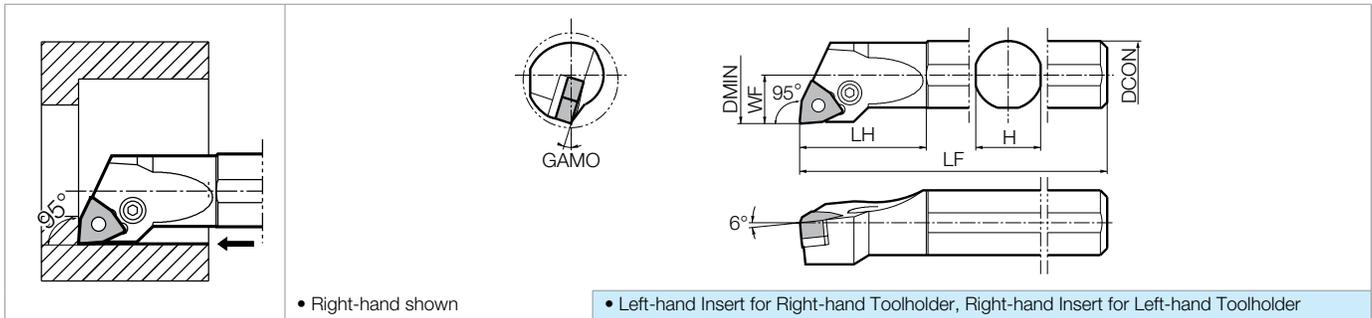
Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PTUN%11-20	SHC1640-70, SHC1650-95	SJS-8
A20Q-PTUN%11-25	SHC2040-70, SHC2050-95	
A25R-PTUN%11-32	SHC2540-70, SHC2550-95	

For Coolant Sleeve, Coolant Joint, ref. to page ● F103-F104

S-PWLN06 (Boring / Internal Facing)

(Max. Overhang Length $L/D = \sim 3$)

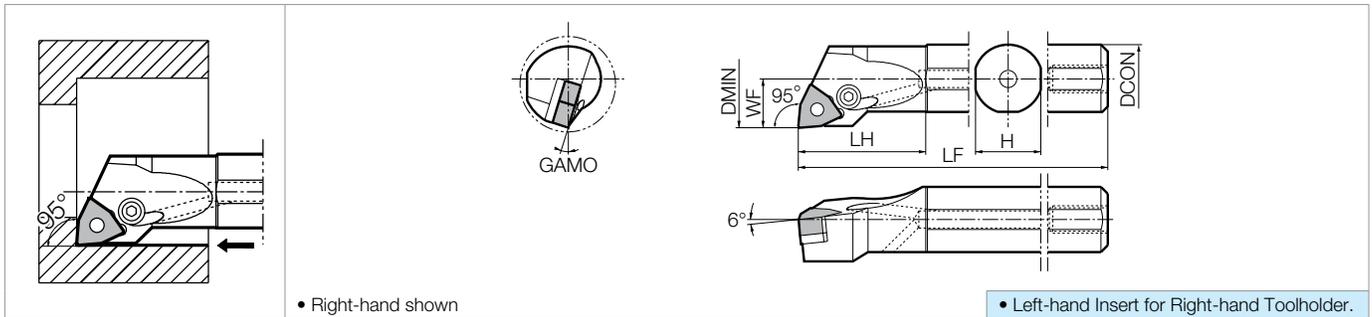


• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

A-PWLN06 Twin-Hole Bar (Boring / Internal Facing, with Coolant Hole)

(Max. Overhang Length $L/D = \sim 3$)



• Right-hand shown

• Left-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Spare Parts					
	R	L		DMIN	DCON	H	LF	LH			WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
	S16M-PWLN% 06-20	●	●	20	16	15	150	34	11.0	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
S20Q-PWLN% 06-27	●	●	27	20	19	180	37	14.2	17°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
S25R-PWLN% 06-32	●	●	32	25	24	200	42	15.7	15°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A16M-PWLN% 06-20	●		20	16	15	150	34	11.0	16°	0.8	LL-03SN	LS-03SN	-	P-03S	-	FH-2.5
A20Q-PWLN% 06-27	●	△	27	20	19	180	37	14.2	17°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5
A25R-PWLN% 06-32	●	△	32	25	24	200	42	15.7	15°	0.8	LL-1N	LS-1SN	LW-32N	LSP-1	PC-1	FH-2.5

Applicable Inserts

Application	Finishing	Finishing-Medium	Medium-Roughing	Finishing	Medium
Ref. Page	● B46	● B46	● B47	● B49	● B49
Insert	GP	HQ	GS	%-S	%
Toolholder					
...-PWLN% 06-...	WNMG33..	WNMG33..	WNMG33..	WNGG33..	WNGG33..

Recommended Cutting Conditions ● F110-F111

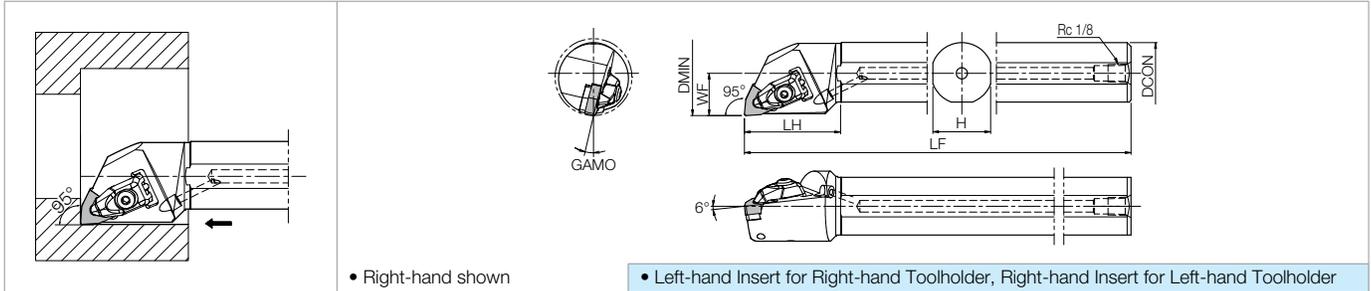
Applicable Coolant Sleeve / Joint

Toolholder Part Number	Applicable Coolant Sleeve	Applicable Coolant Joint
A16M-PWLN06-20	SHC1640-70, SHC1650-95	SJS-8
A20M-PWLN06-27	SHC2040-70, SHC2050-95	
A25R-PWLN06-32	SHC2540-70, SHC2550-95	

• For Coolant Sleeve, Coolant Joint, ref. to page ● F103-F104

A-DWLN (Boring / Internal Facing / with Coolant)

(Max. Overhang Length L/D = ~3)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions							GAMO	Standard Corner-R (RE)	Spare Parts							
	R	L		Unit	DMIN	DCON	H	LF	LH	WF			WF2	Clamp	Screw	Spring	Shim	Shim Screw	Nozzle	Wrench	Wrench (sold separately)
A16T-DWLN%4	●		inch	1.250	1.000	0.905	12	1.575	0.64	-	12°	1/32								
A20T-DWLN%4	●			1.500	1.250	1.181	12	1.614	0.765	-	11°		CP-3D	CS-3D	SP-3D	DW-42	SB-4085TR	DN10	LW-3	FT-15
A24T-DWLN%4	●		mm	1.750	1.500	1.374	12	2.362	0.905	-	13°	0.8								
A25R-DWLN%08-32	●	●		32	25	23	200	50	17	-	13°		CP-3D	CS-3D	SP-3D	DW-42	SB-4085TR	DN10	LW-3	FT-15
A32S-DWLN%08-40	●	●	mm	40	32	30	250	50	22	-	13°	0.8								
A40T-DWLN%08-50	●	●		50	40	37	300	60	27	-	13°		CP-3D	CS-3D	SP-3D	DW-42	SB-4085TR	DN20	LW-3	FT-15

*Not applicable to high-pressure coolant.

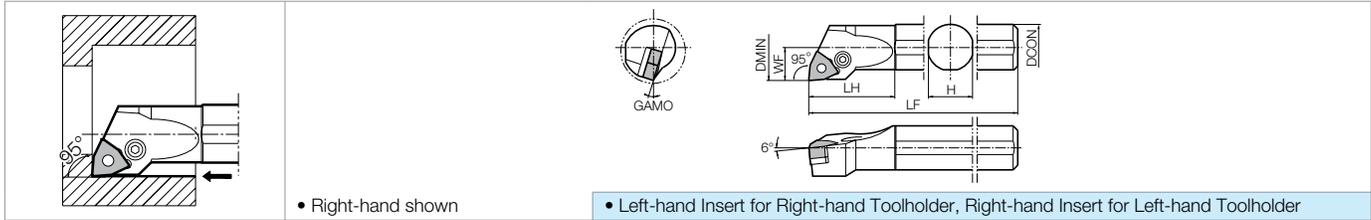
Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Ref. Page	● B46	● B46	● B46	● B46	● B47	● B47	● B47	● B47	● B47	● B47	● B47
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder											
...	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..
Application	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Ref. Page	● B48	● B48	● B48	● B48	● B48	● B48	● B49	● B49	● B49	● B49	● B49
Insert	XP	XQ	XS	MQ	MS	MU	C(GC)	KQ	KG	KH	ZS
Toolholder											
...	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..
Application	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials							
Ref. Page	● B49	● C23	● B48	● C13							
Insert	AH	PCD	SG	CBN							
Toolholder											
...	WNGG43..	WNMM43..	WNMG43..	WNGA43..							

Recommended Cutting Conditions ● F110-F111

S-PWLN08 (Boring / Internal Facing)

(Max. Overhang Length L/D = ~3)



• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

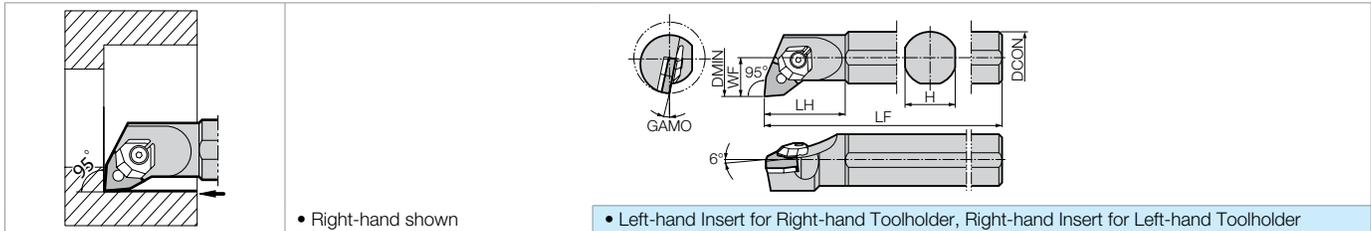
Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Spare Parts					
	R	L		DMIN	DCON	H	LF	LH			WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
S32S-PWLN%08-40	●	●	40	32	30	250	50	22	10°	0.8						
S40T-PWLN%08-50	●	●	50	40	37	300	60	27	10°		LL-2N	LS-2N	LW-42N%	LSP-2	PC-2	LW-3

• Shim: LW-42NR for Right-hand Toolholder, LW-42NL for Left-hand Toolholder.

S-WWLN08-E Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length L/D = ~5)



• Right-hand shown

• Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					GAMO	Standard Corner-R (RE)	Spare Parts				
	R	L		DMIN	DCON	H	LF	LH			WF	Clamp Set	Wrench	Shim	Shim Pin	Wrench
S25S-WWLN%08-28E	●	●	28	25	24	250	36	14	13°	1.2					
S25S-WWLN%08-34E	●	●	34	25	24	250	40	17	11°		WCS-8	LW-3	WWP-42	WP5X11	LW-2
S32S-WWLN%08-40E	●	●	40	32	30	250	50	20	10°				*WWP-42-16		

• When using inserts whose corner-R(RE) = 1.60mm or larger, purchase and use shim with * mark separately to prevent interference between workpiece and shim.

Applicable Inserts

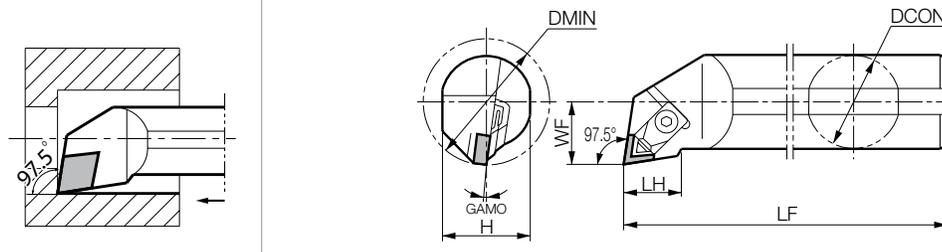
Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Ref. Page	• B46	• B46	• B46	• B46	• B47	• B47	• B47	• B47	• B47	• B47	• B47
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Toolholder											
...	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..
Application	Low Carbon Steel / Finishing	Low Carbon Steel / Medium	Low Carbon Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Ref. Page	• B48	• B48	• B48	• B48	• B48	• B48	• B49	• B49	• B49	• B49	• B49
Insert	XP	XQ	XS	MQ	MS	MU	C(GC)	KQ	KG	KH	ZS
Toolholder											
...	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..	WNMG43..
Application	Non-ferrous Metals	Non-ferrous Metals	Heat-resistant Alloys	Hard Materials							
Ref. Page	• B49	• C23	• B48	• C13							
Insert	AH	PCD	SG	CBN							
Toolholder											
...	WNGG43..	WNMM43..	WNMG43..	WNGA43..							

• In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restraint force.

Recommended Cutting Conditions • F110-F111

S-CELN (Boring / Internal Facing)

(Max. Overhang Length L/D = ~3)



• Right-hand shown

Applicable Inserts

Cast Iron / Hardened Materials

• **B107**

Ceramic



ENG45..

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)				GAMO	Standard Corner-R (RE)	Spare Parts					
	R	L		DMIN	DCON	H	LF			LH	WF	Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
	S40T-CELNR13-50	●		50	40	37	300	32	27	12°	0.8				

Recommended Cutting Conditions • **F110-F111**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

S-CCLN-A (Boring / Internal Facing)

Applicable Inserts

Hardened Materials / Cast Iron

● C19

CBN (KBN900)

CNM32..

● Right-hand shown

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions						GAMO	Standard Corner-R (RE)	Spare Parts			
	R	L		Unit	DMIN	DCON	H	LF	LH			WF	Clamp Set	Wrench	Shim	Shim Screw
	S32S-CCLN% 09-40A	△	△							mm	40		32	30	250

Recommended Cutting Conditions ● F110-F111

S-CTUN-A (Boring)

Applicable Inserts

Hardened Materials / Cast Iron	Hardened Materials / Cast Iron
● C19	● B111
CBN (KBN900)	Ceramic
TNM22..	TNG22..

● Right-hand shown

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)						GAMO	Standard Corner-R (RE)	Spare Parts			
	R	L		Unit	DMIN	DCON	H	LF	LH			WF	Clamp Set	Wrench	Shim	Shim Screw
	S25X-CTUN% 11-30A	●								mm	30		25	24	220

Recommended Cutting Conditions ● F110-F111

SWISS IQ BAR RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions (VNB-S)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: sfm)						VNB01-S VNB015-S		VNB02-S ~ VNB04-S		Notes
	MEGA COAT	PVD	Carbide	CBN	PCD		D.O.C. (inch), f (ipr)				
	PR1225	PR930	KW10	KBN510	KPD001	KPD010	D.O.C.		f		
	★	☆									
Carbon Steel / Alloy Steel	★ 100-390	☆ 100-330					-0.0039	-0.0004	-0.0079	-0.0012	Wet
Stainless Steel	★ 100-300	☆ 100-260					-0.0039	-0.0004	-0.0079	-0.0008	

★ : 1st Recommendation
☆ : 2nd Recommendation

Recommended Cutting Conditions (VNB / VNB-NB / VNBT)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: sfm)						VNB02		VNB03		VNB004 VNBT04		VNB05 VNB06 VNBT07 VNBT05		Notes
	MEGA COAT	PVD	Carbide	CBN	PCD		D.O.C. (inch), f (ipr)								
	PR1225	PR930	KW10	KBN510	KPD001	KPD010	D.O.C.		f		D.O.C.		f		
	★	☆													
Carbon Steel / Alloy Steel	★ 100-390	☆ 100-330					-0.0118	-0.0012	-0.0157	-0.0016	-0.0177	-0.0028	-0.0197	-0.0039	Wet
Stainless Steel	★ 100-330	☆ 100-260					-0.0118	-0.0008	-0.0157	-0.0012	-0.0177	-0.0020	-0.0197	-0.0028	
Non-ferrous Metals			☆ ~330		★ ~980	☆ ~980	-0.0118	-0.0020	-0.0157	-0.0024	-0.0177	-0.0039	-0.0197	-0.0059	

★ : 1st Recommendation
☆ : 2nd Recommendation

Recommended Cutting Conditions (VNBX-S)

Workpiece Material	Recommended Insert Grades (Cutting Speed Vc: sfm)						VNBX01-S VNBX015-S		VNBX02-S ~ VNBX04-S		Notes	
	PVD Coated Carbide			Carbide	CBN	PCD		D.O.C. (inch), f (ipr)				
	PR630	PR915	PR930	KW10	KBN510	KPD001	KPD010	D.O.C.		f		
			★									
Carbon Steel / Alloy Steel			★ 100-330					-0.0039	-0.0004	-0.0079	-0.0012	Wet
Stainless Steel			★ 100-260					-0.0039	-0.0004	-0.0079	-0.0008	

★ : 1st Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZH Sleeves EZ Bar Sleeves (Listed by Sleeve Shank Dia.)

Sleeve Part Number			Sleeve Shank Dia DCON (mm)	Applicable Bars			Shank Dia DCON (mm)	Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length with Coolant Hole)	EZH-HP (Adjustable Overhang Length)	EZH-ST		EZB	EZBF / EZBT EZVB / EZG EZFG / EZT	EZ Bar Plus		
		EZH 01712ST-80	12	EZBR ...017...			1.7	(General Purpose)
		02012ST-80		EZB% ...020...			2	
		02512ST-80		EZB% ...025...	EZ__ ...025-...		2.5	
		03012ST-80		EZB% ...030...	EZ__ ...030-...		3	
		03512ST-80		EZB% ...035...	EZ__ ...035-...		3.5	
		04012ST-80		EZB% ...040...	EZ__ ...040-...		4	
		05012ST-80		EZB% ...050...	EZ__ ...050-...		5	
		06012ST-80		EZB% ...060...	EZ__ ...060-...		6	
		07012ST-80	EZBR ...070...	EZ__ ...070-...		7		
		08012ST-80	EZB% ...080...	EZ__ ...080-...		8		
		09012ST-80	EZBR ...090...	EZ__ ...090-...		9		
		10012ST-80	EZB% ...100...	EZ__ ...100-...		10		
		11012ST-80	EZBR ...110...	EZ__ ...110-...		11		
		12012ST-80	EZB% ...120...	EZ__ ...120-...		12		
		13012ST-80	EZBR ...130...	EZ__ ...130-...		13		
		14012ST-80	EZB% ...140...	EZ__ ...140-...		14		
		15012ST-80	EZBR ...150...	EZ__ ...150-...		15		
		16012ST-80	EZB% ...160...	EZ__ ...160-...		16		
		17012ST-80	EZBR ...170...	EZ__ ...170-...		17		
		18012ST-80	EZB% ...180...	EZ__ ...180-...		18		
		19012ST-80	EZBR ...190...	EZ__ ...190-...		19		
		20012ST-80	EZB% ...200...	EZ__ ...200-...		20		
		21012ST-80	EZBR ...210...	EZ__ ...210-...		21		
		22012ST-80	EZB% ...220...	EZ__ ...220-...		22		
		23012ST-80	EZBR ...230...	EZ__ ...230-...		23		
		24012ST-80	EZB% ...240...	EZ__ ...240-...		24		
		25012ST-80	EZBR ...250...	EZ__ ...250-...		25		
		26012ST-80	EZB% ...260...	EZ__ ...260-...		26		
		27012ST-80	EZBR ...270...	EZ__ ...270-...		27		
		28012ST-80	EZB% ...280...	EZ__ ...280-...		28		
		29012ST-80	EZBR ...290...	EZ__ ...290-...		29		
		30012ST-80	EZB% ...300...	EZ__ ...300-...		30		
		31012ST-80	EZBR ...310...	EZ__ ...310-...		31		
		32012ST-80	EZB% ...320...	EZ__ ...320-...		32		
		33012ST-80	EZBR ...330...	EZ__ ...330-...		33		
		34012ST-80	EZB% ...340...	EZ__ ...340-...		34		
		35012ST-80	EZBR ...350...	EZ__ ...350-...		35		
		36012ST-80	EZB% ...360...	EZ__ ...360-...		36		
		37012ST-80	EZBR ...370...	EZ__ ...370-...		37		
		38012ST-80	EZB% ...380...	EZ__ ...380-...		38		
		39012ST-80	EZBR ...390...	EZ__ ...390-...		39		
		40012ST-80	EZB% ...400...	EZ__ ...400-...		40		
		41012ST-80	EZBR ...410...	EZ__ ...410-...		41		
		42012ST-80	EZB% ...420...	EZ__ ...420-...		42		
		43012ST-80	EZBR ...430...	EZ__ ...430-...		43		
		44012ST-80	EZB% ...440...	EZ__ ...440-...		44		
		45012ST-80	EZBR ...450...	EZ__ ...450-...		45		
		46012ST-80	EZB% ...460...	EZ__ ...460-...		46		
		47012ST-80	EZBR ...470...	EZ__ ...470-...		47		
		48012ST-80	EZB% ...480...	EZ__ ...480-...		48		
		49012ST-80	EZBR ...490...	EZ__ ...490-...		49		
		50012ST-80	EZB% ...500...	EZ__ ...500-...		50		
		51012ST-80	EZBR ...510...	EZ__ ...510-...		51		
		52012ST-80	EZB% ...520...	EZ__ ...520-...		52		
		53012ST-80	EZBR ...530...	EZ__ ...530-...		53		
		54012ST-80	EZB% ...540...	EZ__ ...540-...		54		
		55012ST-80	EZBR ...550...	EZ__ ...550-...		55		
		56012ST-80	EZB% ...560...	EZ__ ...560-...		56		
		57012ST-80	EZBR ...570...	EZ__ ...570-...		57		
		58012ST-80	EZB% ...580...	EZ__ ...580-...		58		
		59012ST-80	EZBR ...590...	EZ__ ...590-...		59		
		60012ST-80	EZB% ...600...	EZ__ ...600-...		60		
		61012ST-80	EZBR ...610...	EZ__ ...610-...		61		
		62012ST-80	EZB% ...620...	EZ__ ...620-...		62		
		63012ST-80	EZBR ...630...	EZ__ ...630-...		63		
		64012ST-80	EZB% ...640...	EZ__ ...640-...		64		
		65012ST-80	EZBR ...650...	EZ__ ...650-...		65		
		66012ST-80	EZB% ...660...	EZ__ ...660-...		66		
		67012ST-80	EZBR ...670...	EZ__ ...670-...		67		
		68012ST-80	EZB% ...680...	EZ__ ...680-...		68		
		69012ST-80	EZBR ...690...	EZ__ ...690-...		69		
		70012ST-80	EZB% ...700...	EZ__ ...700-...		70		
		71012ST-80	EZBR ...710...	EZ__ ...710-...		71		
		72012ST-80	EZB% ...720...	EZ__ ...720-...		72		
		73012ST-80	EZBR ...730...	EZ__ ...730-...		73		
		74012ST-80	EZB% ...740...	EZ__ ...740-...		74		
		75012ST-80	EZBR ...750...	EZ__ ...750-...		75		
		76012ST-80	EZB% ...760...	EZ__ ...760-...		76		
		77012ST-80	EZBR ...770...	EZ__ ...770-...		77		
		78012ST-80	EZB% ...780...	EZ__ ...780-...		78		
		79012ST-80	EZBR ...790...	EZ__ ...790-...		79		
		80012ST-80	EZB% ...800...	EZ__ ...800-...		80		
		81012ST-80	EZBR ...810...	EZ__ ...810-...		81		
		82012ST-80	EZB% ...820...	EZ__ ...820-...		82		
		83012ST-80	EZBR ...830...	EZ__ ...830-...		83		
		84012ST-80	EZB% ...840...	EZ__ ...840-...		84		
		85012ST-80	EZBR ...850...	EZ__ ...850-...		85		
		86012ST-80	EZB% ...860...	EZ__ ...860-...		86		
		87012ST-80	EZBR ...870...	EZ__ ...870-...		87		
		88012ST-80	EZB% ...880...	EZ__ ...880-...		88		
		89012ST-80	EZBR ...890...	EZ__ ...890-...		89		
		90012ST-80	EZB% ...900...	EZ__ ...900-...		90		
		91012ST-80	EZBR ...910...	EZ__ ...910-...		91		
		92012ST-80	EZB% ...920...	EZ__ ...920-...		92		
		93012ST-80	EZBR ...930...	EZ__ ...930-...		93		
		94012ST-80	EZB% ...940...	EZ__ ...940-...		94		
		95012ST-80	EZBR ...950...	EZ__ ...950-...		95		
		96012ST-80	EZB% ...960...	EZ__ ...960-...		96		
		97012ST-80	EZBR ...970...	EZ__ ...970-...		97		
		98012ST-80	EZB% ...980...	EZ__ ...980-...		98		
		99012ST-80	EZBR ...990...	EZ__ ...990-...		99		
		100012ST-80	EZB% ...1000...	EZ__ ...1000-...		1000		
		101012ST-80	EZBR ...1010...	EZ__ ...1010-...		1010		
		102012ST-80	EZB% ...1020...	EZ__ ...1020-...		1020		
		103012ST-80	EZBR ...1030...	EZ__ ...1030-...		1030		
		104012ST-80	EZB% ...1040...	EZ__ ...1040-...		1040		
		105012ST-80	EZBR ...1050...	EZ__ ...1050-...		1050		
		106012ST-80	EZB% ...1060...	EZ__ ...1060-...		1060		
		107012ST-80	EZBR ...1070...	EZ__ ...1070-...		1070		
		108012ST-80	EZB% ...1080...	EZ__ ...1080-...		1080		
		109012ST-80	EZBR ...1090...	EZ__ ...1090-...		1090		
		110012ST-80	EZB% ...1100...	EZ__ ...1100-...		1100		
		111012ST-80	EZBR ...1110...	EZ__ ...1110-...		1110		
		112012ST-80	EZB% ...1120...	EZ__ ...1120-...		1120		
		113012ST-80	EZBR ...1130...	EZ__ ...1130-...		1130		
		114012ST-80	EZB% ...1140...	EZ__ ...1140-...		1140		
		115012ST-80	EZBR ...1150...	EZ__ ...1150-...		1150		
		116012ST-80	EZB% ...1160...	EZ__ ...1160-...		1160		
		117012ST-80	EZBR ...1170...	EZ__ ...1170-...		1170		
		118012ST-80	EZB% ...1180...	EZ__ ...1180-...		1180		
		119012ST-80	EZBR ...1190...	EZ__ ...1190-...		1190		
		120012ST-80	EZB% ...1200...	EZ__ ...1200-...		1200		
		121012ST-80	EZBR ...1210...	EZ__ ...1210-...		1210		
		122012ST-80	EZB% ...1220...	EZ__ ...1220-...		1220		
		123012ST-80	EZBR ...1230...	EZ__ ...1230-...		1230		
		124012ST-80	EZB% ...1240...	EZ__ ...1240-...		1240		
		125012ST-80	EZBR ...1250...	EZ__ ...1250-...		1250		
		126012ST-80	EZB% ...1260...	EZ__ ...1260-...		1260		
		127012ST-80	EZBR ...1270...	EZ__ ...1270-...		1270		
		128012ST-80	EZB% ...1280...	EZ__ ...1280-...		1280		
		129012ST-80	EZBR ...1290...	EZ__ ...1290-...		1290		
		130012ST-80	EZB% ...1300...	EZ__ ...1300-...		1300		
		131012ST-80	EZBR ...1310...	EZ__ ...1310-...		1310		
		132012ST-80	EZB% ...1320...	EZ__ ...1320-...		1320		
		133012ST-80	EZBR ...1330...	EZ__ ...1330-...		1330		
		134012ST-80	EZB% ...1340...	EZ__ ...1340-...		1340		
		135012ST-80	EZBR ...1350...	EZ__ ...1350-...		1350		
		136012ST-80	EZB% ...1360...	EZ__ ...1360-...		1360		
		137012ST-80	EZBR ...1370...	EZ__ ...1370-...		1370		
		138012ST-80	EZB% ...1380...	EZ__ ...1380-...		1380		
		139012ST-80	EZBR ...1390...	EZ__ ...1390-...		1390		
		140012ST-80	EZB% ...1400...	EZ__ ...1400-...		1400		
		141012ST-80	EZBR ...1410...	EZ__ ...1410-...		1410		
		142012ST-80	EZB% ...1420...	EZ__ ...1420-...		1420		
		143012ST-80	EZBR ...1430...	EZ__ ...1430-...		1430		
		144012ST-80	EZB% ...1440...	EZ__ ...1440-...		1440		
		145012ST-80	EZBR ...1450...	EZ__ ...1450-...		1450		
		146012ST-80	EZB% ...1460...	EZ__ ...1460-...		1460		
		147012ST-80	EZBR ...1470...	EZ__ ...1470-...		1470		
		148012ST-80	EZB% ...1480...	EZ__ ...1480-...		1480		
		149012ST-80	EZBR ...1490...	EZ__ ...1490-...		1490		
		150012ST-80	EZB% ...1500...	EZ__ ...1500-...		1500		
		151012ST-80	EZBR ...1510...	EZ__ ...1510-...		1510		
		152012ST-80	EZB% ...1520...	EZ__ ...1520-...		1520		
		153012ST-80	EZBR ...1530...	EZ__ ...1530-...		1530		
		154012ST-80	EZB% ...1540...	EZ__ ...1540-...		1540		
		155012ST-80	EZBR ...1550...	EZ__ ...1550-...		1550		
		156012ST-80	EZB% ...1560...	EZ__ ...1560-...		1560		
		157012ST-80	EZBR ...1570...	EZ__ ...1570-...		1570		
		158012ST-80	EZB% ...1580...	EZ__ ...1580-...		1580		
		159012ST-80	EZBR ...1590...	EZ__ ...1590-...		1590		
		160012ST-80	EZB% ...1600...	EZ__ ...1600-...		1600		
		161012ST-80	EZBR ...1610...	EZ__ ...1610-...		1610		
		162012ST-80	EZB% ...1620...	EZ__ ...1620-...		1620		
		163012ST-80	EZBR ...1630...	EZ__ ...1630-...		1630		
		164012ST-80	EZB% ...1640...	EZ__ ...1640-...		1		

EZH Sleeves and Applicable Inserts / Toolholders (Listed by Sleeve Shank Dia.)

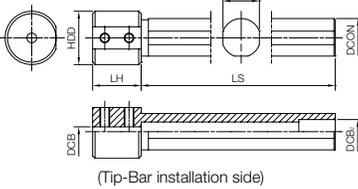
Shank Size (Hole Dia. : mm)		017 (1.7mm)	020 (2.0mm)	025 (2.5mm)	03 (3.0mm)	035 (3.5mm)	
EZH-CT Sleeve Part Number (Internal Coolant)	EZH	01716HP-100	EZH 02016HP-100	EZH 02516HP-100	EZH 03016HP-100	EZH 03516HP-100	
		01719CT/HP-120	02019CT/HP-120	02519CT/HP-120	03019CT/HP-120	03519CT/HP-120	
		01720CT/HP-120	02020CT/HP-120	02520CT/HP-120	03020CT/HP-120	03520CT/HP-120	
	EZH-HP Sleeve Part Number (Adjustable Overhang Length)		01722CT/HP-135	02022CT/HP-135	02522CT/HP-135	03022CT/HP-135	03522CT/HP-135
			01725.0CT/HP-135	02025.0CT/HP-135	02525.0CT/HP-135	03025.0CT/HP-135	03525.0CT/HP-135
			01725.4CT/HP-120	02025.4CT/HP-120	02525.4CT/HP-120	03025.4CT/HP-120	03525.4CT/HP-120
EZH-ST Sleeve Part Number	EZH	01712ST-80	EZH 02012ST-80	EZH 02512ST-80	EZH 03012ST-80	EZH 03512ST-80	
		01716ST-100	02016ST-100	02516ST-100	03016ST-100	03516ST-100	
		01719ST-120	02019ST-120	02519ST-120	03019ST-120	03519ST-120	
		01720ST-120	02020ST-120	02520ST-120	03020ST-120	03520ST-120	
		01722ST-135	02022ST-135	02522ST-135	03022ST-135	03522ST-135	
		01725.0ST-135	02025.0ST-135	02525.0ST-135	03025.0ST-135	03525.0ST-135	
		01725.4ST-120	02025.4ST-120	02525.4ST-120	03025.4ST-120	03525.4ST-120	
EZ Bar	Boring Bar	EZBR 020017ST-	EZB% 020020HP-	EZB% 025025HP-	EZB% 030030HP-	EZB% 035035HP-	
		EZBR 020017...NB	EZBR 025020ST-	EZBR 030025ST-	EZBR 035030ST-	EZBR 040035ST-	
		EZBR 020017...NB	EZBR 025020...NB	EZBR 030025...NB	EZBR ...030-...NB	EZBR 040035...NB	
	Internal Grooving				EZVBR 035030-		
		Face Grooving				EZBFR 030030-	
			Internal Threading			EZTR 030025-	EZTR 035030-	EZTR 040035-
EZ Bar - Plus							

Shank Size (Hole Dia. : mm)		04 (4.0mm)	045 (4.5mm)	05 (5.0mm)	06 (6.0mm)	07 (7.0mm)	08 (8.0mm)	
EZH-CT Sleeve Part Number (Internal Coolant)	EZH	04016HP-100	EZH 04516HP-100	EZH 05016HP-100	EZH 06016HP-100	EZH 07016HP-100	EZH 08016HP-100	
		04019CT/HP-120	04519CT/HP-120	05019CT/HP-120	06019CT/HP-120	07019CT/HP-120	08019CT/HP-120	
		04020CT/HP-120	04520CT/HP-120	05020CT/HP-120	06020CT/HP-120	07020CT/HP-120	08020CT/HP-120	
	EZH-HP Sleeve Part Number (Adjustable Overhang Length)		04022CT/HP-135	04522CT/HP-135	05022CT/HP-135	06022CT/HP-135	07022CT/HP-135	08022CT/HP-135
			04025.0CT/HP-135	04525.0CT/HP-135	05025.0CT/HP-135	06025.0CT/HP-135	07025.0CT/HP-135	08025.0CT/HP-135
			04025.4CT/HP-120	04525.4CT/HP-120	05025.4CT/HP-120	06025.4CT/HP-120	07025.4CT/HP-120	08025.4CT/HP-120
EZH-ST Sleeve Part Number	EZH	04012ST-80		EZH 05012ST-80	EZH 06012ST-80	EZH 07012ST-80	EZH 08012ST-80	
		04016ST-100		05016ST-100	06016ST-100	07016ST-100	EZH 08016ST-100	
		04019ST-120		05019ST-120	06019ST-120	07019ST-120	08019ST-120	
		04020ST-120		05020ST-120	06020ST-120	07020ST-120	08020ST-120	
		04022ST-135		05022ST-135	06022ST-135	07022ST-135	08022ST-135	
		04025.0ST-135		05025.0ST-135	06025.0ST-135	07025.0ST-135	08025.0ST-135	
		04025.4ST-120		05025.4ST-120	06025.4ST-120	07025.4ST-120	08025.4ST-120	
EZ Bar	Boring Bar	EZB% 040040HP-		EZB% 050050HP-	EZB% 060060HP-			
		EZBR 045040ST-		EZBR 055050ST-	EZBR 065060ST-	EZBR 075070ST-		
		EZBR ...040-...NB		EZBR ...050-...NB	EZBR ...060-...NB	EZBR ...070-...NB		
		EZVBR 045040-		EZVBR 055050-	EZVBR 065060-			
		EZBTR 040040-		EZBTR 050050-				
		EZBFR 040040-		EZBFR 050050-	EZBFR 060060-			
Internal Grooving	EZG% 040040-		EZG% 050050-	EZG% 060060-	EZG% ...070-...			
	Face Grooving	EZFG% 050040-		EZFG% 060050-		EZFG% 080070-		
		Internal Threading	EZTR 050040-		EZTR 060050-	EZTR 070060-	EZTR 080070-	
EZ Bar - Plus			S/C045X-SCLCR03-050EZ(P)	S/C050X-SWUBR03-060EZP	S/C060X-SCLCR04-070EZ(P)	S/C070X-SCLCR04-080EZP	S/C080X-SCLCR06-100EZP	
						S/C070X-STLBR06-080EZP	S/C080X-STLBR09-100EZP	
				S/C050X-SWUBR06-060EZP	S/C060X-SWUBR06-070EZP	S/C070X-SWUBR08-080EZP		
Boring Bar		C04-...		C05-...	C06-...	C07-...	C/E08-...	
					S06-...		A/S08-...	

Note 1) When attaching Double-sided Micro Bars to EZH-CT/HP Sleeve (Adjustable overhang length), detach Adjustable Pin.
Overhang length of bar is not adjustable.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

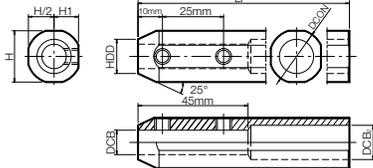
Sleeves for Micro Bars

Shape	Part Number	Stock	Unit	Dimensions						Spare Parts			
				DCON	HDD	DCB	DCB ₂	H	LS	LH	Screw	Wrench	
	PH 0212-60	△	mm	12	19	1.8	6	11	60	20	HS3X4	LW-1.5	
	0312-60	△		12	19	2.8							
	0412-60	△		12	19	3.8							
	0512-60	△		12	19	4.8	8	11	60	20	HS4X4	LW-2	
	0612-60	△		12	19	5.8							
	0712-60	△		12	19	6.8							
	PH 0216-80	△		inch	16	22	1.8	Rp ¹ / ₄ (PS ¹ / ₄)	15	80	20	HS3X4	LW-1.5
	0316-80	△			16	22	2.8						
	0416-80	△			16	22	3.8						
	0516-80	△			16	22	4.8	Rp ¹ / ₄ (PS ¹ / ₄)	15	80	20	HS4X4	LW-2
	0616-80	△			16	22	5.8						
	0716-80	△			16	22	6.8						
	PH 10-3MM	●		inch	0.625	0.750	0.110	3/8-24 UNF	0.575	3.213	0.787	SLS-1	LW-2
	10-4MM	●			0.625	0.875	0.150						
	10-6MM	●			0.625	0.875	0.228						
10-7MM	●	0.625	0.875		0.268								

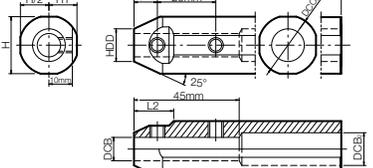
Description Table for PH Sleeves and Applicable Toolholders

Shank Size (Hole Dia. : mm)	...2mm / 02.. (0.071" / 1.8mm)	...3mm / 03.. (0.110" / 2.8mm)	...4mm / 04.. (0.150" / 3.8mm)	...5mm / 05.. (0.189" / 4.8mm)	...6mm / 06.. (0.228" / 5.8mm)	...7mm / 07.. (0.268" / 6.8mm)
PH Type Sleeve Part Numbers	PH10-2MM PH0212-60 PH0216-80	PH10-3MM PH0312-60 PH0316-80	PH10-4MM PH0412-60 PH0416-80	PH10-5MM PH0512-60 PH0516-80	PH10-6MM PH0612-60 PH0616-80	PH10-7MM PH0712-60 PH0716-80
1-Edge Micro Bars	Boring Bars	PSB%0202- PSB%0303-	PSB%0404- PSBT%0415-	PSB%0505- PSBT%0515-	PSB%0606-	PSB%0707-
	Internal Grooving		PSG%0510- PSG%0520-	PSG%0610- PSG%0620-	PSG%0710- PSG%0720-	PSG%0810- PSG%0820-
	Face Grooving					PSFG%0810- PSFG%0820- PSFG%0830-
	Internal Threading		PSTR0604-	PSTR0805-		

SHA Sleeves (Applicable Toolholders F104)



(Toolholder installation side) **Fig.1**



(Toolholder installation side) **Fig.2**

Part Number	Stock	Dimensions (mm)								Drawing	Spare Parts		Applicable Machine Manufacturer
		DCB	DCON	HDD	DCB ₂	H	H1	LF	L2		Screw	Wrench	
SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-	Fig.1	HS6X4P	LW-3	Amada Machine Tools Eguro Tsumami Citizen Machinery
1020-120	●	10	20.00	14	12	19.0	9.25	120	-	Fig.1			
SHA 0825.0-135	●	8	25.00	14	14	24.0	11.5	135	17	Fig.2			
1025.0-135	●	10	25.00	14	14	24.0	11.5	135	17	Fig.2			
SHA 0819-120	□	8	19.05	14	12	18.0	8.75	120	-	Fig.1	HS6X4P	LW-3	Citizen Machinery
1019-120	□	10	19.05	14	12	18.0	8.75	120	-	Fig.1			
SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-	Fig.1			
1020-120	●	10	20.00	14	12	19.0	9.25	120	-	Fig.1			
SHA 0825.4-120	●	8	25.40	14	14	24.4	12.0	120	17	Fig.2	HS6X4P	LW-3	Star Micronics Nomura DS
1025.4-120	●	10	25.40	14	14	24.4	12.0	120	17	Fig.2			
1225.4-120	●	12	25.40	16	14	24.4	12.0	120	17	Fig.2			
SHA 0822-125	●	8	22.00	14	14	21.0	10.0	125	-	Fig.1			
1022-125	●	10	22.00	14	14	21.0	10.0	125	-	Fig.1	HS6X4P	LW-3	Nomura DS
1222-125	□	12	22.00	16	14	21.0	10.0	125	-	Fig.1			
SHA 0823-120	□	8	23.00	14	14	22.0	10.5	120	16	Fig.2			
1023-120	□	10	23.00	14	14	22.0	10.5	120	16	Fig.2			
1223-120	□	12	23.00	16	14	22.0	10.5	120	16	Fig.2			

※ : Length of DCB...45mm (All SHA sleeves) • Choose sleeves (DCB) to meet with DCON dimension of toolholder. • Machine manufacturers are in random order.

Sleeves for Boring Bars

Shape	Part Number	Stock	Unit	Dimensions					Spare Parts	
				DCON	DCB	DCB ₂	H	LF	Screw	Wrench
	SH 0416-100	●	mm	16	4	5	14	100	HS4X4	LW-2
	0516-100	●		16	5	6	14	100		
	0616-100	●		16	6	7	14	100		
	0716-100	●		16	7	8	14	100		
	SH 0820-120	●		20	8	9	18	120		
	1020-120	●		20	10	11	18	120		
	1225-150	●		25	12	13	23	150		
	1632-180	●		32	16	18	30	180		
	2032-180	●		32	20	22	30	180		
	SL -1	●		inch	0.625	0.203	0.250	0.292			4.00	SLS-1	LW-2
-2	●	0.625	0.281		0.312	0.292	4.00	SLS-2		
-2.5-10	●	0.625	0.156		0.197	0.292	4.00	SLS-1		

Coolant Sleeve Dimensions

(Fig.1)

(Fig.2)

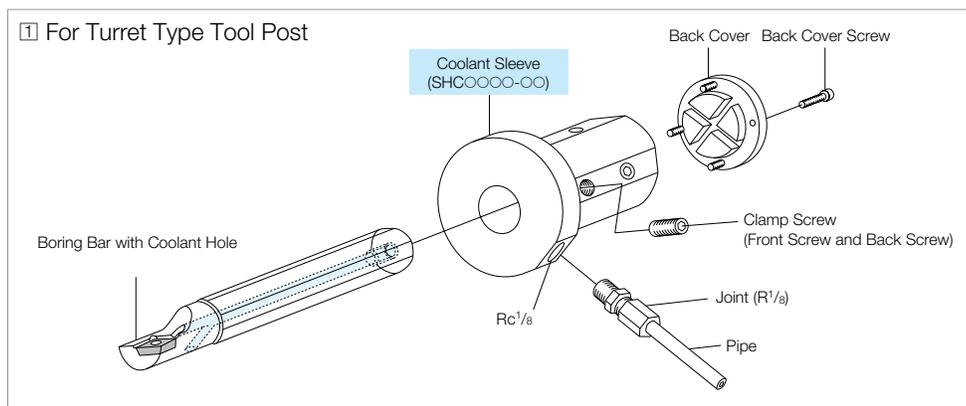
Accessories

- Back Cover / SHL-4...SHC00040-70
SHL-5...SHC00050-95
- Back Cover Screw
- Shank Clamp Screw

(Note) To stabilize the Toolholder and to prevent coolant leaks, tighten all 4 screws of coolant sleeve securely.

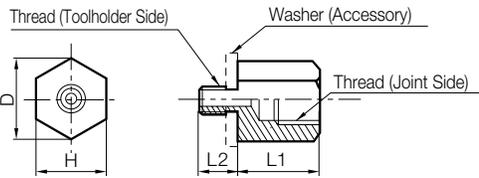
Part Number	Stock	Dimensions (mm)							Drawing	Spare Parts						
		DCON	HDD	DCB	LS	LH	H	A		Front Screw	Wrench	Back Screw	Wrench	Back Cover	Back Cover Screw	Wrench
SHC 0840-70	●	40	56	8	70	16	38	27.0	Fig.1	HS6X22	LW-3	HS6X14	LW-3	SHL-4	HH3X6	LW-2.5
1040-70	●	40	56	10	70	16	38	27.0								
1240-70	●	40	56	12	70	16	38	27.0	Fig.2	HS10X10	LW-5	HS10X10	LW-5	SHL-4	HH3X6	LW-2.5
1640-70	●	40	56	16	70	16	38	27.0								
2040-70	●	40	56	20	70	16	38	27.0	Fig.1	HS10X10	LW-5	HS6X6	LW-3	SHL-4	HH3X6	LW-2.5
2540-70	●	40	56	25	70	16	38	27.0								
SHC 0850-95	●	50	65	8	95	16	47	30.5	Fig.1	HS6X22	LW-3	HS6X14	LW-3	SHL-5	HH3X12	LW-2.5
1050-95	●	50	65	10	95	16	47	30.5								
1250-95	●	50	65	12	95	16	47	30.5	Fig.2	HS10X10	LW-5	HS10X10	LW-5	SHL-5	HH3X12	LW-2.5
1650-95	●	50	65	16	95	16	47	30.5								
2050-95	●	50	65	20	95	16	47	30.5								
2550-95	●	50	65	25	95	16	47	30.5								

How to Install



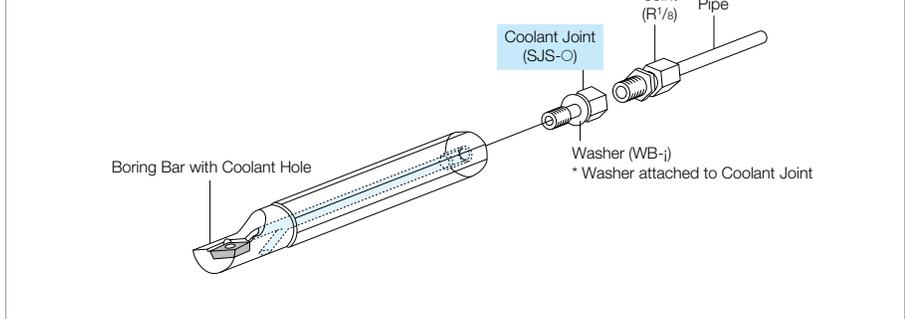
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Coolant Joint Dimensions *This Coolant Joint is not applicable for Dynamic Bar



Part Number	Stock	Dimensions (mm)				Thread (Toolholder Side)	Thread (Joint Side)	Spare Parts
		D	L1	L2	H			Washer
SJS-5	●	15	15	7	13	M5XP0.8	Rc1/8 (PT1/8)	WB-5
SJS-6	●	15	15	9	13	M6XP1.0		WB-6
SJS-8	●	15	15	13	13	M8XP1.25		WB-8

② For Gang Type Toolpost



List of Toolholders and Applicable Joints

Toolholder Part Number	Applicable Coolant Joint
A08-----OOE	SJS-5
A10-----OOE	SJS-6
A12-----OOE	SJS-6
A16-----OOE	SJS-8
A20-----OOE	SJS-8
A25-----OOE	SJS-8
E08-----OO	SJS-5
E10-----OO	SJS-5
E12-----OO	SJS-6
E16-----OO	SJS-6
E20-----OO	SJS-8
E25-----OO	SJS-8

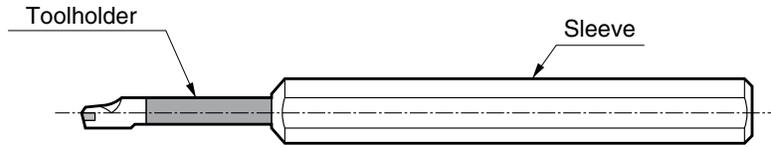
* This Coolant Joint is not applicable for Dynamic Bar

SHA / SH / SHC Sleeves and Applicable Toolholders (Listed by Shank Dia.)

Shank Size (Hole Dia. : mm)	04 (4mm)	05 (5mm)	06 (6mm)	07 (7mm)	08 (8mm)	10 (10mm)	12 (12mm)	16 (16mm)	20 (20mm)	25 (25mm)
SHA / SH / SHC Sleeve Part Numbers	SH0416-100	SH0516-100	SH0616-100	SH0716-100	SH0820-120	SH1020-120	SH1225-150	SH1632-180	SH2032-180	
					SHA0819-120	SHA1019-120				
					SHA0820-120	SHA1020-120				
					SHA0822-125	SHA1022-125	SHA1222-125			
					SHA0823-120	SHA1023-120	SHA1223-120			
					SHA0825.0-135	SHA1025.0-135	SHA1225.0-135			
					SHA0825.4-120	SHA1025.4-120	SHA1225.4-120			
					SHC0840-70	SHC1040-70	SHC1240-70	SHC1640-70	SHC2040-70	SHC2540-70
				SHC0850-95	SHC1050-95	SHC1250-95	SHC1650-95	SHC2050-95	SHC2550-95	
Boring Bars Part Numbers	C04-----	C05-----	C06-----	C07-----	A08----- E08----- S08-----	A10----- E10----- S10-----	A12----- E12----- S12-----	A16----- E16----- S16-----	A20----- E20----- S20-----	A25----- E25----- S25-----
					SIGE%0808A-EH	SIGE%1010B-EH	SIGE%1412C-EH	SIGE%1616C-EH	SIGE%2020D-EH	SIGE%2525E-EH
					SIGE%0808A-WH	SIGE%1010B-WH	SIGE%1412C-WH	KIGM%2016B-3V	KIGM%2520B-3V	KIGM%3225B-4V
Internal Grooving Toolholder Part Numbers					SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90			KITG%3525T-16
							GIV%1412-1SE	GIV%1216-1SS	GIV%1420-1S	GIV%2025-1B
							GIV%1612-1AE	GIV%2016-1BE	GIV%1620-1A	GIV%2025-2B
								GIV%2016-2BE	GIV%2520-1CE	GIV%3225-1CE
								GIV%1616-1AW	GIV%2720-2CE	GIV%3225-2CE
									GIV%2020-1BW	GIV%2525-1CW
									GIV%2020-2BW	GIV%2525-2CW
Internal Threading Toolholder Part Numbers							SINR0612S-06E	SINR0816S-08E	SIN%2420S-16	CIN%3025S-16
								SIN%1216S-11E	SINR2420S-22	CINR3025S-22
								SIN%1516S-11		
								SIN%1616S-16		
							SIN%2016S-16			

* For SHA sleeves, please ref. to page **F102**
 For SH / SL / SHC sleeves, please ref. to page **F103**

C...-AS (Assembly List)



Assembly configuration

Assembly (Discontinued Part Number)	Toolholder (Discontinued Part Number)	Alternative Toolholder (Dynamic Bar)	Sleeve Part Number	Notes
C04G-SCLCR03-05-AS SCLCL03-05-AS	C04G-SCLCR03-05 SCLCL03-05	C04G-SCLCR03-05AN SCLCL03-05AN	SH0416-100	Difference of Alternative Toolholder No Coolant Hole → With Coolant Hole Front Cutting Edge Angle 3° → 5°
C05H-SCLCR03-06-AS SCLCL03-06-AS	C05H-SCLCR03-06 SCLCL03-06	C05H-SCLCR03-06AN SCLCL03-06AN	SH0516-100	
C05H-SWUBR06-06-AS SWUBL06-06-AS	C05H-SWUBR06-06 SWUBL06-06	C05H-SWUBR06-06AN SWUBL06-06AN	SH0516-100	
C06J-SCLCR04-07-AS SCLCL04-07-AS	C06J-SCLCR04-07 SCLCL04-07	C06J-SCLCR04-07AN SCLCL04-07AN	SH0616-100	
C06J-SWUBR06-07-AS SWUBL06-07-AS	C06J-SWUBR06-07 SWUBL06-07	C06J-SWUBR06-07AN SWUBL06-07AN	SH0616-100	
C07K-SCLCR04-08-AS SCLCL04-08-AS	C07K-SCLCR04-08 SCLCL04-08	C07K-SCLCR04-08AN SCLCL04-08AN	SH0716-100	
C07K-SWUBR08-08-AS SWUBL08-08-AS	C07K-SWUBR08-08 SWUBL08-08	C07K-SWUBR08-08AN SWUBL08-08AN	SH0716-100	
C08L-STUPR08-10-AS	C08L-STUPR08-10	E08L-STLPR08-10AN	SH0820-120	
C10N-STUPR09-12-AS	C10N-STUPR09-12	E10N-STLPR09-12AN	SH1020-120	
C10N-STUPR11-12-AS	C10N-STUPR11-12	E10N-STLPR11-12AN	SH1225-150	
C12Q-STUPR09-16-AS	C12Q-STUPR09-16	E12Q-STLPR09-16A		
C12Q-STUPR11-14-AS	C12Q-STUPR11-14	E12Q-STLPR11-14A	SH1632-180	
C12Q-STUPR11-16-AS	C12Q-STUPR11-16	E12Q-STLPR11-16A		
C16X-STUPR11-18-AS	C16X-STUPR11-18	E16X-STLPR11-18A	SH2032-180	
C16X-STUPR11-20-AS	C16X-STUPR11-20	E16X-STLPR11-20A		
C20S-STUPR11-25-AS	C20S-STUPR11-25	E20S-STLPR11-22A	SH2032-180	
C20S-STUPR16-25-AS	C20S-STUPR16-25	E20S-STLPR16-25A		

* "AS" indicates an assembly of toolholder and sleeve.
You can purchase the toolholder and sleeve and assemble them to make the corresponding assembly part.

Former Parts List (Boring Bar)

Part Number (Previous Part Number)	Spare Parts				
	Clamp Screw	Wrench	Shim	Shim Screw	Wrench
S32S-SVJB% 16-40E S40T-SVJB% 16-50E S25X-SVPB% 16-34E S32S-SVPB% 16-40E S25X-SVUB% 16-34E S32S-SVUB% 16-40E S25X-SVZB% 16-34E S32S-SVZB% 16-40E	 SB-40115TR	 FT-15	 SVN-32	 SB-2050TR	 FT-6

- S32S-SVJB% 16-40E and S40T-SVJB% 16-50E have been replaced by A32S-SVJB% 16-40AE and A40T-SVJB% 16-50AE respectively. Ref. page [F66](#)
- S25X-SVPB% 16-34E and S32S-SVPB% 16-40E have been replaced by A25S-SVPB% 16-34AE and A32S-SVPB% 16-40AE respectively. Ref. page [F68](#)
- S25X-SVUB% 16-34E and S32S-SVUB% 16-40E have been replaced by A25S-SVUB% 16-34AE and A32S-SVUB% 16-40AE respectively. Ref. page [F71](#)
- S25X-SVZB% 16-34E and S32S-SVZB% 16-40E have been replaced by A25S-SVZB% 16-34AE and A32S-SVZB% 16-40AE respectively. Ref. page [F71](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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ALTERNATIVE TOOLHOLDER REFERENCE TABLE

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Part Number)				Alternative Toolholder								
Shank type	Insert Shape	Coolant Hole	Part Number	Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)					
				Coolant Hole	Part Number	Ref. to Page	Coolant Hole	Part Number	Ref. to Page			
Excellent Bar	CC..	No	S08X-SCLC% 06-10E	Yes	A08X-SCLC% 06-10AE	F45	No	S08X-SCLC% 06-10A	F45			
			S10H-SCLC% 03-05E	No	S10H-SCLC% 03-05AE		-	-	-			
			S10H-SCLC% 03-06E		S10H-SCLC% 03-06AE		-	-				
			S10J-SCLC% 04-07E		S10H-SCLC% 04-07AE		-	-				
			S10J-SCLC% 04-08E		S10H-SCLC% 04-08AE		-	-				
		A08H-SCLC% 06-10E	Yes		A08X-SCLC% 06-10AE		No	S08X-SCLC% 06-10A	F45			
		CP..	No	S10M-SCLP% 08-12E	Yes		A10L-SCLP% 08-12AE	F49	No	S10L-SCLP% 08-12A	F49	
				S12M-SCLP% 08-14E			A12M-SCLP% 08-14AE			S12M-SCLP% 08-14A		
				S12M-SCLP% 09-16E			A12M-SCLP% 09-16AE			S12M-SCLP% 09-16A		
				S16Q-SCLP% 09-18E			A16Q-SCLP% 09-18AE			S16Q-SCLP% 09-18A		
	S16R-SCLP% 09-20E			A20R-SCLP% 09-22AE		S20R-SCLP% 09-22A						
	S20X-SCLP% 09-25E			A10X-SCLP% 08-12E		S10L-SCLP% 08-12A						
	A10X-SCLP% 08-12E			A10L-SCLP% 08-12AE		S12M-SCLP% 08-14A						
	A12X-SCLP% 08-14E			A12M-SCLP% 08-14AE		S12M-SCLP% 09-16A						
	A12X-SCLP% 09-16E			A12M-SCLP% 09-16AE		S16Q-SCLP% 09-18A						
	A16M-SCLP% 09-18E			A16Q-SCLP% 09-18AE		S20R-SCLP% 09-22A						
	Yes		A16M-SCLP% 09-20E	A20R-SCLP% 09-22AE	F49	No	S10L-SCLP% 08-12A	F49				
			A20Q-SCLP% 09-25E	A10L-SCLP% 08-12AE			S12M-SCLP% 08-14A					
			A10X-SCLP% 08-12E	A12M-SCLP% 08-14AE			S12M-SCLP% 09-16A					
			A12X-SCLP% 08-14E	A12M-SCLP% 09-16AE			S16Q-SCLP% 09-18A					
			A12X-SCLP% 09-16E	A16Q-SCLP% 09-18AE			S20R-SCLP% 09-22A					
			A16M-SCLP% 09-18E	A20R-SCLP% 09-22AE			S10L-SCLP% 08-12A					
			A16M-SCLP% 09-20E	A10L-SCLP% 08-12AE			S12M-SCLP% 08-14A					
			A20Q-SCLP% 09-25E	A12M-SCLP% 08-14AE			S12M-SCLP% 09-16A					
			A10X-SCLP% 08-12E	A12M-SCLP% 09-16AE			S16Q-SCLP% 09-18A					
			A12X-SCLP% 08-14E	A16Q-SCLP% 09-18AE			S20R-SCLP% 09-22A					
	DC..	No	S10M-SDUC% 07-14E	Yes	A10L-SDUC% 07-14AE	F53	No	S10L-SDUC% 07-14A	F53			
			S12M-SDUC% 07-16E		A12M-SDUC% 07-16AE			S12M-SDUC% 07-16A				
			S16Q-SDUC% 07-20E		A16Q-SDUC% 07-20AE			S16Q-SDUC% 07-20A				
			S16Q-SDUC% 11-25E		A16Q-SDUC% 11-23AE			S16Q-SDUC% 11-23A				
			S20Q-SDUC% 11-32E		A20R-SDUC% 11-27AE			S20R-SDUC% 11-27A				
		No	S10M-SDZC% 07-14E		A10L-SDZC% 07-14AE			F55		No	S10L-SDZC% 07-14A	F55
			S12M-SDZC% 07-16E		A12M-SDZC% 07-16AE						S12M-SDZC% 07-16A	
			S16Q-SDZC% 07-20E		A16Q-SDZC% 07-20AE						S16Q-SDZC% 07-20A	
			S16Q-SDZC% 11-25E		A16Q-SDZC% 11-23AE						S16Q-SDZC% 11-23A	
			S20Q-SDZC% 11-32E		A20R-SDZC% 11-27AE						S20R-SDZC% 11-27A	
	TB..	No	S06H-STUB% 06-08E	No	S06H-STLB% 06-08AE	F61	No	S06H-STLB% 06-08A	F61			
		TP..	No	S08K-STUP% 08-10E	Yes	A08X-STLP% 08-10AE	F61	No	S08X-STLP% 08-10A	F61		
	S10M-STUP% 09-12E			A10L-STLP% 09-12AE		S10L-STLP% 09-12A						
	S10M-STUP% 11-12E			A10L-STLP% 11-12AE		S10L-STLP% 11-12A						
	S12M-STUP% 09-16E			A12M-STLP% 09-16AE		S12M-STLP% 09-16A						
	S12M-STUP% 11-14E			A12M-STLP% 11-14AE		S12M-STLP% 11-14A						
	S12M-STUP% 11-16E			A16Q-STLP% 11-18AE		S16Q-STLP% 11-18A						
	S16R-STUP% 11-18E			A20R-STLP% 11-22AE		S20R-STLP% 11-22A						
	S16R-STUP% 11-20E			A20R-STLP% 16-25AE		-						
	S20X-STUP% 11-25E			A20R-STLP% 16-25AE		-						
	S20X-STUP% 16-25E			A25S-STLP% 16-27AE		No			S25S-STLP% 16-27A		F61	
	Yes	A25X-STUP% 16-32E	A08X-STLP% 08-10AE	F61	No	S08X-STLP% 08-10A	F61					
		A08H-STUP% 08-10E	A10L-STLP% 09-12AE			S10L-STLP% 09-12A						
		A10X-STUP% 09-12E	A10L-STLP% 11-12AE			S10L-STLP% 11-12A						
		A10X-STUP% 11-12E	A12M-STLPR09-16AE			S12M-STLPR09-16A						
		A12X-STUP% 11-14E	A12M-STLP% 11-14AE			S12M-STLP% 11-14A						
		A12X-STUPR11-16E	A12M-STLPR11-14AE			S12M-STLPR11-14A						
		A16M-STUP% 11-18E	A16Q-STLP% 11-18AE			S16Q-STLP% 11-18A						
		A16M-STUP% 11-20E	A20R-STLP% 11-22AE			S20R-STLP% 11-22A						
		A20Q-STUP% 11-25E	A20R-STLP% 16-25AE			-						
		A20Q-STUP% 16-25E	A25S-STLP% 16-27AE			No		S25S-STLP% 16-27A	F61			
	VB..	No	S20R-SVJB% 11-25E	Yes	A20R-SVJB% 11-25AE	F66	No	S20R-SVJB% 11-25A	F66			
			S25S-SVJB% 11-30E		A25S-SVJB% 11-30AE			S25S-SVJB% 11-30A				
			S32S-SVJB% 16-40EN		A32S-SVJB% 16-40AE			S32S-SVJB% 16-40A				
			S40T-SVJB% 16-50EN			A40T-SVJB% 16-50AE			S40T-SVJB% 16-50A			

Note) The corresponding replacements may be different from the conventional parts in minimum machining diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

ALTERNATIVE TOOLHOLDER REFERENCE TABLE

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Part Number)				Alternative Toolholder							
Shank type	Insert Shape	Coolant Hole	Part Number	Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)				
				Coolant Hole	Part Number	Ref. to Page	Coolant Hole	Part Number	Ref. to Page		
Excellent Bar	VB..	No	S12M-SVPB% 11-20E	Yes	A12M-SVPB% 11-18AE	F68	No	S12M-SVPB% 11-18A	F68		
			S16Q-SVPB% 11-25E		A16Q-SVPB% 11-22AE			S16Q-SVPB% 11-22A			
			S25X-SVPB% 16-34EN		A25S-SVPB% 16-31AE			S25S-SVPB% 16-31A			
			S32S-SVPB% 16-40EN		A32S-SVPB% 16-40AE			S32S-SVPB% 16-40A			
		No	S16Q-SVUB% 11-20E	Yes	A16Q-SVUB% 11-20AE	F71	No	S16Q-SVUB% 11-20A	F71		
			S20R-SVUB% 11-25E		A20R-SVUB% 11-25AE			S20R-SVUB% 11-25A			
			S25X-SVUB% 16-34EN		A25S-SVUB% 16-34AE			S25S-SVUB% 16-34A			
			S32S-SVUB% 16-40EN		A32S-SVUB% 16-40AE			S32S-SVUB% 16-40A			
		No	S16Q-SVZB% 11-20E	Yes	A16Q-SVZB% 11-20AE	F71	No	S16Q-SVZB% 11-20A	F71		
			S20R-SVZB% 11-25E		A20R-SVZB% 11-25AE			S20R-SVZB% 11-25A			
			S25X-SVZB% 16-34EN		A25S-SVZB% 16-34AE			S25S-SVZB% 16-34A			
			S32S-SVZB% 16-40EN		A32S-SVZB% 16-40AE			S32S-SVZB% 16-40A			
	VC..	No	S12M-SVJC% 08-16E	Yes	A12M-SVJC% 08-16AE	F66	No	S12M-SVJC% 08-16A	F66		
			S16Q-SVJC% 08-20E		A16Q-SVJC% 08-20AE			S16Q-SVJC% 08-20A			
		No	S10M-SVPC% 08-16E	Yes	A10L-SVPC% 08-14AE	F68	No	S10L-SVPC% 08-14A	F68		
			S12M-SVUC% 08-16E		A12M-SVUC% 08-16AE			S12M-SVUC% 08-16A			
	No	S12M-SVZC% 08-16E	Yes	A12M-SVZC% 08-16AE	F71	No	S12M-SVZC% 08-16A	F71			
		S12M-SVZC% 08-16E		A12M-SVZC% 08-16AE			S12M-SVZC% 08-16A				
	VP..	No	S12M-SVJP% 08-16E	Yes	A12M-SVJP% 08-16AE	F66	No	S12M-SVJP% 08-16A	F66		
			S12M-SVJP% 08-16E		A12M-SVJP% 08-16AE			S12M-SVJP% 08-16A			
	WB..	No	S08K-SWUB% 08-10E	Yes	A08X-SWUB% 08-10AE	F75	No	S08X-SWUB% 08-10A	F75		
			S10M-SWUB% 08-12E		A10L-SWUB% 08-12AE			S10L-SWUB% 08-12A			
			S10H-SWUB% 06-06E	No	S10H-SWUB% 06-06AE			S10H-SWUB% 06-06A			
			S10H-SWUB% 06-07E		S10H-SWUB% 06-07AE			S10H-SWUB% 06-07A			
			S10J-SWUB% 08-08E		S10H-SWUB% 08-08AE			S10H-SWUB% 08-08A			
	WP..	No	S12M-SWUP% 11-14E	Yes	A12M-SWUP% 11-14AE	F75	No	S12M-SWUP% 11-14A	F75		
			S12M-SWUP% 11-16E		A16Q-SWUP% 11-18AE			S16Q-SWUP% 11-18A			
			S16N-SWUP% 11-18E		A16Q-SWUP% 16-18AE			S16Q-SWUP% 16-18A			
			S16Q-SWUP% 16-20E		A20R-SWUP% 16-22AE			S20R-SWUP% 16-22A			
	Steel Bar	CC..	No	S08X-SCLC% 06-10	No	S08X-SCLC% 06-10A	F45	-	-	-	
		CP..	No	S10M-SCLP% 08-12	No	S10L-SCLP% 08-12A	F49	-	-	-	
				S12M-SCLP% 08-14		S12M-SCLP% 08-14A					
				S12M-SCLP% 09-16		S12M-SCLP% 09-16A					
				S16N-SCLP% 09-18		S16Q-SCLP% 09-18A					
				S16Q-SCLP% 09-20		S20R-SCLP% 09-22A					
				S25S-SCLP% 09-30		S25S-SCLP% 09-27A					
DC..		No	S16Q-SDUC% 07-14	No	S16Q-SDUC% 07-14A	F53	-	-	-		
			S16Q-SDUC% 07-16		S20R-SDUC% 11-20A						
			S20R-SDUC% 11-20		No					S25S-SDUC% 11-32A	F53
			S25X-SDUC% 11-25							S16Q-SDUC% 11-23A	
No		S16Q-SDZC% 07-14	No	S16Q-SDZC% 07-14A	F55	-	-	-			
		S16Q-SDZC% 07-16		S20R-SDZC% 11-20A							
		S20R-SDZC% 11-20		No					S25S-SDZC% 11-32A	F55	
		S25X-SDZC% 11-25							S16Q-SDZC% 11-23A		
TB..		No	S06H-STUB% 06-08	No	S06H-STLB% 06-08A	F61	-	-	-		
TP..		No	S08K-STUP% 08-10	No	S08X-STLP% 08-10A	F61	-	-	-		
			S10M-STUP% 09-12		S10L-STLP% 09-12A						
			S12M-STUP% 09-16		S12M-STLP% 09-16A						
			S16Q-STUP% 11-20		S16Q-STLP% 11-18A						
			S20R-STUP% 11-25		S20R-STLP% 11-22A						
			S25X-STUP% 16-32		S25S-STLP% 16-27A						
WB..		No	S10H-SWUB% 06-06	No	S10H-SWUB% 06-06A	F75	-	-	-		
			S10H-SWUB% 06-06-15		S10H-SWUB% 06-07A						
			S10H-SWUB% 06-07		S10H-SWUB% 06-07A						
			S10J-SWUB% 08-08		S10H-SWUB% 08-08A						
			S10J-SWUB% 08-08-20		S10H-SWUB% 08-08A						

Note) The corresponding replacements may be different from the conventional parts in minimum machining diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

ALTERNATIVE TOOLHOLDER REFERENCE TABLE

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Part Number)				Alternative Toolholder				
Shank type	Insert Shape	Coolant Hole	Part Number	Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)	
				Coolant Hole	Part Number	Ref. to Page	Coolant Hole	Part Number	Ref. to Page
Carbide Shank Boring Bar	CC..	No	C04G-SCLC% 03-05 (A)	No	C04G-SCLC% 03-05AN	F45	-	-
			C05H-SCLC% 03-06 (A)		C05H-SCLC% 03-06AN			
			C06J-SCLC% 04-07 (A)		C06J-SCLC% 04-07AN			
			C07K-SCLC% 04-08 (A)		C07K-SCLC% 04-08AN			
			C08L-SCLC% 06-10		C08L-SCLC% 06-10AN			
		Yes	E08L-SCLC% 06-10 (A)	E08L-SCLC% 06-10AN	F45	-	-	
			E08L-SCLCR06-10A-2/3	E08L-SCLCR06-10AN2/3				
			E10N-SCLC% 06-12A	E10N-SCLC% 06-12AN				
			E10N-SCLCR06-12A-2/3	E10N-SCLCR06-12AN2/3				
	CP..	No	C10N-SCLP% 08-12	Yes	E10N-SCLP% 08-12AN	F49	-	-
			C10N-SCLPR08-12-1/2		E10N-SCLPR08-12AN1/2			
			C10N-SCLPR08-12-2/3		E10N-SCLPR08-12AN2/3			
			C12Q-SCLP% 09-16		E12Q-SCLP% 09-16A			
			C12Q-SCLPR09-16-1/2		E12Q-SCLPR09-16A-1/2			
			C12Q-SCLPR09-16-2/3		E12Q-SCLPR09-16A-2/3			
			C16X-SCLP% 09-20		E16X-SCLP% 09-18A			
			C16X-SCLPR09-20-1/2		E16X-SCLPR09-18A-1/2			
			C16X-SCLPR09-20-2/3		E16X-SCLPR09-18A-2/3			
			C20S-SCLP% 09-25		E20S-SCLP% 09-22A			
		Yes	C20S-SCLPR09-25-1/2	E20S-SCLPR09-22A-1/2	F49	-	-	
			C20S-SCLPR09-25-2/3	E20S-SCLPR09-22A-2/3				
			E10N-SCLP% 08-12 (A)	E10N-SCLP% 08-12AN				
			E10N-SCLPR08-12A-1/2	E10N-SCLPR08-12AN1/2				
			E10N-SCLPR08-12A-2/3	E10N-SCLPR08-12AN2/3				
			E12Q-SCLP% 09-16	E12Q-SCLP% 09-16A				
			E16X-SCLP% 09-20	E16X-SCLP% 09-18A				
			E20S-SCLP% 09-25	E20S-SCLP% 09-22A				
	DC..	No	C10N-SDUC% 07-14	Yes	E10N-SDUC% 07-14A	F53	-	-
			C12Q-SDUC% 07-16		E12Q-SDUC% 07-16A			
			C12Q-SDUC% 11-20		E16X-SDUC% 11-23A			
			C16X-SDUC% 11-25		E20S-SDUC% 11-27A			
			C20S-SDUC% 11-32					
	TB..	No	C06J-STLB% 06-08A	No	C06J-STLB% 06-08AN	F61	-	-
			C10L-STUB% 06-08		C06J-STLB% 06-08AN			
	TP..	Yes	E08L-STLP% 08-10A	Yes	E08L-STLP% 08-10AN	F61	-	-
			E08L-STLP% 09-10A		E08L-STLP% 09-10AN			
			E10N-STLP% 09-12A		E10N-STLP% 09-12AN			
			E10N-STLPR09-12A-1/2		E10N-STLPR09-12AN1/2			
			E10N-STLPR09-12A-2/3		E10N-STLPR09-12AN2/3			
			E10N-STLP% 11-12A		E10N-STLP% 11-12AN			
			E10N-STLPR11-12A-1/2		E10N-STLPR11-12AN1/2			
			E10N-STLPR11-12A-2/3		E10N-STLPR11-12AN2/3			
		No	C08L-STUP% 08-10	Yes	E08L-STLP% 08-10AN	F61	-	-
			C10N-STUP% 09-12		E10N-STLP% 09-12AN			
			C10N-STUPR09-12-1/2		E10N-STLPR09-12AN-1/2			
			C10N-STUPR09-12-2/3		E10N-STLPR09-12AN-2/3			
			C10N-STUP% 11-12		E10N-STLP% 11-12AN			
			C10N-STUPR11-12-1/2		E10N-STLPR11-12AN-1/2			
			C10N-STUPR11-12-2/3		E10N-STLPR11-12AN-2/3			
			C12Q-STUP% 09-16		E12Q-STLP% 09-16A			
			C12Q-STUPR09-16-1/2		E12Q-STLPR09-16A-1/2			
			C12Q-STUPR09-16-2/3		E12Q-STLPR09-16A-2/3			
	C12Q-STUP% 11-14	E12Q-STLP% 11-14A						
	C12Q-STUPR11-14-1/2	E12Q-STLPR11-14A-1/2						
	C12Q-STUPR11-14-2/3	E12Q-STLPR11-14A-2/3						
	C12Q-STUP% 11-16	E12Q-STLP% 11-14A						
	C12Q-STUPR11-16-1/2	E12Q-STLPR11-14A-1/2						
	C12Q-STUPR11-16-2/3	E12Q-STLPR11-14A-2/3						

Note) The corresponding replacements may be different from the conventional parts in minimum machining diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

ALTERNATIVE TOOLHOLDER REFERENCE TABLE

Alternative Toolholder Reference Table for Boring Bar

Boring Bar (Discontinued Part Number)				Alternative Toolholder										
Shank type	Insert Shape	Coolant Hole	Part Number	Dynamic Bar (1st Recommendation)			Dynamic Bar (2nd Recommendation)							
				Coolant Hole	Part Number	Ref. to Page	Coolant Hole	Part Number	Ref. to Page					
Carbide Shank Boring Bar	TP..	No	C16X-STUP $\frac{\%}{11}$ -18	Yes	E16X-STLP $\frac{\%}{11}$ -18A	F61	-	-						
			C16X-STUPR11-18-1/2		E16X-STLPR11-18A-1/2									
			C16X-STUPR11-18-2/3		E16X-STLPR11-18A-2/3									
			C16X-STUP $\frac{\%}{11}$ -20		E16X-STLP $\frac{\%}{11}$ -18A									
			C16X-STUPR11-20-1/2		E16X-STLPR11-18A-1/2									
			C16X-STUPR11-20-2/3		E16X-STLPR11-18A-2/3									
			C20S-STUP $\frac{\%}{11}$ -25		E20S-STLP $\frac{\%}{11}$ -22A									
			C20S-STUPR11-25-1/2		E20S-STLPR11-22A-1/2									
			C20S-STUPR11-25-2/3		E20S-STLPR11-22A-2/3									
			C20S-STUP $\frac{\%}{16}$ -25		E20S-STLP $\frac{\%}{16}$ -25A									
			C20S-STUPR16-25-1/2		E20S-STLPR16-25A-1/2									
			C20S-STUPR16-25-2/3		E20S-STLPR16-25A-2/3									
		Yes	E08L-STUP $\frac{\%}{08}$ -10	Yes	E08L-STLP $\frac{\%}{08}$ -10AN	F61	-	-						
			E10N-STUP $\frac{\%}{09}$ -12		E10N-STLP $\frac{\%}{09}$ -12AN									
			E10N-STUP $\frac{\%}{11}$ -12		E10N-STLP $\frac{\%}{11}$ -12AN									
			E12Q-STUP $\frac{\%}{09}$ -16		E12Q-STLP $\frac{\%}{09}$ -16A									
			E12Q-STUP $\frac{\%}{11}$ -14		E12Q-STLP $\frac{\%}{11}$ -14A									
			E12Q-STUP $\frac{\%}{11}$ -16											
			E16X-STUP $\frac{\%}{11}$ -18		E16X-STLP $\frac{\%}{11}$ -18A									
			E16X-STUP $\frac{\%}{11}$ -20											
			E20S-STUPR11-25		E20S-STLPR11-22A									
			E20S-STUPR16-25											
			WB..		No				C05H-SWUB $\frac{\%}{06}$ -06	No	C05H-SWUB $\frac{\%}{06}$ -06AN	F75	-	-
									C06J-SWUB $\frac{\%}{06}$ -07		C06J-SWUB $\frac{\%}{06}$ -07AN			
	C07K-SWUB $\frac{\%}{08}$ -08	C07K-SWUB $\frac{\%}{08}$ -08AN												
	C08L-SWUB $\frac{\%}{08}$ -10	E08L-SWUB $\frac{\%}{08}$ -10AN												
	C10N-SWUB $\frac{\%}{08}$ -12	E10N-SWUB $\frac{\%}{08}$ -12AN												
	C10N-SWUBR08-12-1/2	E10N-SWUBR08-12AN1/2												
	C10N-SWUBR08-12-2/3	E10N-SWUBR08-12AN2/3												
	Yes	E08L-SWUB $\frac{\%}{08}$ -10A		Yes	E08L-SWUB $\frac{\%}{08}$ -10AN									
		E10N-SWUB $\frac{\%}{08}$ -12A			E10N-SWUB $\frac{\%}{08}$ -12AN									
		E10N-SWUBR08-12A-1/2			E10N-SWUBR08-12AN1/2									
		E10N-SWUBR08-12A-2/3			E10N-SWUBR08-12AN2/3									
		WP..			No	C12Q-SWUP $\frac{\%}{11}$ -14	Yes	E12Q-SWUP $\frac{\%}{11}$ -14A	F75	-	-			
			C12Q-SWUPR11-14-1/2			E12Q-SWUPR11-14A-1/2								
	C12Q-SWUPR11-14-2/3		E12Q-SWUPR11-14A-2/3											
	C12Q-SWUP $\frac{\%}{11}$ -16		E12Q-SWUP $\frac{\%}{11}$ -14A											
	C12Q-SWUPR11-16-1/2		E12Q-SWUPR11-14A-1/2											
	C12Q-SWUPR11-16-2/3		E12Q-SWUPR11-14A-2/3											
	C16X-SWUP $\frac{\%}{11}$ -18		E16X-SWUP $\frac{\%}{11}$ -18A											
	C16X-SWUPR11-18-1/2		E16X-SWUPR11-18A-1/2											
	C16X-SWUPR11-18-2/3		E16X-SWUPR11-18A-2/3											
	C16X-SWUP $\frac{\%}{16}$ -20		E16X-SWUP $\frac{\%}{16}$ -18A											
	C16X-SWUPR16-20-1/2		E16X-SWUPR16-18A-1/2											
	C16X-SWUPR16-20-2/3		E16X-SWUPR16-18A-2/3											
	C20S-SWUP $\frac{\%}{16}$ -25	E20S-SWUP $\frac{\%}{16}$ -22A												
	C20S-SWUPR16-25-1/2	E20S-SWUPR16-22A-1/2												
	C20S-SWUPR16-25-2/3	E20S-SWUPR16-22A-2/3												

Note) The corresponding replacements may be different from the conventional parts in minimum machining diameter or applicable insert size. Make sure of their specifications by referring to the catalog or other documents.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions - Boring (Positive Insert)

[D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit			
								Vc (sfm)	D.O.C. (inch)	Feed Rate f (ipr)	
P	Low-carbon Steel Low-carbon Alloy	HB 300	Finishing (Solid Bar)	Continuous	EZB-F	PR1225	0.002	100 - 230 - 360	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0016 - 0.0028	
				Interrupted	EZB-H		0.006	100 - 200 - 300	0.0020 - 0.0039 - 0.0079	0.0012 - 0.0028 - 0.0039	
			Finishing	F	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028		
				Interrupted			0.008	130 - 230 - 330	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039	
				Finishing-Medium	Continuous	CF	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0020 - 0.0028
				Interrupted			0.008	130 - 230 - 330	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0028 - 0.0039	
	Medium-carbon Steel Medium-carbon Alloy	HB 300	Finishing (Solid Bar)	Continuous	EZB-F	PR1225	0.002	100 - 230 - 360	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0016 - 0.0028	
				Interrupted	EZB-H		0.006	100 - 200 - 300	0.0020 - 0.0039 - 0.0079	0.0012 - 0.0028 - 0.0039	
			Finishing	F	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028		
			Interrupted			0.008	130 - 230 - 390	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039		
			Finishing-Medium	Continuous	CF	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0020 - 0.0028	
			Interrupted			0.008	130 - 230 - 330	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0028 - 0.0039		
High-carbon Alloy	HB 280	Finishing (Solid Bar)	Continuous	EZB-F	PR1225	0.002	100 - 230 - 360	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0016 - 0.0028		
			Interrupted	EZB-H		0.006	100 - 200 - 300	0.0020 - 0.0039 - 0.0079	0.0012 - 0.0028 - 0.0039		
		Finishing	F	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028			
			Interrupted			0.008	130 - 230 - 330	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039		
			Finishing-Medium	Continuous	CF	PR1725	0.004	130 - 260 - 390	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0020 - 0.0028	
			Interrupted			0.008	130 - 230 - 330	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0028 - 0.0039		
M	Stainless Steel	HB 220	Finishing (Solid Bar)	Continuous	EZB-F	PR1225	0.002	100 - 200 - 260	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0012 - 0.0020	
				Interrupted	EZB-H		0.006	100 - 200 - 260	0.0020 - 0.0039 - 0.0079	0.0008 - 0.0020 - 0.0028	
			Finishing	F	PR1225 PR1535	0.004	100 - 200 - 260	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0028 - 0.0039		
				Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039	
				Finishing-Medium	Continuous	CF	PR1225 PR1535	0.004	100 - 200 - 260	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0020 - 0.0028
				Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0028 - 0.0039	
Stainless Steel	HB 300	Finishing (Solid Bar)	Continuous	EZB-F	PR1225	0.002	100 - 200 - 260	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0012 - 0.0020		
			Interrupted	EZB-H		0.006	100 - 200 - 260	0.0020 - 0.0039 - 0.0079	0.0008 - 0.0020 - 0.0028		
		Finishing	F	PR1225 PR1535	0.004	100 - 200 - 260	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0028 - 0.0039			
			Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039		
			Finishing-Medium	Continuous	CF	PR1225 PR1535	0.004	100 - 200 - 260	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0020 - 0.0028	
			Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0059 - 0.0098	0.0012 - 0.0028 - 0.0039		
K	Gray Cast Iron	HB 250	Finishing (Solid Bar)	Continuous	(VNB)	KW10	0.001	100 - 200 - 330	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028	
				Interrupted	(VNB-NB)		0.008	100 - 200 - 330	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039	
			Finishing	F	KW10	0.004	100 - 200 - 330	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028		
				Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039	
				Finishing-Medium	Continuous	Without Chipbreaker	KW10	0.008	100 - 200 - 330	0.0039 - 0.0079 - 0.0118	0.0012 - 0.0020 - 0.0028
				Interrupted			1/64	100 - 200 - 260	0.0039 - 0.0079 - 0.0118	0.0012 - 0.0028 - 0.0039	
Nodular Cast Iron	HB 270	Finishing (Solid Type)	Continuous	(VNB)	KW10	0.001	100 - 200 - 260	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028		
			Interrupted	(VNB-NB)		0.008	100 - 200 - 260	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039		
		Finishing	F, U	KW10	0.004	100 - 200 - 260	0.0020 - 0.0031 - 0.0039	0.0012 - 0.0020 - 0.0028			
			Interrupted			0.008	100 - 200 - 260	0.0020 - 0.0039 - 0.0059	0.0012 - 0.0028 - 0.0039		
			Finishing-Medium	Continuous	Without Chipbreaker	KW10	0.008	100 - 200 - 330	0.0039 - 0.0079 - 0.0118	0.0012 - 0.0020 - 0.0028	
			Interrupted			1/64	100 - 200 - 260	0.0039 - 0.0079 - 0.0118	0.0012 - 0.0028 - 0.0039		
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloy	HB 100	High Speed Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.002	490 - 660 - 980	0.0020 - 0.0039 - 0.0118	0.0020 - 0.0039 - 0.0059	
				Interrupted							
			Finishing (Long Tool Life)	Continuous	F, U	PDL025	0.004	330 - 490 - 660	0.0020 - 0.0118 - 0.0197	0.0012 - 0.0039 - 0.0079	
			Interrupted			0.008	330 - 490 - 660	0.0020 - 0.0118 - 0.0197	0.0012 - 0.0039 - 0.0079		
			Finishing	Continuous	F, U	KW10	0.004	330 - 490 - 660	0.0020 - 0.0118 - 0.0197	0.0012 - 0.0039 - 0.0079	
			Interrupted			0.008	330 - 490 - 660	0.0020 - 0.0118 - 0.0197	0.0012 - 0.0039 - 0.0079		
S	Titanium Alloy	HB 400	Precision Finishing (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.004	330 - 390 - 490	0.0020 - 0.0039 - 0.0118	0.0012 - 0.0028 - 0.0039	
				Interrupted			0.008	230 - 330 - 390	0.0020 - 0.0039 - 0.0118	0.0012 - 0.0028 - 0.0039	
	Finishing	Continuous	F, U	KW10	0.004	70 - 130 - 200	0.0020 - 0.0079 - 0.0197	0.0012 - 0.0039 - 0.0079			
		Interrupted			0.008	70 - 130 - 200	0.0020 - 0.0079 - 0.0197	0.0012 - 0.0039 - 0.0079			
Heat-resistant Alloys	HB 350	Finishing (Solid Bar)	Continuous	(VNB)	KW10	0.008	30 - 100 - 160	0.0020 - 0.0039 - 0.0118	0.0012 - 0.0020 - 0.0039		
			Interrupted			0.008	30 - 100 - 160	0.0020 - 0.0039 - 0.0118	0.0012 - 0.0020 - 0.0031		
			Finishing	Continuous	F, U	KW10	0.008	30 - 100 - 160	0.0020 - 0.0079 - 0.0157	0.0012 - 0.0020 - 0.0039	
			Interrupted			0.008	30 - 100 - 160	0.0020 - 0.0079 - 0.0157	0.0012 - 0.0020 - 0.0039		
H	Hardened Steel Hardened Materials	40 ~ 50 HRC	Finishing	Continuous	(VNB)	PR930	0.008	100 - 160 - 230	0.0020 - 0.0039 - 0.0157	0.0004 - 0.0008 - 0.0020	
		Interrupted				0.008	100 - 160 - 230	0.0020 - 0.0039 - 0.0079	0.0004 - 0.0008 - 0.0012		
		45 ~ 68 HRC	Finishing	Continuous	ME	KBN05M	0.008	200 - 330 - 460	0.0020 - 0.0039 - 0.0079	0.0008 - 0.0020 - 0.0039	
		Interrupted		MES		1/64	200 - 260 - 390	0.0020 - 0.0039 - 0.0079	0.0008 - 0.0020 - 0.0039		

F
BORING

Recommended Cutting Conditions - Boring (Positive Insert)

[D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit			INSERT GRADES	
								Vc (sfm)	D.O.C. (inch)	Feed Rate f (ipr)		A
P	Low-carbon Steel Low-carbon Alloy	HB 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.004 0.008	820 - 980 - 1150 390 - 560 - 720	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006	TURNING INSERTS		B
			Finishing	Continuous Interruption	XP	PV710 CA525	1/64 1/64	660 - 820 - 980 490 - 660 - 820	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Finishing-Medium	Continuous Interruption	XQ	PV710 CA525	1/64 1/64	490 - 660 - 820 330 - 490 - 660	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.059	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008		
			Medium	Continuous Interruption	Standard	PV720 CA525	1/32 1/32	330 - 490 - 660 260 - 390 - 490	0.039 - 0.059 - 0.098 0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.012 0.004 - 0.006 - 0.008		
	Medium-carbon Steel Medium-carbon Alloy	HB 300	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.008 1/64	490 - 660 - 820 390 - 460 - 560	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006	TURNING HOLDERS	D
			Finishing	Continuous Interruption	PP	PV710 CA525	1/64 1/64	490 - 660 - 820 390 - 590 - 660	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Finishing-Medium	Continuous Interruption	HQ	PV710 CA525	1/64 1/64	390 - 590 - 720 330 - 490 - 660	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.059	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008		
			Medium	Continuous Interruption	Standard	PV720 CA525	1/32 1/32	330 - 490 - 660 260 - 390 - 490	0.039 - 0.059 - 0.098 0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.012 0.004 - 0.006 - 0.008		
	High-carbon Alloy	HB 280	Precision Finishing	Continuous Interruption	F, U	TN620 PR1725	0.008 1/64	390 - 490 - 590 360 - 430 - 520	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006	SMALL TOOLS	E
			Finishing	Continuous Interruption	PP	PV710 CA525	1/64 1/64	390 - 490 - 590 330 - 390 - 490	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Finishing-Medium	Continuous Interruption	HQ	PV710 CA525	1/64 1/64	390 - 490 - 590 330 - 390 - 490	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.059	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008		
			Medium	Continuous Interruption	Standard	CA515 CA525	1/32 1/32	330 - 390 - 490 260 - 330 - 390	0.039 - 0.059 - 0.098 0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.012 0.004 - 0.006 - 0.008		
M	Stainless Steel	HB 220	Finishing	Continuous Interruption	MQ	CA6525 PR1535	1/64 1/32	390 - 490 - 590 330 - 390 - 490	0.008 - 0.020 - 0.031 0.008 - 0.020 - 0.031	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004	GROOVING	G
			Medium	Continuous Interruption	Standard	CA6525 PR1535	1/64 1/32	390 - 490 - 590 330 - 390 - 490	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
	Stainless Steel	HB 300	Finishing	Continuous Interruption	MQ	CA6525 PR1535	1/64 1/32	260 - 330 - 390 200 - 260 - 330	0.008 - 0.028 - 0.039 0.008 - 0.028 - 0.039	0.002 - 0.004 - 0.006 0.002 - 0.004 - 0.006		
			Medium	Continuous Interruption	Standard	CA6525 PR1535	1/64 1/32	260 - 330 - 390 200 - 260 - 330	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
K	Gray Cast Iron	HB 250	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN475 PT600M	1/64 1/32	1310 - 1640 - 1970 660 - 820 - 1150	0.002 - 0.008 - 0.020 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.006 0.002 - 0.004 - 0.006	THREADING	J
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 TN620	1/32 1/32	660 - 820 - 980 390 - 590 - 750	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Finishing	Continuous Interruption	Standard	CA310 CA315	1/64 1/32	490 - 590 - 660 330 - 490 - 590	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Medium	Continuous Interruption	Standard	CA310 CA315	1/32 1/32	330 - 490 - 660 260 - 390 - 490	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.004 - 0.006 - 0.008 0.002 - 0.004 - 0.006		
	Nodular Cast Iron	HB 270	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN60M PT600M	1/64 1/32	660 - 980 - 1310 490 - 660 - 820	0.002 - 0.008 - 0.020 0.008 - 0.020 - 0.039	0.001 - 0.002 - 0.004 0.002 - 0.004 - 0.006	MILLING	M
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 TN620	1/32 1/32	490 - 660 - 820 390 - 490 - 660	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Finishing	Continuous Interruption	Standard	CA310 CA315	1/64 1/32	390 - 490 - 590 330 - 390 - 490	0.008 - 0.020 - 0.039 0.008 - 0.020 - 0.039	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008		
			Medium	Continuous Interruption	Standard	CA315 CA320	1/32 1/32	330 - 390 - 490 260 - 330 - 390	0.020 - 0.039 - 0.079 0.020 - 0.039 - 0.079	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.006		
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB 100	High Speed Machining (Surface Finish Oriented)	Continuous	Without Chipbreaker	KPD001	0.008	660 - 1310 - 3280	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006	QUICK CHANGE TOOLING	N
			Finishing (Long Tool Life)	Continuous Interruption	F, U	PDL025	1/64 1/64	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008		
			Finishing	Continuous Interruption	F, U	KW10	1/64 1/64	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008		
			Finishing	Continuous Interruption	F, U	KW10	1/64 1/64	330 - 660 - 1310 330 - 660 - 1310	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008		
S	Titanium Alloy	HB 400	Precision Finishing (Surface Finish Oriented)	Continuous Interruption	Without Chipbreaker	KPD001	0.008 1/64	330 - 390 - 490 230 - 330 - 390	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004	TECHNICAL	R
			Finishing	Continuous Interruption	F, U	KW10	0.008 1/64	100 - 160 - 230 100 - 160 - 230	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008		
	Heat-resistant Alloys	HB 350	Finishing	Continuous Interruption	F, U	KW10	1/64 1/64	30 - 100 - 160 30 - 100 - 160	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008		
			Finishing	Continuous Interruption	MQ	PR1310	1/64 1/32	130 - 200 - 260 130 - 200 - 260	0.004 - 0.012 - 0.020 0.004 - 0.012 - 0.020	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.004		
H	Hardened Steel Hardened Materials	40-50 HRC	Finishing	Continuous Interruption	HQ Standard	CA515	1/32 1/32	200 - 260 - 330 100 - 160 - 230	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004	INDEX	T
			Finishing	Continuous Interruption	ME MET	KBN05M	1/64 1/32	330 - 460 - 590 300 - 390 - 520	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004		
		Medium	Continuous	Without Chipbreaker (Negative)	KBN900	1/32	200 - 260 - 330	0.012 - 0.028 - 0.039	0.001 - 0.004 - 0.006			

GROOVING

G

G1 - G150

EXTERNAL GROOVING G2 - G56

SUMMARY OF EXTERNAL GROOVING		G2
KGBA / KGBAS / KGBA-JCT		G12
KGBF-F / KGBFS / KGBF-JCT		G14
KTGF-F / KTGF		G20
S...KTGF	Sleeve Holder	G21
KGD / KGD-JCT	Integral Type for Small Parts	G28
KGD / KGD-JCT	Integral Type	G30
KGD-S	0° SwitchBlade Type	G34
KGDS-S	90° SwitchBlade Type	G36
KKC	Cera-Notch Grooving System	G43
KGM	Small Parts	G48
KGM-T		G49
KGMM / KGMS		G50
KGMU		G51
KGH / KGHS		G52
KGA		G53
EGT / KDB		G54
KGMW	For Aluminum Wheel	G56

INTERNAL GROOVING G57 - G85

SUMMARY OF INTERNAL GROOVING		G57
EZG	EZ Bar	G59
VNG	Swiss IQ Bar	G61
SIGC		G65
SIGE-EH / SIGE-WH / SIGE-WH-90		G69
SI-GIV / GIV / GIV-E / GIV-W		G74
KIGBA		G76
KGDJ		G79
KIGH		G80
KIGM-8 / KIGMU-8		G81
KGIA		G82
KIGM-V		G83
A-KKC	Cera-Notch Grooving System	G85

FACE GROOVING G86 - G138

SUMMARY OF FACE GROOVING		G86
EZFG	EZ Bar	G90
VNFG	Swiss IQ Bar	G92
TWFG / TWFGT	Micro Twin Bars	G94
KGDF	0° SwitchBlade Type	G100
KGDF-Z	Integral Type	G110
KGDF	90° SwitchBlade Type	G111
GFVS-AA / GFVT-AA		G124
GFV		G126
GFVS / GFVT		G128
KKCE	Cera-Notch Grooving System	G133
KFMS		G134
KFMS-8		G136
KFTB-S		G137
GIFV	Round Shank Type	G138

TECHNICAL INFORMATION G139 - G150

RECOMMENDED CUTTING CONDITIONS	G139
GUIDE FOR GROOVING	G148

■ KGD Grooving (External Grooving & Traversing) G23~G39

· Integral Type

Type	KGD
Edge Width	0.079" ~ 0.315" (2.00mm ~ 8.00mm)
Grooving Depth	0.236" ~ 1.181" (6.00mm ~ 30.00mm)
Ref. Page	➔ G30

· Integral Type (Jet Coolant-Through)

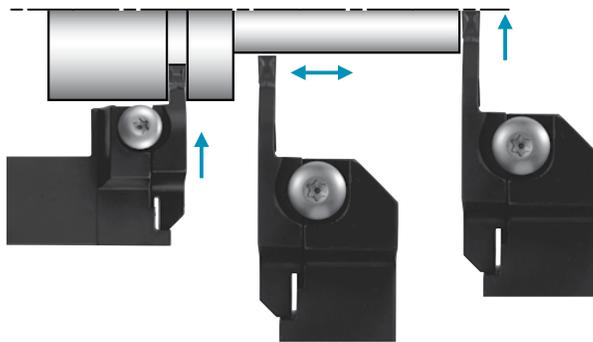
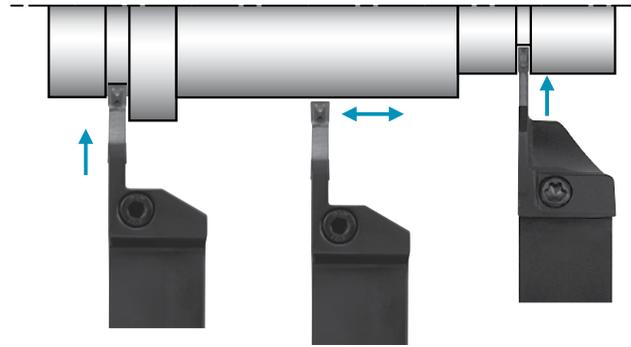
Type	KGD-JCT
Edge Width	0.118" ~ 0.157" (3.00mm ~ 5.00mm)
Grooving Depth	0.787" ~ 1.000" (6.00mm ~ 25.00mm)
Ref. Page	➔ G32

· Integral Type (Small Parts)

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 21.00mm)
Ref. Page	➔ G28

· Integral Type (Small Parts, Jet Coolant-Through)

Type	KGD-JCT
Edge Width	2.00mm ~ 4.00mm
Grooving Depth	12.00mm ~ 16.00mm
Ref. Page	➔ G29



· SwitchBlade 90°

Type	*KGDS-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	➔ G36

* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

· SwitchBlade 0°

Type	*KGD-S
Edge Width	0.079" ~ 0.197" (2.00mm ~ 5.00mm)
Grooving Depth	0.394" ~ 0.984" (10.00mm ~ 25.00mm)
Ref. Page	➔ G34

* The SwitchBlade Type toolholders can accept all the blades if their hand is matching.

G	GROOVING
	EXTERNAL
	INTERNAL
	FACE

GS
Low Cutting Force



GL
Low Feed



GM
General Purpose



PH
High Feed Rate



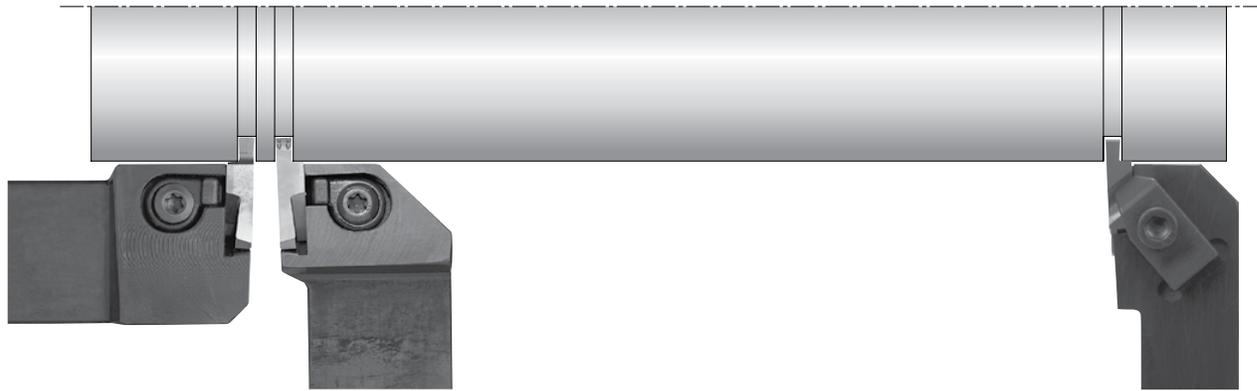
CM
Copying



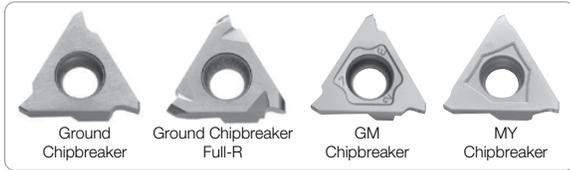
EXTERNAL GROOVING SUMMARY

External Grooving (G6~G22, G50, G51)

Shallow Grooving [Grooving Depth : ~0.197" (5mm)]



Type	KGBAS	KGBA	KGBA-JCT
Edge Width	0.031" ~ 0.189" (0.33mm ~ 4.80mm)	0.031" ~ 0.189" (0.33mm ~ 4.80mm)	0.031" ~ 0.189" (0.33mm ~ 4.80mm)
Grooving Depth	0.032" ~ 0.197" (0.80mm ~ 5.00mm)	0.032" ~ 0.197" (0.80mm ~ 5.00mm)	0.032" ~ 0.197" (0.80mm ~ 5.00mm)
Ref. Page	G12	G12	G13

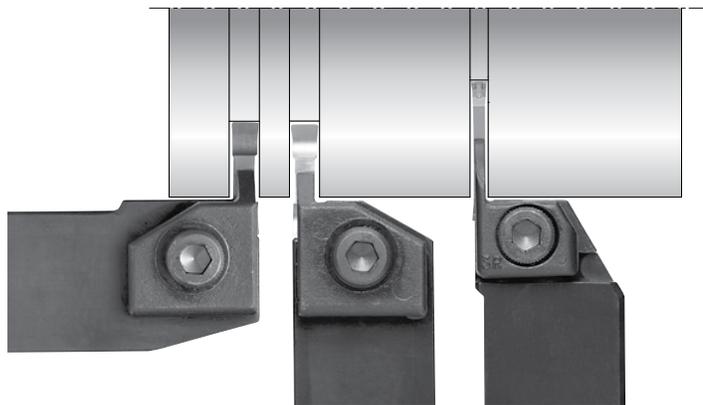


	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
Edge Shape				

KKC
0.031" ~ 0.250"
0.050" ~ 0.250"
G43



Deep Grooving [Grooving Depth : ~0.984" (25mm)]



Type	KGHS	KGH	KGA
Edge Width	0.157" ~ 0.315" (4.00mm ~ 8.00mm)	0.157" ~ 0.472" (4.00mm ~ 12.00mm)	0.118" ~ 0.197" (3.00mm ~ 5.00mm)
Grooving Depth	0.512" (13.00mm)	0.512" ~ 0.669" (13.00mm ~ 17.00mm)	0.787" ~ 0.984" (20.00mm ~ 25.00mm)
Ref. Page	G52	G52	G53

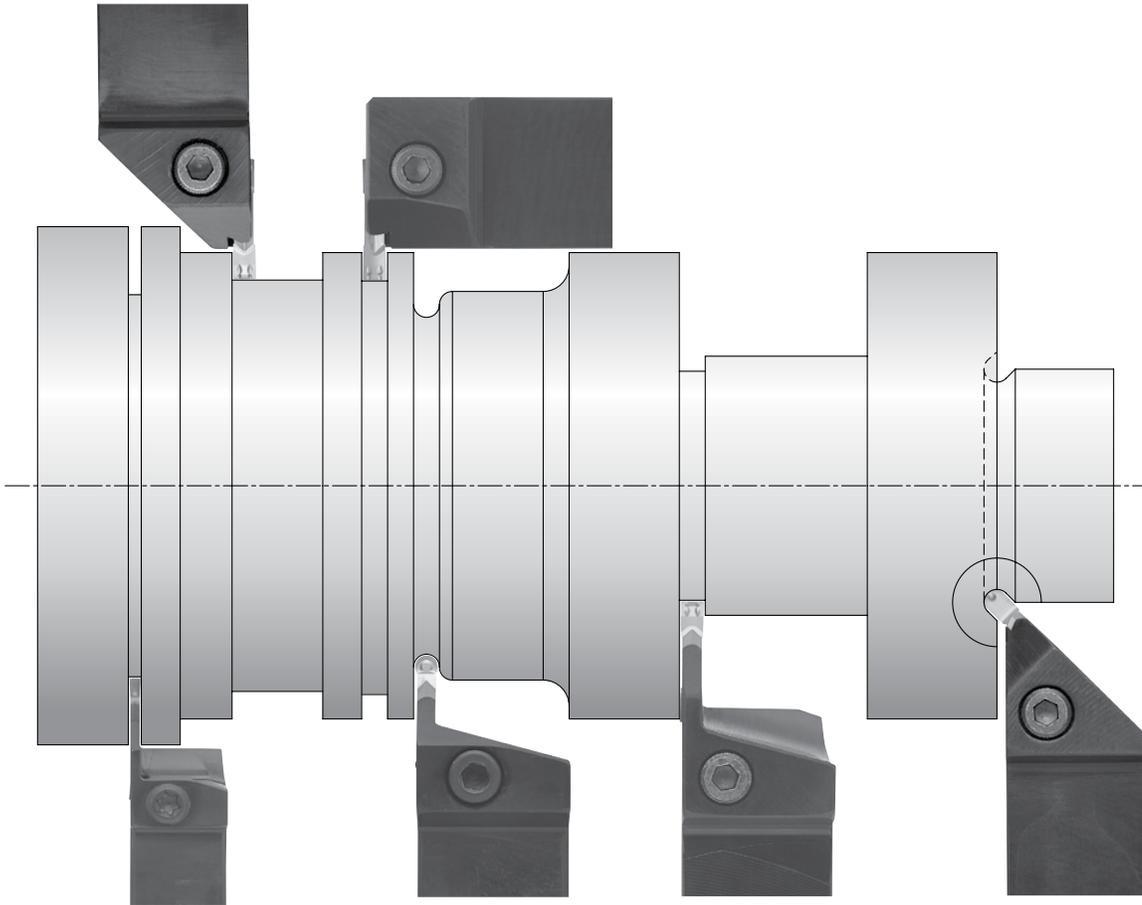


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EXTERNAL GROOVING SUMMARY

KGM Grooving (External Grooving & Traversing) (G42~G49)

Type	KGMM	KGMS
Edge Width	0.118" ~ 0.197" (3.00mm ~ 5.00mm)	0.118" ~ 0.197" (3.00mm ~ 5.00mm)
Grooving Depth	0.189" (4.80mm)	0.189" (4.80mm)
Ref. Page	G50	G50

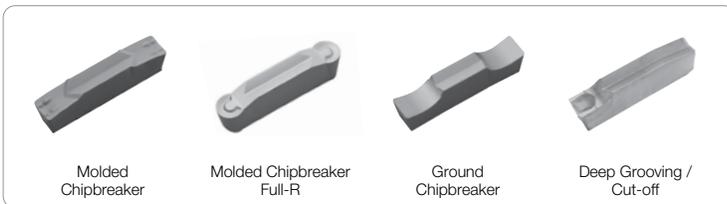


Type	KGM
Edge Width	0.079" ~ 0.118" (1.50mm ~ 4.00mm)
Grooving Depth	0.394" ~ 0.492" (10.00mm ~ 16.00mm)
Ref. Page	G48

Type	KGM
Edge Width	0.118" ~ 0.157" (3.00mm ~ 8.00mm)
Grooving Depth	0.354" (9.00mm ~ 25.00mm)
Ref. Page	G48

Type	KGM-T
Edge Width	0.079" ~ 0.236" (2.00mm ~ 6.00mm)
Grooving Depth	0.669" ~ 1.181" (17.00mm ~ 30.00mm)
Ref. Page	G49

Type	KGMU
Edge Width	0.118" ~ 0.197" (3.00mm ~ 5.00mm)
Grooving Depth	0.138" ~ 0.177" (3.50mm ~ 4.50mm)
Ref. Page	G51



EXTERNAL GROOVING SUMMARY

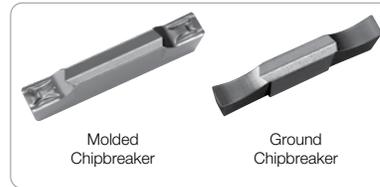
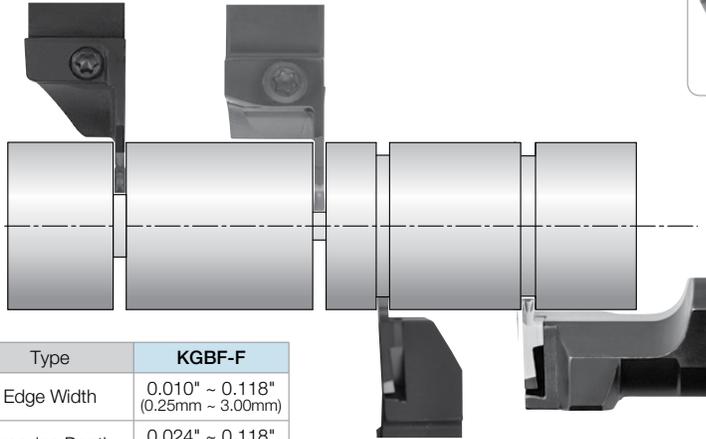
External Grooving of Precision Parts (G17~G19, G20, G21, G28, G48)

For Small Parts Machining

Type	KGD
Edge Width	0.079" ~ 0.157" (2.00mm ~ 4.00mm)
Grooving Depth	0.394" ~ 0.827" (10.00mm ~ 21.00mm)
Ref. Page	G28

Type	KGD-JCT
Edge Width	2.00mm ~ 4.00mm
Grooving Depth	12.00mm ~ 16.00mm
Ref. Page	G29

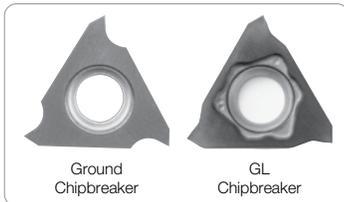
Type	KGM
Edge Width	0.079" ~ 0.118" (1.50mm ~ 4.00mm)
Grooving Depth	0.394" ~ 0.492" (10.00mm ~ 16.00mm)
Ref. Page	G48



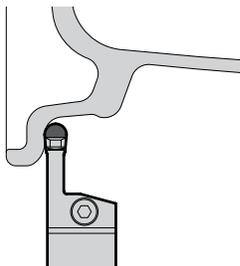
Type	KGBF-F
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)
Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)
Ref. Page	G17

Type	KGBFS	KGBF-JCT
Edge Width	0.010" ~ 0.118" (0.25mm ~ 3.00mm)	0.25mm ~ 3.00mm
Grooving Depth	0.024" ~ 0.118" (0.60mm ~ 3.00mm)	0.60mm ~ 3.00mm
Ref. Page	G18	G19

Type	KTGF-F	KTGF	S-KTGF
Edge Width	0.013" ~ 0.098" (0.33mm ~ 2.50mm)		0.013" ~ 0.098" (0.33mm ~ 2.50mm)
Grooving Depth	0.032" ~ 0.098" (0.80mm ~ 2.50mm)		0.032" ~ 0.098" (0.80mm ~ 2.50mm)
Ref. Page	G20		G21



For Aluminum Wheel External Grooving (External / Facing / Copying) (G48)



Type	KGMW
Edge Width	0.236" ~ 0.315" (6.00mm ~ 8.00mm)
Grooving Depth	0.984" (25.00mm)
Ref. Page	G56



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GBA Inserts (Inch)

Part Number	IC	S	D1	(in)		MATERIAL	MEGACOAT Cermet	MEGA COAT	Classification of Usage
				P	M				
GBA32_	0.375	0.125	0.173	P	Carbon Steel / Alloy Steel	●	●	● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	
GBA43_	0.500	0.187	0.217	M	Stainless Steel		●		
GBA43%480	0.500	0.197	0.217	K	Cast Iron				
				N	Non-ferrous Metals				
				S	Titanium Alloy		●		
				H	Hard materials (≤40HRC)		●		
					Hard materials (≥40HRC)				

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Unit	Dimensions (in)			MEGACOAT Cermet		MEGA COAT		Applicable Toolholders	Ref. Page for Toolholder			
				CW	CDX	RE	PV7040		PR1215						
							R	L	R	L					
	GBA32% 031N	-	inch	0.031	0.079	0.002	●	●	●	●	KGBA%...-3 KGBA%...-16 (JCT) KGBAS%...-3 KGBAS%...-16 KIGBA%...-3 (Internal) KIGBA%...-16 (Internal)				
	041N	-		0.041	0.079	0.002	●	●	●	●					
	047N	-		0.047	0.079	0.008	●	●	●	●					
	058N	-		0.058	0.079	0.008	●	●	●	●					
	062N	-		0.062	0.079	0.008	●	●	●	●					
	078N	-		0.078	0.098	0.008	●	●	●	●					
	094N	-		0.094	0.098	0.008	●	●	●	●					
	GBA43% 031N	-		inch	0.031	0.079	0.008	●	●	●			●	KGBA%...-4-15 KGBA%...22-15 (JCT) KGBAS%...-4-15 KGBAS%...22-15 KIGBA%...-4 (Internal) KIGBA%...22 (Internal)	● G12 ● G13 ● G76 (Internal)
	047N	-			0.047	0.079	0.008	●	●	●			●		
	062N	-			0.062	0.138	0.008	●	●	●			●		
072N	-	0.072	0.138		0.008	●	●	●	●						
078N	-	0.078	0.138		0.008	●	●	●	●						
088N	-	0.088	0.138		0.008	●	●	●	●						
094N	-	0.094	0.157		0.012	●	●	●	●						
097N	-	0.097	0.157		0.012	●	●	●	●						
105N	-	0.105	0.157		0.012	●	●	●	●						
109N	-	0.109	0.157		0.012			●	●						
110N	-	0.110	0.157	0.012	●	●	●	●							
125N	-	0.125	0.157	0.012	●	●	●	●							
141N	-	0.141	0.197	0.012			●	●							
142N	-	0.142	0.197	0.012	●	●	●	●							
156N	-	0.156	0.197	0.016	●	●	●	●							
172N	-	0.172	0.197	0.016			●	●							
178N	-	0.178	0.197	0.016	●	●	●	●							
188N	-	0.188	0.197	0.016			●	●							

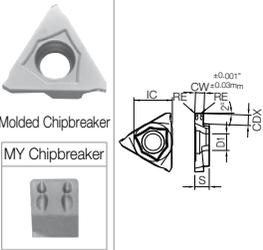
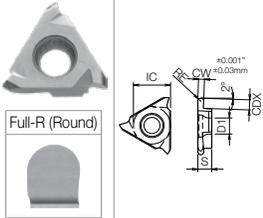
• Dimension CDX shows available grooving depth

Recommended Cutting Conditions ● G139

Inserts are sold in 5 piece boxes.

GBA Inserts (Inch)

Part Number	IC	S	D1	(in)			MEGACOAT Cermet	MEGA COAT	Applicable Toolholders	Ref. Page for Toolholder
				P	M	K				
GBA32_	0.375	0.125	0.173	P	Carbon Steel / Alloy Steel	●	●			
GBA43_	0.500	0.187	0.217	M	Stainless Steel		●			
GBA43% 480	0.500	0.197	0.217	K	Cast Iron					
				N	Non-ferrous Metals					
				S	Titanium Alloy		●			
				H	Hard materials (≤40HRC)		●			
					Hard materials (≥40HRC)					

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Unit	Dimensions (in)			MEGACOAT Cermet		MEGA COAT		Applicable Toolholders	Ref. Page for Toolholder
				CW	CDX	RE	PV7040		PR1215			
							R	L	R	L		
 <p>Molded Chipbreaker MY Chipbreaker</p>	GBA43% 078MYN	-	inch	0.078	0.138	0.008			●	●	KGBA% ...-4-15 KGBA% ...-22-15 (JCT) KGBAS% ...-4-15 KGBAS% ...-22-15 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	094MYN	-		0.094	0.157	0.012			●	●	KGBA% ...-4-25 KGBA% ...-22-25 (JCT) KGBA% ...-22-25T5 KGBAS% ...-4-25 KGBAS% ...-22-25 KGBAS% ...-22-25T5 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	125MYN	-		0.125	0.157	0.012			●	●	KGBA% ...-4-35 KGBA% ...-22-35 (JCT) KGBAS% ...-4-35 KGBAS% ...-22-35 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	156MYN	-		0.156	0.197	0.016			●	●	KGBA% ...-4-35 KGBA% ...-22-35 (JCT) KGBAS% ...-4-35 KGBAS% ...-22-35 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
 <p>Full-R (Round)</p>	GBA32R 031R	-	inch	0.062	0.079	0.031			●		KGBA% ...-3 KGBA% ...-16 (JCT) KGBAS% ...-3 KGBAS% ...-16 KIGBA% ...-3 (Internal) KIGBA% ...-16 (Internal)	● G12 ● G13 ● G76 (Internal)
	047R	-		0.094	0.098	0.047			●		KGBA% ...-4-15 KGBA% ...-22-15 (JCT) KGBAS% ...-4-15 KGBAS% ...-22-15 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	GBA43% 031R	-	inch	0.062	0.138	0.031			●	●	KGBA% ...-4-25 KGBA% ...-22-25 (JCT) KGBA% ...-22-25T5 KGBAS% ...-4-25 KGBAS% ...-22-25 KGBAS% ...-22-25T5 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	047R	-		0.094	0.157	0.047			●	●	KGBA% ...-4-25 KGBA% ...-22-25 (JCT) KGBA% ...-22-25T5 KGBAS% ...-4-25 KGBAS% ...-22-25 KGBAS% ...-22-25T5 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	062R	-		0.125	0.157	0.062			●	●	KGBA% ...-4-35 KGBA% ...-22-35 (JCT) KGBAS% ...-4-35 KGBAS% ...-22-35 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
	078R	-		0.156	0.197	0.078			●	●	KGBA% ...-4-35 KGBA% ...-22-35 (JCT) KGBAS% ...-4-35 KGBAS% ...-22-35 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)	
094R	-	0.188	0.197	0.094			●	●	KGBA% ...-4-35 KGBA% ...-22-35 (JCT) KGBAS% ...-4-35 KGBAS% ...-22-35 KIGBA% ...-4 (Internal) KIGBA% ...-22 (Internal)			

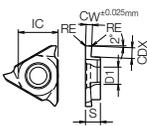
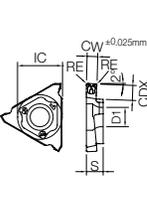
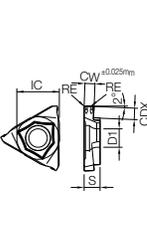
• Dimension CDX shows available grooving depth

Recommended Cutting Conditions ● G139

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Inserts are sold in 5 piece boxes.

GBA Inserts (Metric)

Part Number	IC	S	D1	Material			Classification of Usage												Applicable Toolholders	Ref. Page for Toolholder			
				P	M	K	● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice																
				N	S																		
				H																			
Insert		Dimensions (mm)			Cermet				MEGACOAT NANO				MEGACOAT				PVD Coated Carbide						
Right-handed Insert Shown		Part Number			CW	CDX	RE	TN620		TN6020		PR1625		PR1215		PR1115		PR930					
								R	L	R	L	R	L	R	L	R	L	R	L				
 <p>Sharp Edge</p>		GBA32%	050-005F *	0.50	1.0	0.05	●	●															
			075-005F	0.75	2.0	0.05	●	●															
			095-005F	0.95	2.0	0.05	●	●															
			100-005F	1.00	2.0	0.05	●	●															
			125-020F	1.25	2.0	0.2	●	●															
			145-020F	1.45	2.0	0.2	●	●															
			150-020F	1.50	2.0	0.2	●	●															
			175-020F	1.75	2.0	0.2	●	●															
			200-020F	2.00	2.5	0.2	●	●															
			250-020F	2.50	2.5	0.2	●	●															
			GBA43%	125-020F	1.25	2.0	0.2	●	●														
				145-020F	1.45	2.0	0.2	●	●														
		150-020F		1.50	3.5	0.2	●	●															
		175-020F		1.75	3.5	0.2	●	●															
		185-020F		1.85	3.5	0.2	●	●															
		200-020F		2.00	3.5	0.2	●	●															
		230-020F		2.30	3.5	0.2	●	●															
		250-030F		2.50	4.0	0.3	●	●															
		265-030F		2.65	4.0	0.3	●	●															
		280-030F		2.80	4.0	0.3	●	●															
		300-030F		3.00	4.0	0.3	●	●															
		 <p>Molded Chipbreaker GM Chipbreaker</p>			GBA43%	140-010GM	1.40	3.5	0.10	●	●			●	●	●	●						
			150-020GM			1.50	3.5	0.20	●	●					●	●	●	●					
			175-020GM			1.75	3.5	0.20	●	●					●	●	●	●					
185-020GM	1.85		3.5			0.20	●	●					●	●	●	●							
200-020GM	2.00		3.5			0.20	●	●					●	●	●	●							
230-020GM	2.30		3.5			0.20	●	●					●	●	●	●							
250-030GM	2.50		5.0			0.30	●	●					●	●	●	●							
265-030GM	2.65		5.0			0.30	●	●					●	●	●	●							
300-030GM	3.00		5.0			0.30	●	●					●	●	●	●							
330-030GM	3.30		5.0			0.30	●	●					●	●	●	●							
350-030GM	3.50		5.0			0.30	●	●					●	●	●	●							
400-040GM	4.00		5.0			0.40	●	●					●	●	●	●							
 <p>Molded Chipbreaker MY Chipbreaker</p>		GBA43%	175-020MY	1.75	3.5	0.20			●	●	●	●	△	△	●	●	●	●					
			185-020MY	1.85	3.5	0.20			●	●	●	●	△	△	●	●	●	●	●				
			200-020MY	2.00	3.5	0.20			●	●	●	●	△	△	●	●	●	●	●				
			230-020MY	2.30	3.5	0.20			●	●	●	●			●	●	●	●	●				
			250-030MY	2.50	4.0	0.30			●							●	●	●	●				
				2.50	5.0	0.30							●	●	△	●	●	●	●				
			265-030MY	2.65	4.0	0.30			●	●						●	●	●	●				
				2.65	5.0	0.30							●	●	△	●	●	●	●				
			300-030MY	3.00	4.0	0.30			●	●						●	●	●	●				
				3.00	5.0	0.30							●	●	△	△	●	●	●				
			330-030MY	3.30	4.0	0.30			●							●	●	●	●				
				3.30	5.0	0.30							●	●	△	●	●	●	●				
350-030MY	3.50	5.0	0.30			●	●	●	●	△	△	●	●	●	●	●							
400-040MY	4.00	5.0	0.40			●	●	●	●			●	●	●	●	●							

• Dimension CDX shows available grooving depth
 * Edge width tolerance of GBA32%050-005F is 0.50mm +0.25mm/-0
 ※3 : Available grooving depth is different based on grade

★1: KGBA%...4-25, KGBA%...22-25 (JCT), KGBA%...22-25T5, KGBAS%...22-25T5, KGBA%...4, KIGBA%...22
 ★2: KGBA%...4-25, KGBA%...22-25 (JCT), KGBA%...22-25T5, KGBAS%...4-25, KGBAS%...22-25, KGBA%...4, KIGBA%...22

● Rake Angle (α) after Installment of GBA-GM

α (°)	Insert Part Number
10°	GBA43%150-020GM
15°	GBA43%175-020GM
	GBA43%265-030GM
12°	GBA43%300-030GM
	GBA43%400-040GM

● Rake Angle (α) after Installment of GBA-MY

α (°)	Insert Part Number
15°	GBA43%175-020MY
	GBA43%350-030MY
14°	GBA43%400-040MY

Recommended Cutting Conditions ● G139

Inserts are sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GBA Inserts (Metric)

Part Number	IC	S	D1
GBA32_	9.525	3.18	4.4
GBA43_	12.700	4.76	5.5
GBA43% 480	12.700	5.00	5.5

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)			*MC		Cermet		MEGA COAT NANO	MEGA COAT	PVD Coated Carbide				Carbide	Applicable Toolholders	Ref. Page for Toolholder	
		CW	CDX	RE	PV7040	TN620	TN90	PR1625	PR1215	PR1115	PR905	PR930	KW10					
		R	L	R	L	R	L	R	L	R	L	R	L	R	L			
	GBA32R 200-100R	2.00	2.5	1.00													KGBA%...-3 KGBA%...-16 (JCT) KGBAS%...-3 KGBAS%...-16 KIGBA%...-3 (Internal) KIGBA%...-16 (Internal)	● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice
	300-150R	3.00	2.5	1.50													KGBA%...-3 KGBA%...-16 (JCT) KGBAS%...-3 KGBAS%...-16 KIGBA%...-3 (Internal) KIGBA%...-16 (Internal)	
	GBA43% 100-050R	1.00	2.0	0.50	●	●				●	●	●	△	△		●	KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	150-075R	1.50	3.5	0.75	●	●		●		●	●	●	△	△	●		KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	200-100R	2.00	3.5	1.00	●	●				●	●	●	△		●	●	KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	250-125R	2.50	4.0	1.25						●	●	●	△				KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	300-150R	3.00	4.0	1.50				●	●	●	●	●	●	●	●	●	★1	
	400-200R	4.00	5.0	2.00						●	●	●	●				KGBA%...-4-35 KGBA%...-22-35 (JCT) KGBAS%...-4-35 KGBAS%...-22-35 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	GBA43% 100-050RF	1.00	2.0	0.50		●	●										KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	150-075RF	1.50	3.5	0.75		●	●										KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	200-100RF	2.00	3.5	1.00		●	●										KGBA%...-4-15 KGBA%...-22-15 (JCT) KGBAS%...-4-15 KGBAS%...-22-15 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	250-125RF	2.50	4.0	1.25		●	●										★1	
	300-150RF	3.00	4.0	1.50		●	●										KGBA%...-4-35 KGBA%...-22-35 (JCT) KGBAS%...-4-35 KGBAS%...-22-35 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	
	400-200RF	4.00	5.0	2.00		●											KGBA%...-4-35 KGBA%...-22-35 (JCT) KGBAS%...-4-35 KGBAS%...-22-35 KIGBA%...-4 (Internal) KIGBA%...-22 (Internal)	

G GROOVING

EXTERNAL

INTERNAL

FACE

● Dimension **CDX** shows available grooving depth
 *MC stands for MEGACOAT Cermet.

Recommended Cutting Conditions **G139**

★1: KGBA%...-4-25, KGBA%...-22-25 (JCT), KGBA%...-22-25T5, KGBAS%...-4-25, KGBAS%...-22-25, KGBAS%...-22-25T5, KIGBA%...-4, KIGBA%...-22

Rake Angle (α) after Installment of GBA

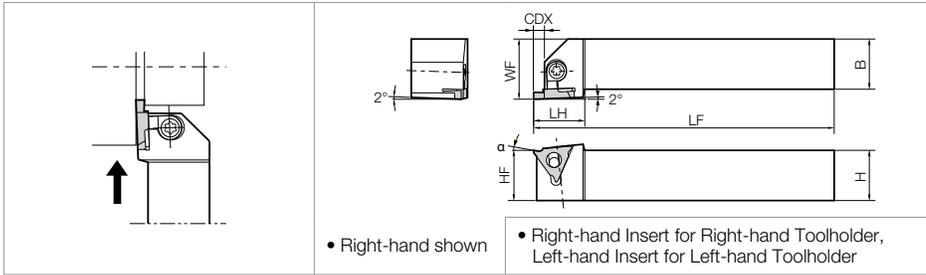
GBA32% 000-000		GBA43% 000-000		GBA43% 000-000R (Full-R)	
α (°)	Insert Grade	α (°)	Insert Grade	α (°)	Insert Grade
10°	TN90,PV7040,PR930 PR1115,PR1215,PR1625, PR905 KPD001,KPD010	0°	KBN510, KBN525	10°	TN90,PV7040,PR930 PR1115,PR1215,PR905
		10°	TC40,TN90,PV7040,PR930 PR1115,PR1215,PR1625, PR905 KPD001, KPD010			050R~150R
20°	KW10	20°	KW10	14°	TN90,PV7040,PR930 PR1115,PR1215,PR905
		14°	KW10	050R~200R	

GBA inserts can be used in KGB / KGBS toolholders as well.

For GM Chipbreaker and MY Chipbreaker, see page **G9**

Inserts are sold in 10 piece boxes.

■ KGBA

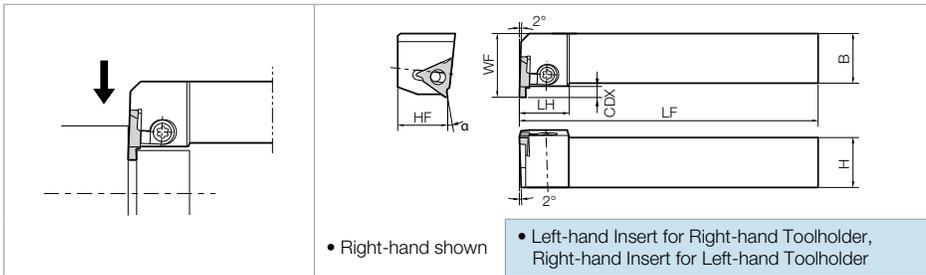


● Alternative Toolholder Reference Table

KGBA	(KGB)
KGBA%...22-15	KGB%...22-15
KGBA%...22-25	KGB%...22-25
KGBA%...22-35	KGB%...22-35
KGBA%...22-25T5	KGB%...22-25 (Available grooving depth has a limit)

• Short shank type is not available for KGB / KGBS.

■ KGBAS



● Alternative Toolholder Reference Table

KGBAS	(KGBS)
KGBAS%...22-15	KGBS%...22-15
KGBAS%...22-25	KGBS%...22-25
KGBAS%...22-35	KGBS%...22-35
KGBAS%...22-25T5	KGBS%...22-25 (Available grooving depth has a limit)

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Spare Parts		Applicable Insert ● G6~G11
	R	L		H	HF	B	LF	LH	WF	CDX	Clamp Set	Wrench	
KGBA% 12-3 16-3 12-4-15 16-4-15 12-4-25 16-4-25 12-4-35 16-4-35	●	●	inch	0.750	0.750	0.750	5.000	0.945	1.000	0.098	LGBA-16% S	FT-15	GBA32% ...
	●	●		1.000	1.000	1.000	6.000	0.945	1.250	0.098			
	●	●		0.750	0.750	0.750	5.000	1.004	1.000	0.157			
	●	●		1.000	1.000	1.000	6.000	1.004	1.250	0.157			
	●	●		0.750	0.750	0.750	5.000	1.004	1.000	0.177			
	●	●		1.000	1.000	1.000	6.000	1.004	1.250	0.177			
KGBA% 2020K-16 2525M-16 2020K22-15 2525M22-15 2020K22-25 2525M22-25 2020K22-25T5 2525M22-25T5 2020K22-35 2525M22-35 2020H22-15* 2020H22-25* 2020H22-35*	●	●	mm	20	20	20	125	24.0	25	2.5	LGBA-16% S	FT-15	GBA32% ...
	●	●		25	25	25	150	24.0	30	2.5			
	●	●		20	20	20	125	25.5	25	4.0			
	●	●		25	25	25	150	25.5	30	4.0			
	●	●		20	20	20	125	25.5	25	4.5			
	●	●		25	25	25	150	25.5	30	4.5			
	●	●		20	20	20	125	25.5	25	5.5			
	●	●		25	25	25	150	25.5	30	5.5			
	●	●		20	20	20	100	25.5	25	4.0			
	●	●		20	20	20	100	25.5	25	4.5			
	●	●		20	20	20	100	25.5	25	5.5			
	KGBAS% 12-3 16-3 12-4-15 16-4-15 12-4-25 16-4-25 12-4-35 16-4-35	●		●	inch	0.750	0.750	0.750	5.000	0.984				0.984	0.098	LGBA-16LS	FT-15	GBA32L...
●		●	1.000	1.000		1.000	6.000	0.984	1.181	0.098			
●		●	0.750	0.750		0.750	5.000	0.984	1.062	0.157			
●		●	1.000	1.000		1.000	6.000	0.984	1.260	0.157			
●		●	0.750	0.750		0.750	5.000	0.984	1.062	0.177			
●		●	1.000	1.000		1.000	6.000	0.984	1.250	0.177			
KGBAS% 2020K-16 2525M-16 2020K22-15 2525M22-15 2020K22-25 2525M22-25 2020K22-25T5 2525M22-25T5 2020K22-35 2525M22-35	●	●	mm	20	20	20	125	25	25	2.5	LGBA-16% S	FT-15	GBA32% ...
	●	●		25	25	25	150	25	30	2.5			
	●	●		20	20	20	125	25	27	4.0			
	●	●		25	25	25	150	25	32	4.0			
	●	●		20	20	20	125	25	27	4.5			
	●	●		25	25	25	150	25	32	4.5			
	●	●		20	20	20	125	25	27	5.5			
	●	●		25	25	25	150	25	32	5.5			
	●	●		20	20	20	125	25	27	5.5			
	●	●		25	25	25	150	25	32	5.5			
	●	●		20	20	20	125	25	27	5.5			
	●	●		25	25	25	150	25	32	5.5			

• Dimension CDX shows the distance from the toolholder to the cutting edge. Reference dimension CDX in applicable insert table for actual grooving depth.

* mark indicates short shank type

• Clamp Set : KGBA%...LGBA-○○RS for Right-hand Toolholder, and LGBA-○○LS for Left-hand Toolholder.
KGBAS%...LGBA-○○RS for Right-hand Toolholder, and LGBA-○○RS for Left-hand Toolholder.

■ External Grooving Toolholders KGBA Short Shank Types Are Available

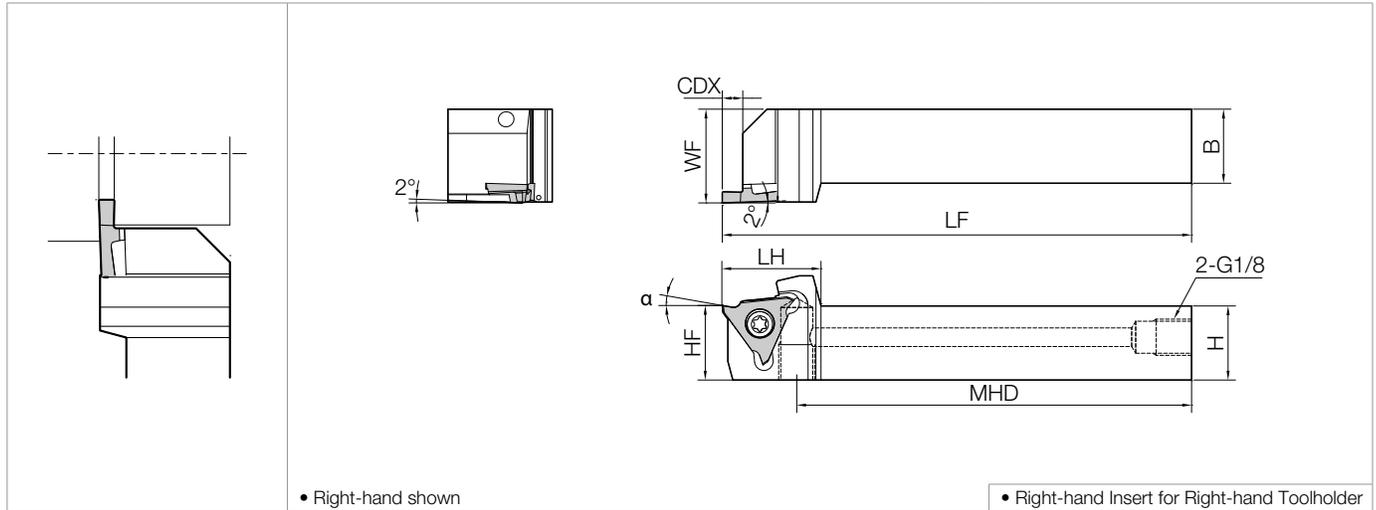
For NC lathe and HSK tooling, KGBAR2020K-○○ (Overall length 125mm) short shank type KGBAR2020H2-○○ (Overall length 100mm) is available., meaning it is no longer necessary for users to cut-down the shank.

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

KGBA-JCT (Jet Coolant-through) NEW



• Right-hand shown

• Right-hand Insert for Right-hand Toolholder

Toolholder Dimensions

Pressure Resistance: up to 4,350 psi

Part Number	Stock		Unit	Dimensions (mm)								Spare Parts			Applicable Insert G6~G11	
	R	L		H	HF	B	LF	LH	WF	CDX*1	MHD	Clamp Screw	Wrench			Plug
KGBA% 2020K-16JCT	●	●	mm	20	20	20	125	24.0	25	2.5	107.5	SB-4085TR	FT-15	-	HSG1/8x8.0	GBA32%...
2525K-16JCT	●	●		25	25	25			30							
2020K22-15JCT	●	●		20	20	20		26.5	25	4						
2525K22-15JCT	●	●		25	25	25											30
2020K22-25JCT	●	●		20	20	20	105	25	5.5	SB-5085TR	-	LTW-20	HSG1/8x8.0	GBA43%...		
2525K22-25JCT	●	●		25	25	25									30	
2020K22-35JCT	●	●		20	20	20									25	
2525K22-35JCT	●	●		25	25	25	30									

*1 Dimension CDX shows the distance from the toolholder to the cutting edge. Reference dimension CDX in applicable insert table for actual grooving depth.

• KGBA-JCT Toolholder is Screw Clamp Type

Coolant Connections and Pipe Parts ▶ H14-H15

Recommended Cutting Conditions ▶ G139

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

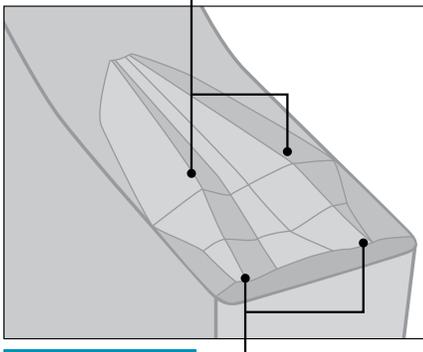
GBF

High Precision Grooving with Insert Width Tolerance of $\pm 0.02\text{mm}$
 High Efficiency MEGACOAT Coating Technology for Long Tool Life

1 Stable Chip Control with GL Chipbreaker

GL Chipbreaker for stable chip control in both grooving and traversing operations
 (Traversing is not recommended for GBF32R075-005GL)

Twin Dots Stable Chip Control



Front Edge Dots

Chips are short, curled and break evenly in low feed machining. Prevents chip clogging.

Chip Control Comparison (Internal Evaluation)

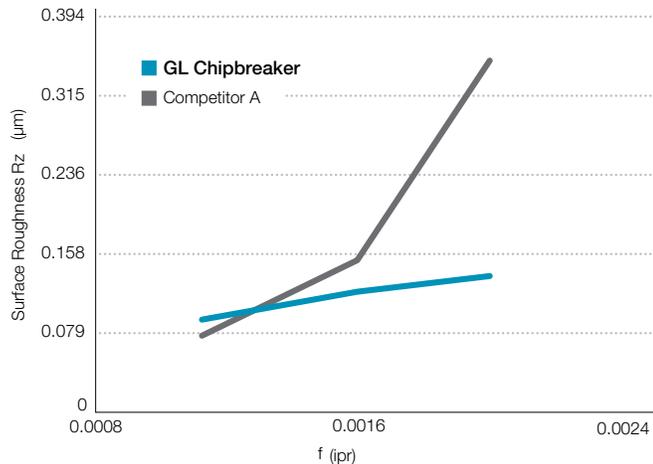
	GL Chipbreaker	Competitor A
Grooving f = 0.0020 ipr d = 0.059"		
Turning f = 0.0016 ipr D.O.C. = 0.008"		

Cutting Conditions : Vc = 260 sfm, Edge Width 0.039"
 Workpiece Material : 304

2 Good Surface Finish

GL Chipbreaker stable chip control at high feed rates,
 Good surface finish of side wall.

Surface Roughness Comparison (Internal Evaluation)



Cutting Conditions : Vc = 260 sfm, d = 0.059", f = 0.001-0.002 ipr, Edge Width 0.039"
 Workpiece Material : Chromium Steel

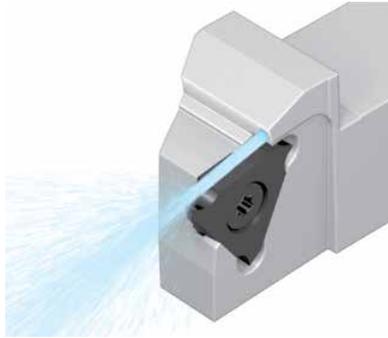
Chip Control Comparison (Internal Evaluation)

	f = 0.0012	f = 0.0016	f = 0.0020
GL Chipbreaker			
Competitor A (Molded Chipbreaker)			

KGBF-JCT ^{NEW}

Coolant-Through Grooving Holders for Small Parts Machining

KGBF-JCT can direct coolant closer to the cutting edge from the top of the insert
Delivers improved chip control and longer tool life while grooving

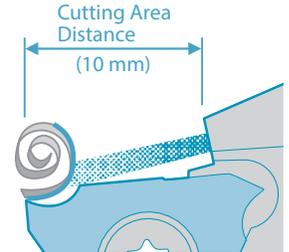


Coolant Hole

Coolant hole discharges coolant to the cutting edge and prevents coolant stream spreading which slows the coolant flow

Coolant Direction

Sufficient coolant between the chipbreaker and the chips to provide stable chip curls and sufficient cooling of the insert



1 Excellent Chip Control

Chip Control Comparison (Internal Evaluation)

KGBF-JCT provided much better chip control

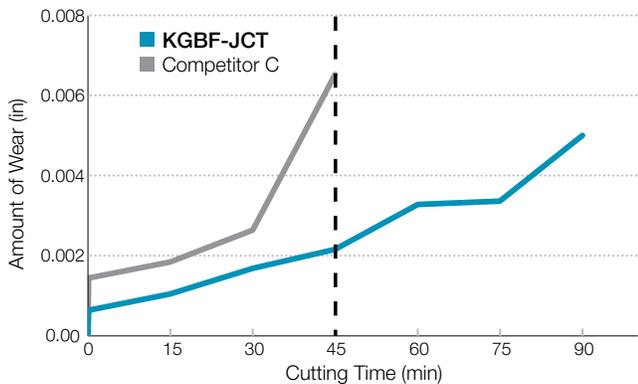


Cutting Conditions: $V_c = 330$ sfm, D.O.C. = 0.098", GBF32R200-010 PR1535, KGBFR1625H-16FJCT
Workpiece: Ti-6Al-4V External and Internal Coolant (218 psi) External Grooving

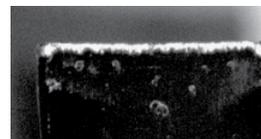
2 Superior Cooling Action Improves Tool Life

Wear Resistance Comparison (Internal Evaluation)

KGBF-JCT Showed Superior Wear Resistance



Cutting Edge
KGBF-JCT



Competitor B



Defects

Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.071", $f = 0.0024$ ipr, GBF32R100-005GL PR1535, KGBFR1625H-16FJCT
Workpiece: 304 External and Internal Coolant (218 psi) External Grooving

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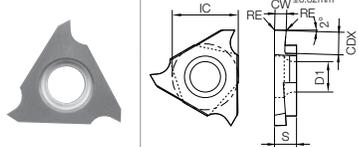
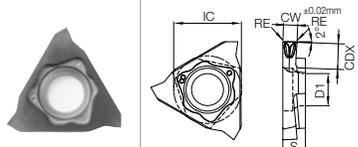
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GBF / GBF-GL

Part Number	IC	S	D1
GBF32_	9.525	3.18	4.4

P	Carbon Steel / Alloy Steel	●	☉	
M	Stainless Steel	☉	●	
K	Cast Iron			●
N	Non-ferrous Metals			●
S	Titanium Alloy			●
H	Hard materials (≤40HRC)			
	Hard materials (≥40HRC)			

Classification of Usage
 ● : Light Interruption / 1st Choice
 ☉ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)			MEGA COAT		MEGACOAT NANO		Carbide		Applicable Toolholders	Ref. Page for Toolholder
		CW	CDX	RE	PR1215		PR1535		GW15			
					R	L	R	L	R	L		
	GBF32% 025-005	0.25	0.6	0.05	●	●	●	●	●	●	KGBF%...16F S...KGBF%...16 KGBFS%...16 KGBF%...-16FJCT	➔ G17 ➔ G18 ➔ G19
	030-005	0.30	0.8	0.05	●	●	●	●	●	●		
	033-005 ※1	0.33	0.8	0.05	●	●	●	●	●	●		
	043-005 ※2	0.43	1.0	0.05	●	●	●	●	●	●		
	050-005	0.50	1.2	0.05	●	●	●	●	●	●		
	053-005 ※3	0.53	1.2	0.05	●	●	●	●	●	●		
	065-005	0.65	1.2	0.05	●	●	●	●	●	●		
	075-005	0.75	2.0	0.05	●	●	●	●	●	●		
	080-005	0.80	2.0	0.05	●	●	●	●	●	●		
	095-005	0.95	2.0	0.05	●	●	●	●	●	●		
	100-005	1.00	2.0	0.05	●	●	●	●	●	●		
	110-005	1.10	2.0	0.05	●	●	●	●	●	●		
	120-005	1.20	2.0	0.05	●	●	●	●	●	●		
	125-010	1.25	2.0	0.10	●	●	●	●	●	●		
	130-010	1.30	2.0	0.10	●	●	●	●	●	●		
	140-010	1.40	2.7	0.10	●	●	●	●	●	●		
	145-010	1.45	2.7	0.10	●	●	●	●	●	●		
	150-010	1.50	2.7	0.10	●	●	●	●	●	●		
	165-010	1.65	2.7	0.10	●	●	●	●	●	●		
	170-010	1.70	3.0	0.10	●	●	●	●	●	●		
175-010	1.75	3.0	0.10	●	●	●	●	●	●			
200-010	2.00	3.0	0.10	●	●	●	●	●	●			
225-010	2.25	3.0	0.10	●	●	●	●	●	●			
250-010	2.50	3.0	0.10	●	●	●	●	●	●			
300-010	3.00	3.0	0.10	●	●	●	●	●	●			
	GBF32R 075-005GL	0.75	2.0	0.05	●		●					
	095-005GL	0.95	2.0	0.05	●		●					
	100-005GL	1.00	2.0	0.05	●		●					
	150-010GL	1.50	2.7	0.10	●		●					
	200-010GL	2.00	3.0	0.10	●		●					
300-010GL	3.00	3.0	0.10	●		●						

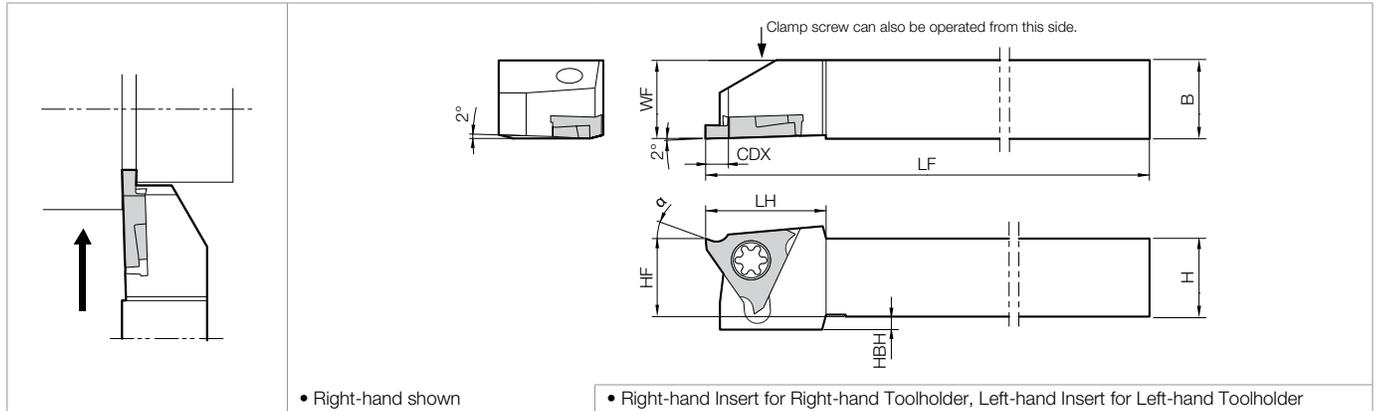
Maximum Cutting Diameter See Page ➔ G19

Recommended Cutting Conditions ➔ G140

※1 : The edge width (CW) tolerance of GBF32% 033-005 : 0.33 ^{+0.015mm}/_{-0.025mm}
 ※2 : The edge width (CW) tolerance of GBF32% 043-005 : 0.43 ^{+0.015mm}/_{-0.025mm}
 ※2 : The edge width (CW) tolerance of GBF32% 053-005 : 0.53 ^{+0.015mm}/_{-0.025mm}

Inserts are sold in 10 piece boxes.

KGBF-F (Without Offset)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions (mm)						Spare Parts		Applicable Inserts G16
	R	L		H=HF	HBH	B=WF	LF	LH	CDX*1	Clamp Screw	Wrench	
KGBF% 1010JX-16F	●	●	mm	10	4	10	120	18.5	3	SB-4070TRW	FT-8	GBF32%L ...
1212JX-16F	●	●		12	2	12						
1616JX-16F	●	●		16	-	16						
2020JX-16F	●	●		20	-	20						

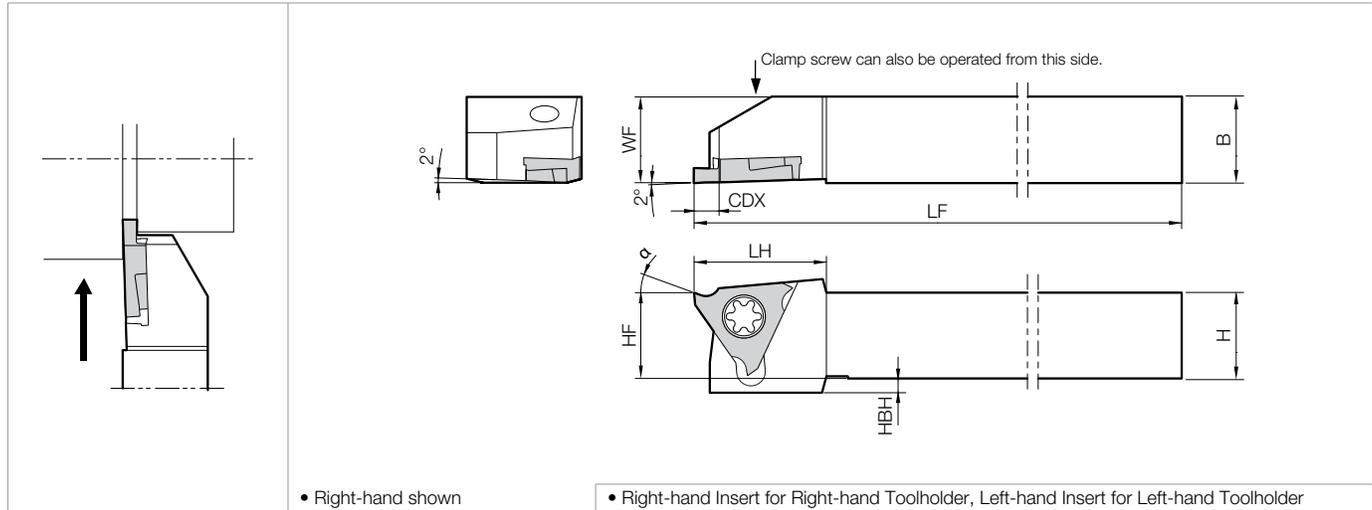
*1 Dimension CDX shows the distance from the toolholder to the cutting edge. Reference dimension CDX in applicable insert table for actual grooving depth.

Maximum Cutting Diameter See Page G19

Recommended Cutting Conditions G140

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGBFS



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions (mm)							Spare Parts		Applicable Inserts G16
	R	L		H=HF	HBH	B	LF	LH	WF	CDX*1	Clamp Screw	Wrench	
KGBFS% 1010JX-16	●	●	mm	10	4	10	120	14	15	3	SB-4070TRW	FT-8	GBF32%L...
1212JX-16	●	●		12	2	12			16				
1616JX-16	●	●		16	-	16			20				

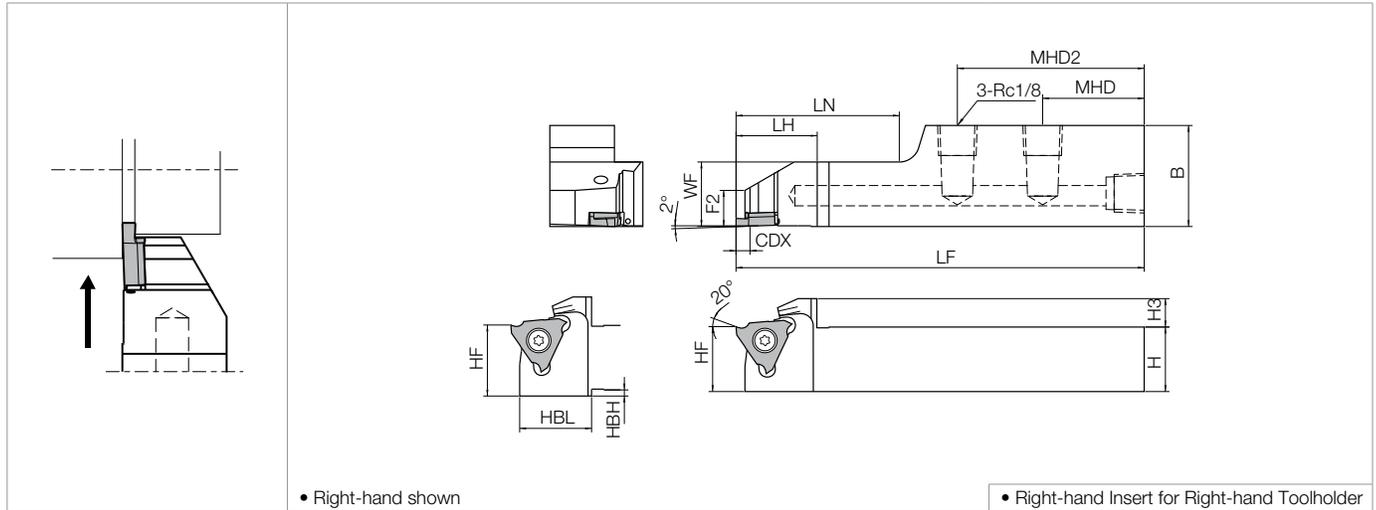
*1 Dimension **CDX** shows the distance from the toolholder to the cutting edge. Reference dimension **CDX** in applicable insert table for actual grooving depth.

Maximum Cutting Diameter See Page G19

Recommended Cutting Conditions G140

G
GROOVING
EXTERNAL
INTERNAL
FACE

KGBF-JCT (Jet Coolant-through) NEW



Toolholder Dimensions

Pressure Resistance: up to 2,175 psi

Part Number	Stock		Unit	Dimensions (mm)											Spare Parts			Applicable Inserts G16
	R	L		H=HF	HBH	B	LF	HBL	LH	LN	WF	CDX*1	MHD	MHD2	Clamp Screw	Wrench	Plug	
KGBFR 1220H-16FJCT	●	●	mm	12	1.5	20	100	20	20	28	12	3	35	-				GBF32%L...
1625H-16FJCT	●	●		16	-	25	100	-	20	40	16	3	25	46	SB-4070TRW	FT-8	GP-1	
2025H-16FJCT	●	●		20	-	25	100	-	20	40	20	3	25	46				

*1 Dimension CDX shows the distance from the toolholder to the cutting edge. Reference dimension CDX in applicable insert table for actual grooving depth.

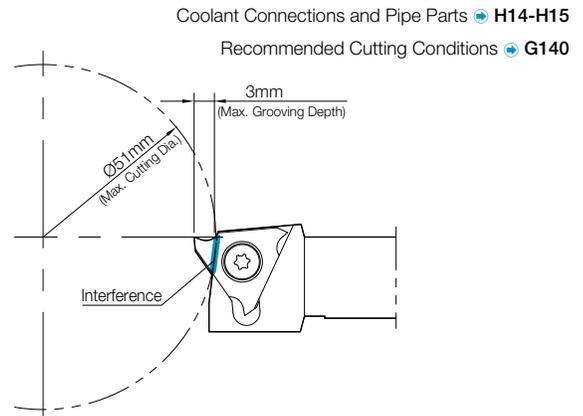
Compatibility & Precautions

GBF and GBA Compatibility

- GBF will fit KGBA / KGBAS toolholders
Caution: The maximum groove depth for KGBA / KGBAS toolholders is 2.5 mm
- GBA inserts will also fit KGBF-F toolholders
Caution: The rake angle after installation in the toolholder is 11°

Maximum Machining Diameter for KGBF-F toolholder with GBF Insert

3 mm groove depth is available on workpiece diameters up to Ø51mm
 2.7 mm groove depth is available on workpiece diameters up to Ø100mm,
 2.5 mm groove depth is available on workpiece diameters up to Ø200mm
 The workpiece will interfere with the holder at maximum cutting diameters or larger.



- A INSERT GRADES
- B TURNING INSERTS
- C GEN/PCD INSERTS
- D TURNING HOLDERS
- E SMALL TOOLS
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- K DRILLING
- M MILLING
- N QUICK CHANGE TOOLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

KTGF-F (Without Offset)

α (°)	Insert Grade
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40

- Right-hand shown
- Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

KTGF (With Offset)

α (°)	Insert Grade
20°	PR1115, PR1215 PR930, KW10
11°	KPD001
6°	TC40

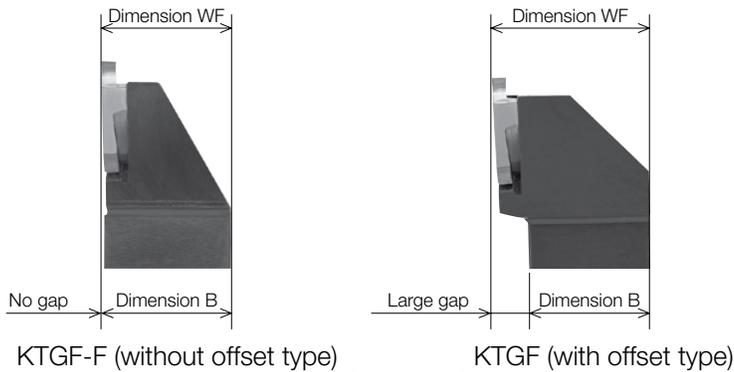
- Right-hand shown
- Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

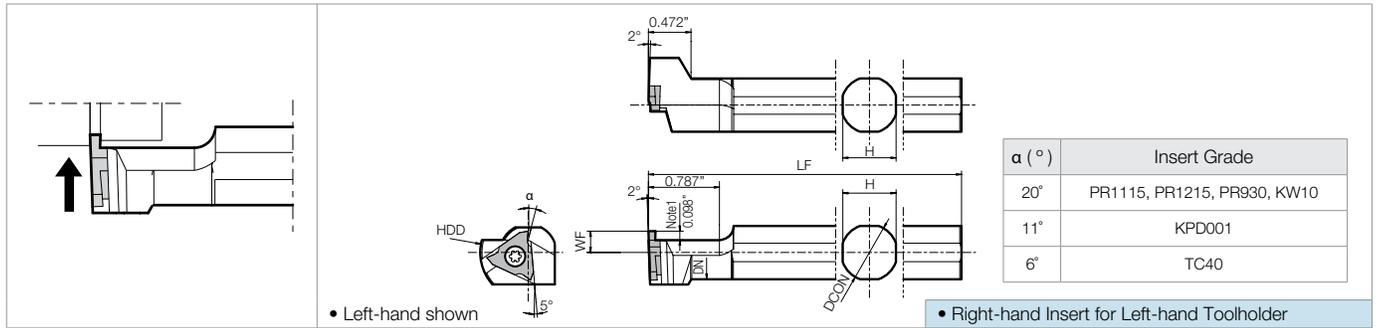
Part Number	Stock		Unit	Dimensions							Spare Parts		Applicable Inserts G21
	R	L		H	HBH	HF	B	LF	LH	WF	Clamp Screw	Wrench	
KTGF% 6-3JXF	●	●	inch	0.375	0.079	0.375	0.375	4.750	0.728	0.383	SB-4070TRW	FT-8	TGF32%
8-3JXF	●	●		0.500	-	0.500	0.500	4.750	0.728	0.500			
10-3JXF	●	●		0.625	-	0.625	0.625	4.750	0.728	0.098			
KTGF% 1010JX-16F	●	●	mm	10	2	10	10	120	18.5	10	SB-4070TRW	FT-8	
1212JX-16F	●	●		12	-	12	12	120	18.5	12			
1616JX-16F	●	●		16	-	16	16	120	18.5	16			
KTGF% 1212F-16F	●		mm	12	-	12	12	85	18.5	12	SB-4070TRS	FT-10	
KTGF% 1010F-16	●	●		10	4	10	10	80	18.5	12			
1212H-16	●	●		12	2	12	12	100	18.5	16			
1616H-16	●	●		16	-	16	16	100	18.5	20			
2020K-16	●	●		20	-	20	20	125	20.0	25			
2525M-16	●	●	25	-	25	25	150	20.0	32				

Usage Difference Between KTGF-F and KTGF Toolholders

It is necessary to use "Without Offset" in operating the swiss machine.



S...KTGF (Sleeve Holder)



Note 1) Dimension shown is the distance from the toolholder to the cutting edge. Reference dimension **CDX** in applicable insert table for actual grooving depth.

Toolholder Dimensions

Part Number	Stock	Unit	Dimensions						Spare Parts		Applicable Inserts Below
			DCON	LF	WF	DN	HDD	H	Clamp Screw	Wrench	
S15F-KTGFL16	●	inch	0.625	3.35	0.236	0.575	1.063	0.591	SB-4070TRS	FT-10	TGF32R
S19G-KTGFL16	●		0.750	3.54	0.236	0.693	1.063	0.669			
S19K-KTGFL16	●		0.750	4.73	0.236	0.693	1.063	0.669			
S25K-KTGFL16	●		1.000	4.73	3.940	0.929	1.260	0.906			
S12F-KTGFL16	●	mm	12.0	80	6	11.0	27	11	SB-4070TRS	FT-10	TGF32R
S14H-KTGFL16	●		14.0	100	6	13.0	27	13			
S16F-KTGFL16	●		16.0	85	6	14.6	27	15			
S20G-KTGFL16	●		20.0	90	6	18.6	27	18			
S20K-KTGFL16	●		20.0	120	6	18.6	27	18			
S25.0H-KTGFL16	●		25.0	100	10	23.6	32	23			

Applicable Inserts

Part Number	IC	S	D1	P	M	K	N	S	H
TGF32_	0.375	0.125	0.177	Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)
				Hard materials (≥40HRC)					

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert Right-handed Insert Shown	Part Number	Unit	Dimensions			Cermet	MEGA COAT	PVD Coated Carbide		Carbide	PCD	Applicable Toolholders	Ref. Page for Toolholder						
			CW	CDX	RE			TC40						PR1215	PR930	PR1115		KW10	KPD001
								R	L							R	L		
 TGF32% TGF32% 	 TGF32% TGF32% TGF32% 	inch	0.031	0.078	0.004							KTGF%L...16F KTGF%...16 S...KTGF% 16	G20 G21						
			0.041	0.078	0.004														
			0.047	0.078	0.004														
			0.058	0.078	0.004														
			0.062	0.078	0.004														
			0.078	0.098	0.004														
			0.094	0.098	0.004														
			0.33	0.8	0.05														
			0.50	1.2	0.05														
			0.75	2.0	0.10														
0.95	2.0	0.10																	
1.00	2.0	0.10																	
1.20	2.0	0.10																	
1.25	2.0	0.10																	
1.40	2.0	0.10																	
1.45	2.0	0.10																	
1.50	2.0	0.10																	
1.75	2.0	0.10																	
2.00	2.5	0.10																	
2.50	2.5	0.10																	
 TGF32R TGF32R TGF32R 	TGF32R TGF32R TGF32R	mm	1.25	2.0	0.10														
			1.50	2.0	0.10														
			2.00	2.5	0.10														

• Dimension **CDX** shows available grooving depth

Recommended Cutting Conditions **G140**

Inserts are sold in 10 piece boxes.

CBN & PCD Tools are sold in 1 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

KGD Insert Lineup

Smooth Chip Control

Introducing new chipbreakers designed for a variety of workpiece materials.

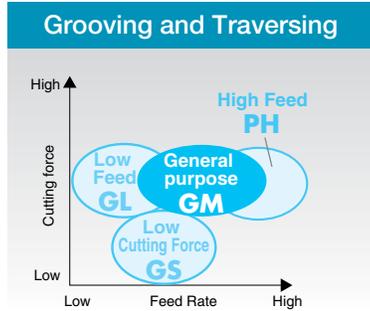
High Precision Edge Preparation

High precision molding technology with tolerance $\pm 0.03\text{mm}$ (2, 3, 4mm types).

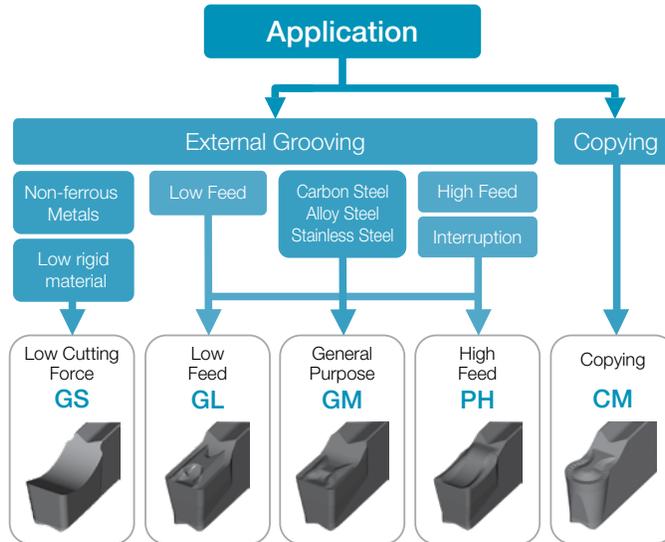
MEGACOAT Technology

Long tool life and high efficiency machining achieved by superior oxidation and wear resistance.

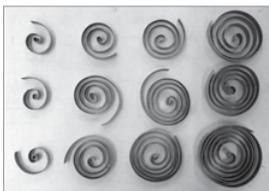
Application Map



Chipbreaker Selection



Comparison of Chip Control - Structural Steel $V_c = 490 \text{ sfm}$, $f = 0.006 \text{ ipr}$



GM Chipbreaker



Competitor A



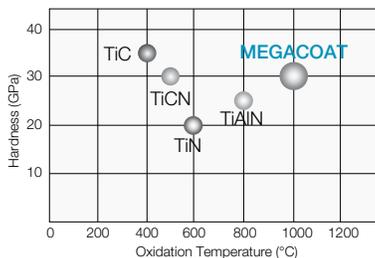
Competitor B

Better chip control than competitors

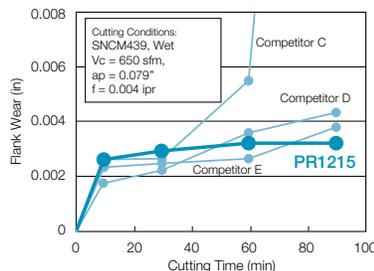


Reduces damage of cutting edge caused by crushing chips

MEGACOAT Features



Wear Resistance Comparison



PR1225

1st recommendation for cut-off, grooving, and traversing of steel

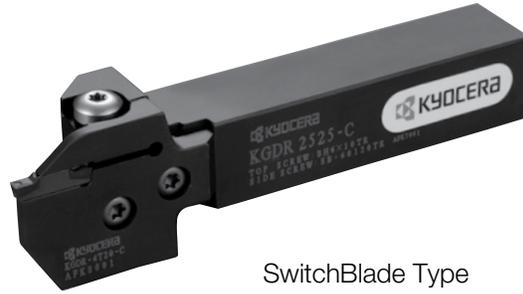
PR1215

Superior wear resistance, recommended for grooving and cut-off under stable conditions.

1st recommendation for machining of cast iron

KGD Toolholder

Integral Type and SwitchBlade Type (Toolholder + Blade) are available



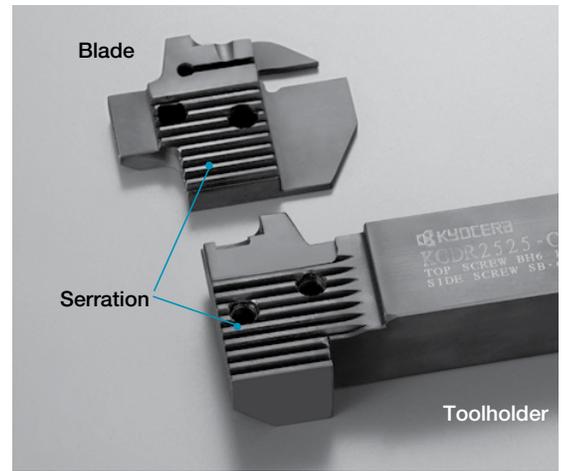
High Rigidity SwitchBlade Type Toolholder

Adaptable to a wide range of applications by swapping blades

Various edge widths and cutting depths can be achieved by changing the blade and toolholder combination. Swap blades out easily to change groove width and depth.

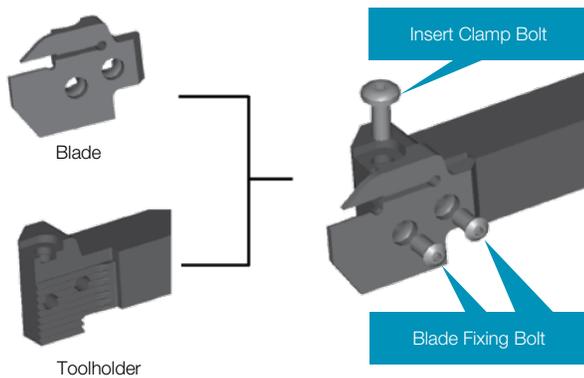
Jet Coolant-Through KGD-JCT Holders

Various edge widths and cutting depths can be achieved by changing the blade and toolholder combination. Swap blades out easily to change groove width and depth.



Structure of Toolholder Unit (Toolholder + Blade)

● KGD-S (0° SwitchBlade Type)

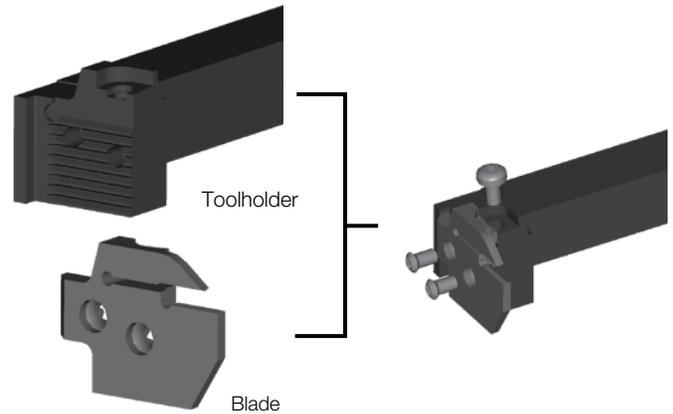


Blade Combination of 0° SwitchBlade Type

Toolholder (KGDR ○○○○-C)
+
Blade (KGDR-○T○○-C)

Right-hand (R) Blade for Right-hand (R) Toolholder,
Left-hand (L) Blade for Left-hand (L) Toolholder.

● KGDS-S (90° SwitchBlade Type)



Blade Combination of 90° SwitchBlade Type

Toolholder (KGDSR ○○○○-C)
+
Blade (KGD~~L~~-○T○○-C)

Left-hand (L) Blade for Right-hand (R) Toolholder,
Right-hand (R) Blade for Left-hand (L) Toolholder.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

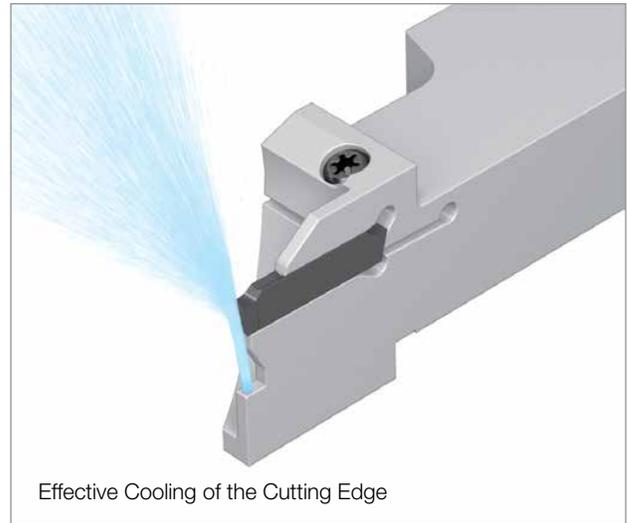
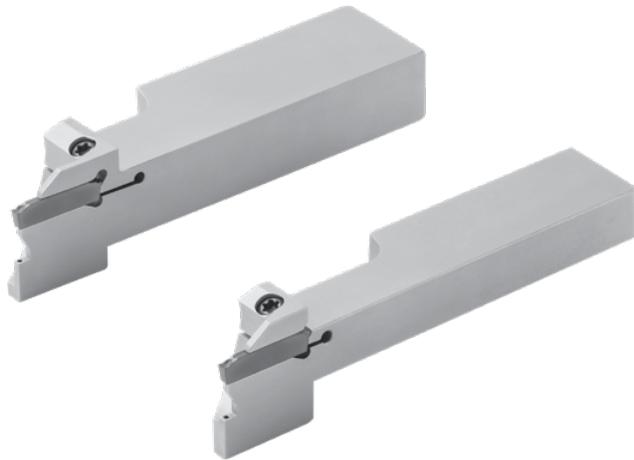
KGD-JCT for Small Parts

Coolant-Through Cut-Off Holders for Small Parts Machining

Improved Tool Life Lowers Machining Costs

Small Diameter Grooving / Cut-Off

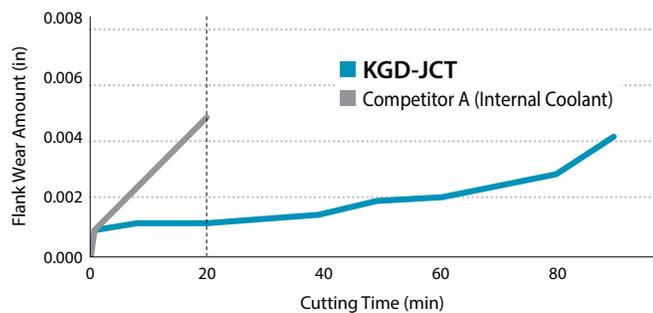
G	GROOVING
	EXTERNAL
	INTERNAL
	FACE



Optimized Coolant Hole Position

Discharges Coolant towards the Flank Face of the Insert

Wear Resistance Comparison
(Internal Evaluation)

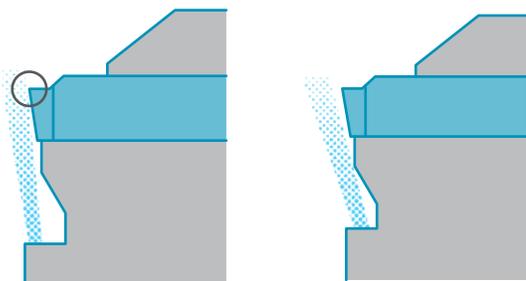


Cutting Conditions : Vc = 260 sfm, f=0.0024 ipr (at-Ø 0.079" : f = 0.0007 (ipr)
 KGDR1625H-2JCT, GDM2020N-015PF PR1535 (Insert Width : 0.079")
 Workpiece : 304 (Ø0.984")
 Internal Coolant(218 psi) Cut-off

Coolant Discharge

KGD-JCT
Sufficient cooling towards the cutting edge

Competitor A
Coolant does not flow directly towards the cutting edge



Cutting Edge (After Machining 20 min)



High density and high speeds coolant provides effective cooling of the cutting edge

Superior cooling action improves tool life

KGD-JCT

Grooving / Cut-Off

Coolant-Through Holders for External Grooving and Cut-Off

Improved Chip Control and Longer Tool Life for External Grooving and Cut-off

Discharges Coolant in Two Directions

Discharges coolant in two directions toward both the rake surface and the flank face of the insert

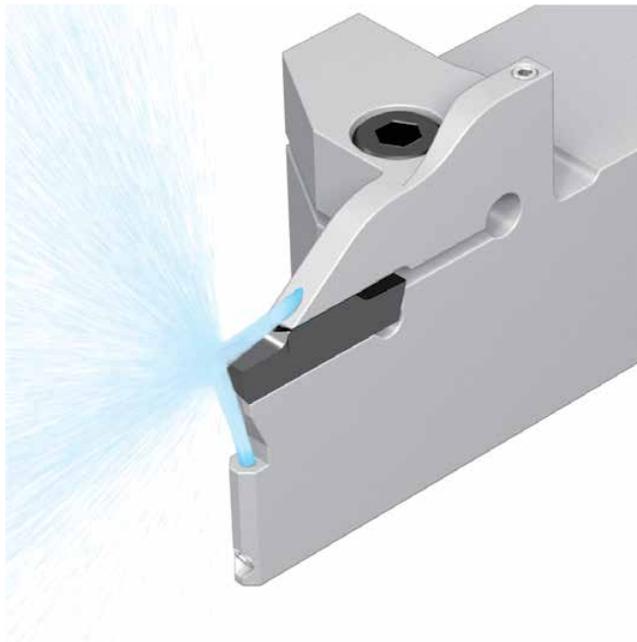
Excellent Chip Control and Long Tool Life



Superior Chip Control Performance

Coolant directed towards the rake face

Coolant hole position and angle improve chip control



Chip Control Comparison (Internal Evaluation)

KGD-JCT showed better chip control performance even at lower feed rates

f = 0.002 ipr (218 psi)



Cutting Conditions: Vc = 490 sfm, f = 0.002 ipr, d = 0.315", Wet
Edge Width 4 mm (0.157") Workpiece: 4131 Grooving

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EXTERNAL GROOVING & TRAVERSING INSERTS

GDM / GDMS / GDG

Usage Classification
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	●	○	●	○
M	Stainless Steel			●	○
K	Cast Iron				●
N	Non-ferrous Metals				●
S	Titanium Alloy			●	○
H	Hard materials (≤40HRC)			○	
	Hard materials (≥40HRC)				

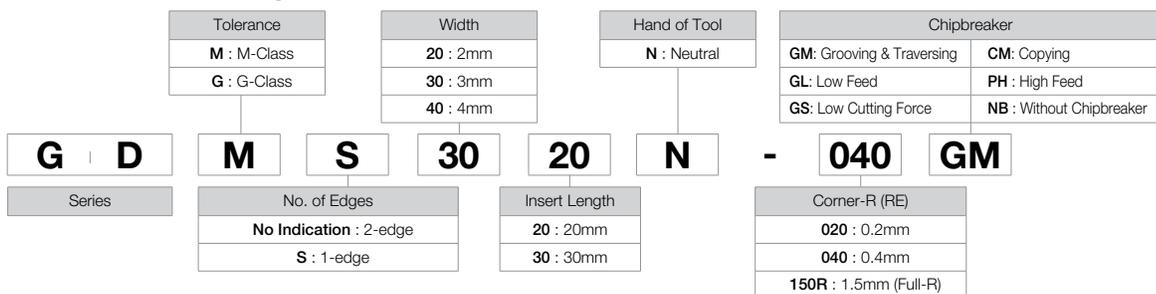
Insert	Part Number	Dimensions (in)						Cement					Carbide	Ref. Page for Toolholder	
		CW			RE	INSL	S	TG620	TN90	PR1535	PR1225	PR1215			GW15
		inch	mm	Tolerance											
Grooving & Traversing General Purpose 2-edge	GDM 2420N-020GM	0.094	2.4	±0.0012	0.008	0.787	0.169	●	●	●	●	●			
	3020N-020GM	0.118	3.0		0.008			●	●	●	●	●			
	3020N-040GM	0.118	3.0		0.016			●	●	●	●	●			
	4020N-020GM	0.157	4.0	±0.0016	0.008			●	●	●	●	●	●		
	4020N-040GM	0.157	4.0		0.016			●	●	●	●	●	●		
	4020N-080GM	0.157	4.0		0.032			●	●	●	●	●	●		
	5020N-040GM	0.197	5.0	±0.0020	0.016			●	●	●	●	●	●		
	5020N-080GM	0.197	5.0		0.032			●	△	●	●	●	●		
	6020N-040GM	0.236	6.0		0.016			●	●	●	●	●	●		
6020N-080GM	0.236	6.0		0.032	●	●	●	●	●	●					
8030N-080GM	0.315	8.0		0.032	1.181	0.217	●	●	●	●	●				
Grooving & Traversing General Purpose 1-edge	GDMS 2220N-020GM	0.087	2.2	±0.0012	0.008	0.787	0.169	●	●	●	●	●			
	3020N-020GM	0.118	3.0		0.016			●	△	●	●	●	●		
	4020N-040GM	0.157	4.0		0.016			●	△	●	●	●	●		
	5020N-080GM	0.197	5.0	±0.0016	0.032			●	△	●	●	●	●		
	6020N-080GM	0.236	6.0		0.032			●	△	●	●	●	●		
Grooving & Traversing Low Feed 2-edge	GDM 2420N-020GL	0.094	2.4	±0.0012	0.008	0.787	0.169	●	●	●	●	●			
	3020N-020GL	0.118	3.0		0.008			●	●	●	●	●	●		
	3020N-040GL	0.118	3.0		0.016			●	●	●	●	●	●		
	4020N-020GL	0.157	4.0	±0.0016	0.008			●	●	●	●	●	●		
	4020N-040GL	0.157	4.0		0.016			●	△	●	●	●	●		
	5020N-040GL	0.197	5.0		0.016			●	△	●	●	●	●		
6020N-040GL	0.236	6.0		0.016	●	△	●	●	●	●					
Grooving Low Cutting Force 2-edge	GDG 2520N-020GS	0.098	2.5	±0.0008	0.008	0.787	0.169	●	●	●	●	●	●		
	3020N-020GS	0.118	3.0		0.008			●	●	●	●	●	●		
	3520N-020GS	0.138	3.5		0.008			●	△	●	●	●	●		
	4020N-040GS	0.157	4.0		0.016			●	●	●	●	●	●		
	5020N-040GS	0.197	5.0		0.016			●	●	●	●	●	●		
	6020N-040GS	0.236	6.0		0.016			●	△	●	●	●	●	●	
8030N-040GS	0.315	8.0		0.016	1.181	0.217	●	△	●	●	●	●			
Full-R / Copying 2-edge	GDM 3020N-150R-CM	0.118	3.0	±0.0012	0.059	0.787	0.169	●	●	●	●	●			
	4020N-200R-CM	0.157	4.0		0.079			●	●	●	●	●	●		
	5020N-250R-CM	0.197	5.0	±0.0016	0.098			*0.827	●	●	●	●	●		
	6020N-300R-CM	0.236	6.0		0.118				●	△	●	●	●	●	
Grooving & Cut-off High Feed 2-edge	GDM 2020N-020PH	0.079	2.0	±0.0012	0.008	0.787	0.169			●	●	●			
	3020N-030PH	0.118	3.0		0.012					●	●	●			
	4020N-030PH	0.157	4.0		0.012					●	●	●			
Grooving & Cut-off High Feed 1-edge	GDMS 2020N-020PH	0.079	2.0	±0.0012	0.008	0.787	0.169			●	●	●			
	3020N-030PH	0.118	3.0		0.012					●	●	●			
	4020N-030PH	0.157	4.0		0.012					●	●	●			

*GDM50/60-CM differs from other part numbers in length (INSL) to avoid interference of a toolholder with workpiece.

Recommended Cutting Conditions **G39~G40**

Insert Identification System

Inserts are sold in 10 piece boxes.



GROOVING INSERTS

GDGS (CBN / PCD)

- Classification of Usage**
- : Light Interruption / 1st Choice
 - : Light Interruption / 2nd Choice
 - : Continuous / 1st Choice
 - : Continuous / 2nd Choice

K	Cast Iron			
N	Non-ferrous Metals			●
S	Titanium Alloy			●
H	Hard materials (≤40HRC)			
	Hard materials (≥40HRC)	●		
	Powdered Steel			●

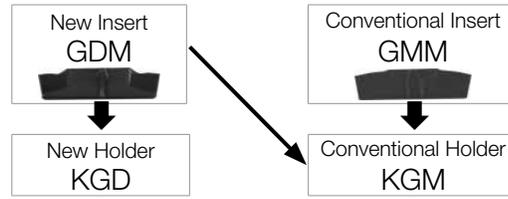
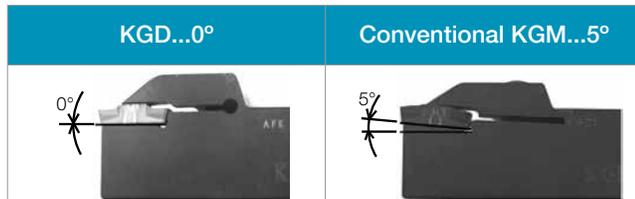
Insert Right-handed Insert Shown	Part Number	Dimensions (in)				MEGA CBN	CBN	PCD	Ref. Page for Toolholder			
		CW			RE					INSL	S	LE
		inch	mm	Tolerance								
	GDGS 2020N-020NB	0.079	2.0		0.008				● G28 ● G36			
	3020N-020NB	0.118	3.0		0.008							
	3020N-040NB	0.118	3.0		0.016							
	4020N-020NB	0.157	4.0		0.008							
	4020N-040NB	0.157	4.0	±0.0012	0.016	0.787	0.169	0.114				
	5020N-020NB	0.197	5.0		0.008							
	5020N-040NB	0.197	5.0		0.016							
	6020N-020NB	0.236	6.0		0.008							
6020N-040NB	0.236	6.0		0.016								

Recommended Cutting Conditions ● G39~G40

CBN & PCD Inserts are sold in 1 piece boxes.

KGD / KGM Combinations

Insert Pocket Angle of KGD / KGM Toolholders



Installing conventional inserts into the new toolholder is not recommended.

Toolholder Identification System

KGD	R	1616	JX	-	3	D38 (Integral Type for Small Parts Machining)
Toolholder Hand	Shank Size	Toolholder Length	Applicable Inserts	Cutting Dia.		
R : Right-hand L : Left-hand	16×16mm	120mm	GDM/GDMS 3~4mm	CUTDIA 38mm		

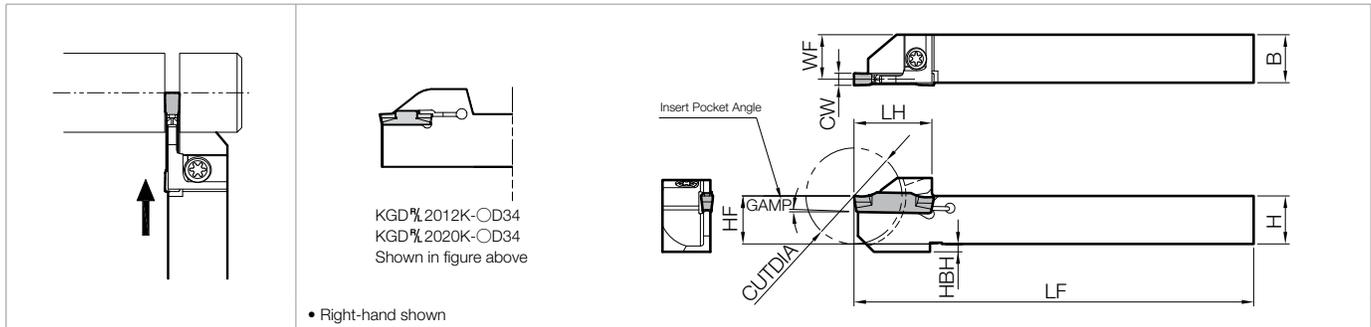
KGD	R	1616	H	-	2	T 06 (Integral Type)
Toolholder Hand	Shank Size	Toolholder Length	Applicable Inserts	Max. Depth of Cut		
R : Right-hand L : Left-hand	16×16mm	100mm	GDM/GDMS 2~3mm	06 : 06mm		

KGD KGDS	R	2020	X	-	3	T 10 S (Separate Type / Unit Description)
Toolholder Hand	Shank Size	Toolholder Type	Applicable Inserts	Max. Depth of Cut		
R : Right-hand L : Left-hand	20×20mm	Unit Description	GDM/GDMS 3~4mm	10 : 10mm		

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD (for Small Parts Machining)

Insert Width: 0.079" ~ 0.157" / 2.0mm ~ 5.0mm



• Right-hand shown

Toolholder Dimensions (Inch Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (in)								Insert Width CW (in)		Spare Parts	
	R	L		CUTDIA	H	HF	HBH	B	LF	LH	WF	GAMP	MIN	MAX	Clamp Bolt	Wrench
KGD% 6-1.5JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.351	1°	-	0.059	SB-40120TR	LTW-15S
KGD% 8-1.5JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.476					
KGD% 6-2.4JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.342	1°	0.079	0.118		
KGD% 8-2JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.467					
KGD% 10-2JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.592					
KGD% 6-2.4JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.336	1°	0.094	0.118		
KGD% 8-2.4JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.461					
KGD% 10-2.4JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.586					
KGD% 8-3JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.453	1°	0.118	0.118	SE-50125TR	LTW-20
KGD% 10-3JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.578					
KGD% 10-3D38JX	●	●	1.496	0.625	0.625	-	0.625	4.75	1.142	0.578	1°	0.118	0.157		
KGD% 12-3D42JX	●	●	1.653	0.750	0.750	-	0.750	4.75	1.220	0.703					
KGD% 43-3D42JX	●	●	1.653	0.750	0.750	-	0.500	4.75	1.220	0.453					

Toolholder Dimensions (Metric Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)								Insert Width CW (mm)		Spare Parts	
	R	L		CUTDIA	H	HF	HBH	B	LF	LH	WF	GAMP	MIN	MAX	Clamp Bolt/Screw	Wrench
KGD% 1010JX-1.3D16	●	●	16	10	10	2	10	120	18.0	9.9	5°	1.3	1.3	SB-40120TR	LTW-15S
KGD% 1010JX-1.3	●	●	20	10	10	2	10	120	18.0	9.5					
KGD% 1212F-1.3D16	●	●	16	12	12	2	12	85	19.5	11.9					
KGD% 1212JX-1.3D16	●	●	16	12	12	2	12	120	19.5	11.9					
KGD% 1212F-1.3	●	●	24	12	12	2	12	85	19.5	11.5					
KGD% 1212JX-1.3	●	●	24	12	12	2	12	120	19.5	11.5					
KGD% 1010JX-1.5D16	●	●	16	10	10	2	10	120	18.0	9.7	5°	1.5	1.5	SB-40120TR	LTW-15S
KGD% 1010JX-1.5	●	●	20	10	10	2	10	120	18.0	9.4					
KGD% 1212F-1.5D16	●	●	16	12	12	2	12	85	19.5	11.7					
KGD% 1212JX-1.5D16	●	●	16	12	12	2	12	120	19.5	11.7					
KGD% 1212F-1.5	●	●	24	12	12	2	12	85	19.5	11.4					
KGD% 1212JX-1.5	●	●	24	12	12	2	12	120	19.5	11.4					
KGD% 1010JX-2	●	●	20	10	10	2	10	120	18.0	9.2	1°	2.0	3.0	SB-40120TR	LTW-15S
KGD% 1212F-2	●	●	24	12	12	2	12	85	19.5	11.2					
KGD% 1212JX-2	●	●	24	12	12	2	12	120	19.5	11.2					
KGD% 1616JX-2	●	●	32	16	16	-	16	120	24.5	15.2					
KGD% 2012K-2D34	●	●	34	20	20	-	12	125	32.5	11.2					
KGD% 2020K-2D34	●	●	34	20	20	-	20	125	32.5	19.2					
KGD% 1010JX-2.4	●	●	20	10	10	2	10	120	18.0	9.0	1°	2.4	3.0	SB-40120TR	LTW-15S
KGD% 1212F-2.4	●	●	24	12	12	2	12	85	19.5	11.0					
KGD% 1212JX-2.4	●	●	24	12	12	2	12	120	19.5	11.0					
KGD% 1616JX-2.4	●	●	32	16	16	-	16	120	24.5	15.0					
KGD% 2012K-2.4D34	●	●	34	20	20	-	12	125	32.5	11					
KGD% 2020K-2.4D34	●	●	34	20	20	-	20	125	32.5	19					
KGD% 1212JX-3	●	●	24	12	12	2	12	120	19.5	10.8	1°	3.0	3.0	SB-40120TR	LTW-15S
KGD% 1616JX-3	●	●	32	16	16	-	16	120	24.5	14.8					
KGD% 1616JX-3D38	●	●	38	16	16	-	16	120	29.0	14.8					
KGD% 1913K-3D38	●	●	38	19	19	-	13	125	29.0	11.8					
KGD% 2012JX-3D42	●	●	42	20	20	-	12	120	31.0	10.8					
KGD% 2012JX-3D51	●	●	51	20	20	-	12	120	36.0	10.8					
KGD% 2020JX-3D42	●	●	42	20	20	-	20	120	31.0	18.8	1°	3.0	4.0	SE-50125TR	LTW-20
KGD% 2020JX-3D51	●	●	51	20	20	-	20	120	36.0	18.8					

Note 1) 0.157" (4mm) width insert can be installed in KGD% 8-3JX and KGD% 1212JX-3, but is not recommended due to the toolholder's rigidity.

2) Recommended tightening torque for clamp screw is 2.0Nm for SB-40120TR and 2.5Nm for SE-50125TR.

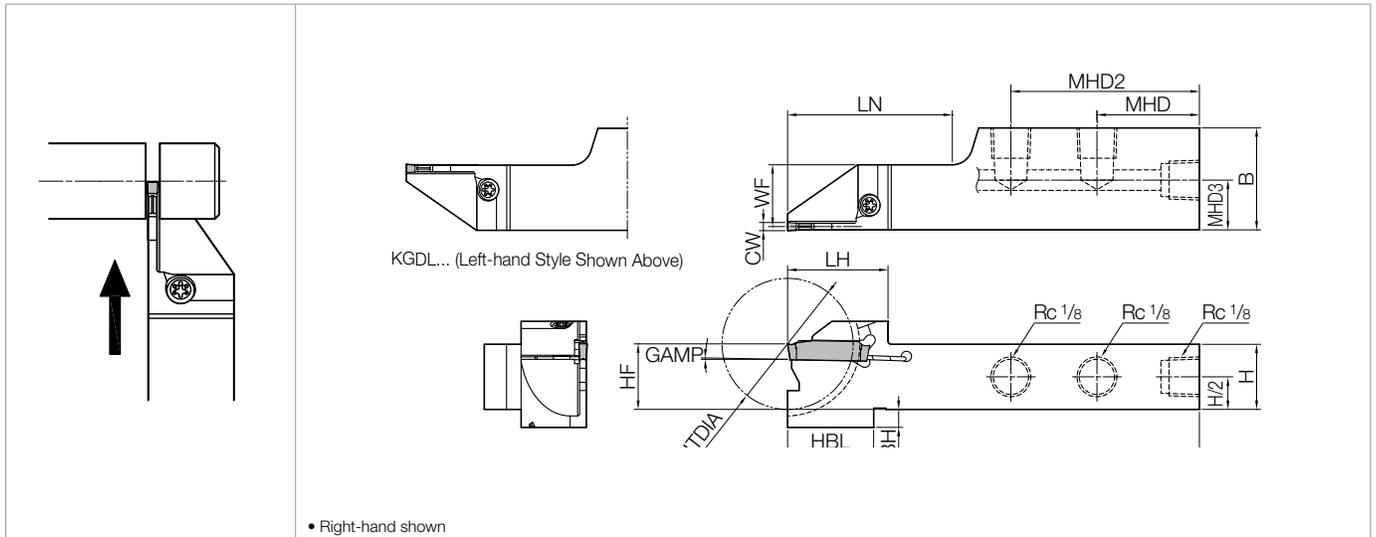
3) When machining material greater than $\phi 1.417$ " (36mm) with KGD%...-3D38(JX), KGD%...-3D42(JX), or KGD%...-3D51 toolholders, use 1-edge inserts.

Max. workpiece diameter for 2-edge inserts is $\phi 1.417$ " (36mm)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [G26-G27](#)

KGJ-JCT (for Small Parts Machining / Jet Coolant-Through) NEW

Insert Width: 0.079"~0.157" / 2.0mm~4.0mm



● Toolholder Dimensions (Metric Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)													Insert Width CW (mm)		Spare Parts		
	R	L		CUTDIA	H=HF	HBH	B	LF	LH	HBL	LN	WF	MHD	MHD2	MHD3	GAMP	MIN	MAX	Clamp Bolt	Wrench	Plug
KGDR 1220H-2JCT	●	●	24	12	8.5	20	100	19.5	21	44	11.2	35	-	8.4	1°	2.0	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1220H-2JCT	●	●							21.5					7.7							
KGDR 1625H-2JCT	●	●	32	16	4.5	25	100	24.5	21	40	15.2	25	46	12.2	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1625H-2JCT	●	●							7.7												
KGDR 1220H-2.4JCT	●	●	24	12	8.5	20	100	19.5	21	11	35	-	8.4	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1		
KGDL 1220H-2.4JCT	●	●							21.5				7.7								
KGDR 1625H-2.4JCT	●	●	32	16	4.5	25	100	24.5	21	15	25	46	12.2	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1		
KGDL 1625H-2.4JCT	●	●							7.7												
KGDR 1220H-3JCT	●	●	24	12	8.5	20	100	19.5	21	44	10.8	35	-	8.6	1°	3.0	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1220H-3JCT	●	●							21.5					7.7							
KGDR 1625H-3JCT	●	●	32	16	4.5	25	100	24.5	21	40	14.8	25	46	12.2	1°	3.0	4.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1625H-3JCT	●	●							7.7												

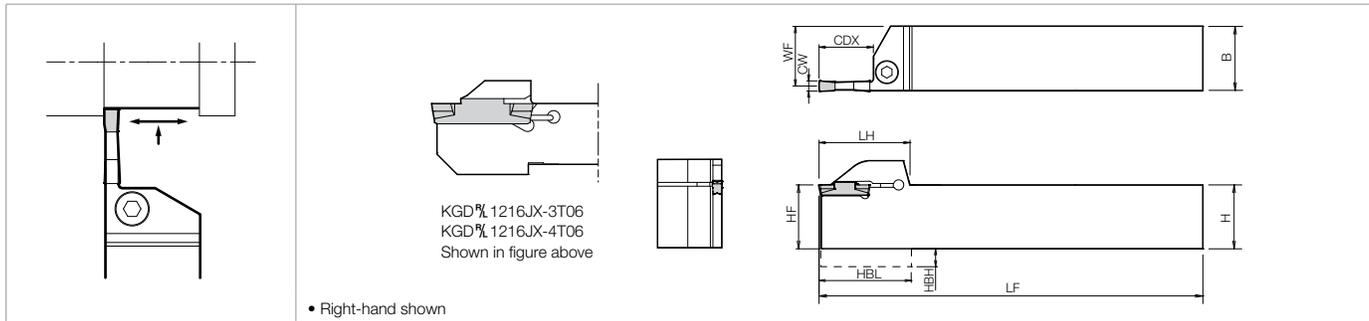
Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [G26~G27](#)

Coolant Connections and Pipe Parts [G33](#)



- A INSERT GRADES
- B TURNING INSERTS
- C GEN/PCD INSERTS
- D TURNING HOLDERS
- E SMALL TOOLS
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- K DRILLING
- M MILLING
- N QUICK CHANGE TOOLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

KGD (Integral-Style)



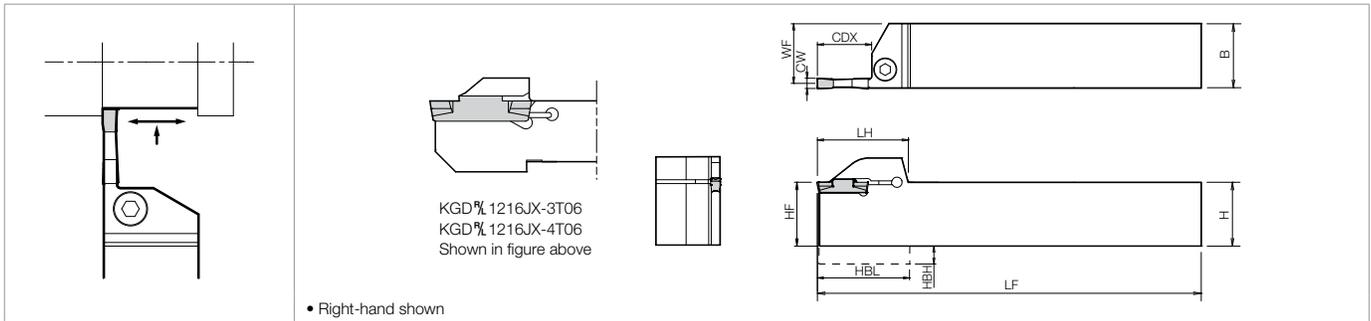
Toolholder Dimensions (Inch Size)

Width (in)	Max. D.O.C. (in)	Part Number	Stock		Dimensions (in)									Insert Width CW (in)		Spare Parts	
			R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX*	MIN	MAX	Clamp Bolt	Wrench
0.079" (2mm)	0.669" (17mm)	KGD% 12-2T17	●	●	0.75	0.75	-	0.75	4.92	1.28	-	0.71	0.669" (17mm)	0.079" (2mm)	0.118" (3mm)	HH5X16	LW-4
		16-2T17	●	●	1.00	1.00	-	1.00	5.90	1.28	-	0.96				HH5X25	
0.118" (3mm)	0.393" (10mm)	KGD% 12-3T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.70	0.393" (10mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.95				HH5X25	
	0.787" (20mm)	KGD% 12-3T20	●	●	0.75	0.75	-	0.75	4.92	1.35	-	0.70	0.787" (20mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T20	●	●	1.00	1.00	-	1.00	5.90	1.39	-	0.95				HH5X25	
NEW	1.000" (25.4mm)	KGD% 12-3T254	●	●	0.75	0.75	-	0.75	4.92	1.52	-	0.70	1.000" (25.4mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T254	●	●	1.00	1.00	-	1.00	5.90	1.52	-	0.95				HH5X25	
0.157" (4mm)	0.393" (10mm)	KGD% 12-4T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.68	0.393" (10mm)	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4
		16-4T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.93				HH5X25	
	0.787" (20mm)	KGD% 12-4T20	●	●	0.75	0.75	-	0.75	4.92	1.35	-	0.68	0.787" (20mm)	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4
		16-4T20	●	●	1.00	1.00	-	1.00	5.90	1.39	-	0.93				HH5X25	
0.984" (25mm)	KGD% 16-4T25	●	●	1.00	1.00	-	1.00	5.90	1.59	-	0.93	0.984" (25mm)			HH5X25	LW-4	
0.197" (5mm)	0.393" (10mm)	KGD% 12-5T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.66	0.393" (10mm)	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4
		16-5T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.91				HH5X25	
	0.669" (17mm)	KGD% 12-5T17	●	●	0.75	0.75	-	0.75	4.92	1.47	-	0.66	0.669" (17mm)	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4
		16-5T17	●	●	1.00	1.00	-	1.00	5.90	1.47	-	0.91				HH5X25	
0.984" (25mm)	KGD% 16-5T25	●	●	1.00	1.00	-	1.00	5.90	1.59	-	0.91	0.984" (25mm)			HH5X25	LW-4	
0.236" (6mm)	0.591" (15mm)	KGD% 16-6T15	●	●	1.00	1.00	-	1.00	5.90	1.28	-	0.89	0.591" (15mm)	0.236" (6mm)	0.236" (6mm)	HH5X25	LW-4
	1.181" (30mm)	KGD% 16-6T30	●	●	1.00	1.00	-	1.00	5.90	1.79	-	0.89	1.181" (30mm)				
0.315" (8mm)	0.984" (25mm)	KGD% 16-8T25	●	●	1.00	1.00	0.26	1.00	5.90	1.65	1.69	0.88	0.984" (25mm)	0.315" (8mm)	0.315" (8mm)	HH6X25	LW-5

Note 1) Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 2) Recommended tightening torque for clamp bolt is 6.5Nm for HH5X○○ and 8.0Nm for HH6X25.
 3) Above toolholders can also be used for cut-off applications.

Choose insert with width that falls within MIN and MAX parameters shown in table above. Insert table [G26~G27](#)

KGD (Integral-Style)



Toolholder Dimensions (Metric Size)

Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (mm)									Insert Width CW (mm)		Spare Parts					
			R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX*	MIN	MAX	Clamp Bolt/Screw	Wrench				
2.0	6	KGD 1616H-2T06	●	●	16	16	4.0	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4				
		KGD 2020K-2T06	●	●	20	20	-	20	125	28.0	-	19.2						HH5X16			
		KGD 2525M-2T06	●	●	25	25	-	25	150	28.0	-	24.2							HH5X25		
	10	KGD 1616H-2T10	●	●	16	16	4.0	16	100	30.2	30.5	15.2	10			HH5X16	LW-4				
		KGD 2020K-2T10	●	●	20	20	-	20	125	30.5	-	19.2						HH5X16			
		KGD 2525M-2T10	●	●	25	25	-	25	150	30.5	-	24.2							HH5X25		
	17	KGD 1616H-2T17	●	●	16	16	4.0	16	100	31.2	31.5	15.2	17			HH5X16	LW-4				
		KGD 2012K-2T17	●	●	20	20	-	12	125	32.5	-	11.2						HH5X16			
		KGD 2020K-2T17	●	●	20	20	-	20	125	32.5	-	19.2							HH5X16		
	2.4	17	KGD 2012K-2.4T17	●	●	20	20	-	12	125	32.5	-	11.0			17	2.4	3.0		HH5X16	LW-4
			KGD 2020K-2.4T17	●	●	20	20	-	20	125	32.5	-	19.0						HH5X16		
3.0	6	KGD 1216JX-3T06	●	●	12	12	2.0	16	120	19.5	19.0	14.8	6	3.0	4.0	SE-50125TR	LTW-20				
		KGD 1616H-3T06	●	●	16	16	4.0	16	100	27.7	28.0	14.8						HH5X16			
		KGD 2020K-3T06	●	●	20	20	-	20	125	28.0	-	18.8							HH5X16		
		KGD 2525M-3T06	●	●	25	25	-	25	150	28.0	-	23.8								HH5X25	
	10	KGD 1616H-3T10	●	●	16	16	4.0	16	100	30.2	30.5	14.8	10			HH5X16	LW-4				
		KGD 2020K-3T10	●	●	20	20	-	20	125	30.5	-	18.8						HH5X16			
		KGD 2525M-3T10	●	●	25	25	-	25	150	30.5	-	23.8							HH5X25		
	20	KGD 1616H-3T20	●	●	16	16	4.0	16	100	34.2	34.5	14.8	20			HH5X16	LW-4				
		KGD 2012K-3T20	●	●	20	20	-	12	125	34.5	-	10.8						HH5X16			
		KGD 2020K-3T20	●	●	20	20	-	20	125	34.5	-	18.8							HH5X16		
		KGD 2525M-3T20	●	●	25	25	-	25	150	35.5	-	23.8								HH5X25	
	4.0	6	KGD 1216JX-4T06	●	●	12	12	2.0	16	120	19.5	19.0	14.3			6	4.0	5.0	SE-50125TR		LTW-20
			KGD 2020K-4T10	●	●	20	20	-	20	125	30.5	-	18.3							HH5X16	
		KGD 2525M-4T10	●	●	25	25	-	25	150	30.5	-	23.3	HH5X25								
		20	KGD 2020K-4T20	●	●	20	20	-	20	125	34.5	-				18.3			20		HH5X16	LW-4
			KGD 2525M-4T20	●	●	25	25	-	25	150	35.5	-	23.3			HH5X25					
5.0	10	KGD 2020K-5T10	●	●	20	20	-	20	125	30.5	-	17.8	10	5.0	6.0	HH5X16	LW-4				
		KGD 2525M-5T10	●	●	25	25	-	25	150	30.5	-	22.8						HH5X25			
	17	KGD 2020K-5T17	●	●	20	20	-	20	125	37.5	-	17.8	17						HH5X25		
		KGD 2525M-5T17	●	●	25	25	-	25	150	37.5	-	22.8						HH5X25			
6.0	15	KGD 2525M-5T25	●	●	25	25	-	25	150	40.5	-	22.8	25	HH5X25							
30	KGD 2525M-6T15	●	●	25	25	-	25	150	32.5	-	22.4	15	6.0	6.0	HH5X25						
	KGD 2525M-6T30	●	●	25	25	-	25	150	45.5	-	22.4					30	HH5X25				
8.0	25	KGD 2525M-8T25	●	●	25	25	7.0	25	150	43.3	44.2	22.0	25	8.0	8.0			HH6X25	LW-5		
		KGD 3232P-8T25	●	●	32	32	-	32	170	43.3	-	29.0				HH6X25					

Note 1) Dimension CDX*: Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 2) Recommended tightening torque for clamp bolt/screw is 6.5Nm for HH5X□□, 8.0Nm for HH6X25 and 2.5Nm for SE-50125TR.
 3) Above toolholders can also be used for cut-off applications.

Choose insert with width that falls within MIN and MAX parameters shown in table above. Insert table [G26-G27](#)

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

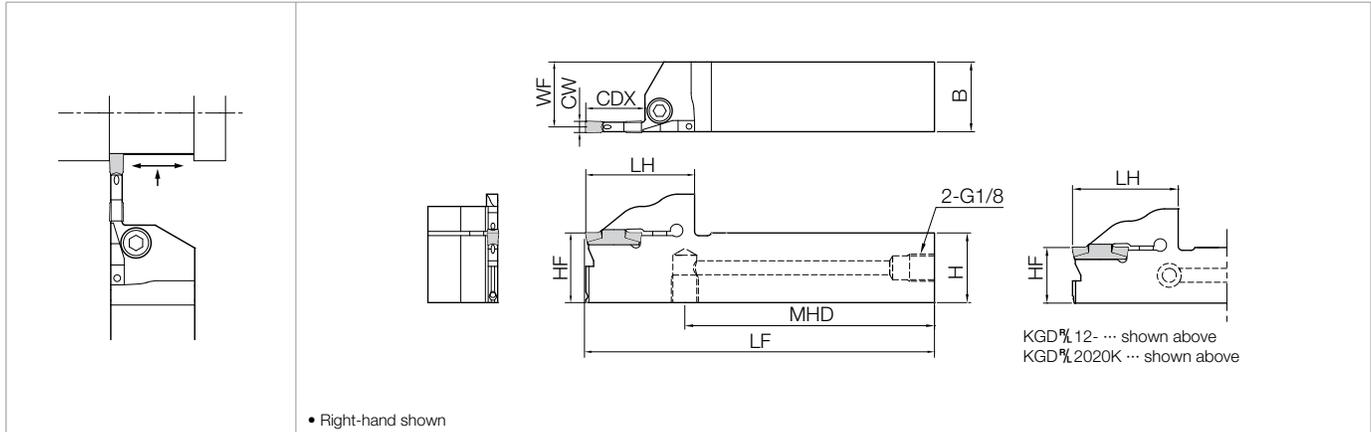
QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

KGD-JCT (Integral Style / Jet Coolant-Through) **NEW**



Toolholder Dimensions (Inch Size)

Pressure Resistance: up to 2,175 psi

Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (in)								Insert Width CW (in)		Spare Parts		
			R	L	H	HF	B	LF	LH	WF	CDX	MHD	MIN	MAX	Clamp Bolt	Wrench	Plug
0.118 (3mm)	0.787 (20mm)	KGD% 12-3T20JCT	●	●	0.750	0.750	0.750	5.000	1.496	0.702	0.787 (20mm)	3.590	0.118 (3mm)	0.157 (4mm)	HH5X16	LW-4	HSG1/8X8.0
		16-3T20JCT	●	●	1.000	1.000	1.000	5.000	1.535	0.952		3.551			HH5X25		
0.157 (4mm)	0.787 (20mm)	KGD% 12-4T20JCT	●	●	0.750	0.750	0.750	5.000	1.496	0.683	0.787 (20mm)	3.590	0.157 (4mm)	0.197 (5mm)	HH5X16	LW-4	HSG1/8X8.0
		16-4T20JCT	●	●	1.000	1.000	1.000	5.000	1.535	0.933		3.551			HH5X25		
	1.000 (25.4mm)	KGD% 16-4T25.4JCT	●	●	1.000	1.000	1.000	5.000	1.732	0.933	1.000 (25.4mm)	3.354			HH5X25		

Toolholder Dimensions (Metric Size)

Pressure Resistance: up to 2,175 psi

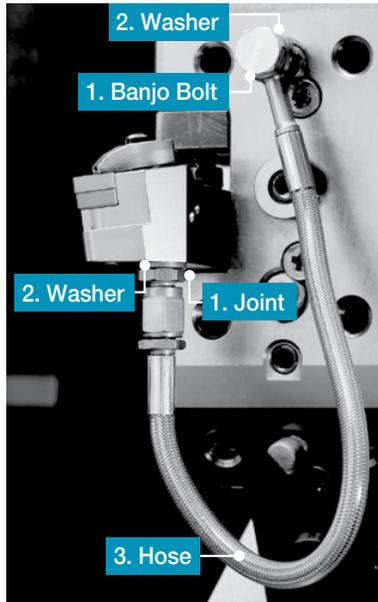
Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (mm)								Insert Width CW (mm)		Spare Parts		
			R	L	H	HF	B	LF	LH	WF	CDX	MHD	MIN	MAX	Clamp Bolt	Wrench	Plug
3	6	KGD% 2020K-3T06JCT	●	●	20	20	20	125	31.5	18.8	6	96.2	3.0	4.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-3T06JCT	●	●	25	25	25		31.5	23.8		96.5			HH5X25		
	10	2020K-3T10JCT	●	●	20	20	20		34.0	18.8	10	94.2			HH5X16		
		2525K-3T10JCT	●	●	25	25	25		34.0	23.8		94.5			HH5X25		
	20	2020K-3T20JCT	●	●	20	20	20		38.0	18.8	20	90.2			HH5X16		
		2525K-3T20JCT	●	●	25	25	25		39.0	23.8		89.5			HH5X25		
4	10	KGD% 2020K-4T10JCT	●	●	20	20	20	34.0	18.8	10	94.2	4.0	5.0	HH5X16	LW-4	HSG1/8X8.0	
		2525K-4T10JCT	●	●	25	25	25	34.0	23.8		94.5			HH5X25			
	20	KGD% 2020K-4T20JCT	●	●	20	20	20	38.0	18.8	20	90.2			HH5X16			
		2525K-4T20JCT	●	●	25	25	25	39.0	23.8		89.5			HH5X25			
	25	KGD% 2525K-4T25JCT	●	●	25	25	25	44.0	23.8	25	84.5			HH5X25			

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [G26-G27](#)

Coolant Connections and Pipe Parts [G33](#)

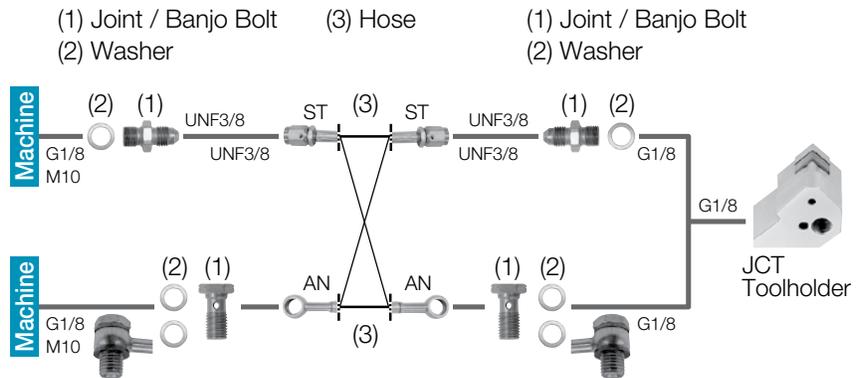
Easy Coolant Connections

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock	Thread Standard
	J-G1/8-UNF3/8	●	G1/8
	J-10X1.5-UNF3/8	●	M10X1.5
	BB-G1/8	●	G1/8
	BB-M10X1.5	●	M10X1.5

1. Joint / Banjo bolt × 2

2. Washer × 2-4

3. Hose × 1

2. Washer

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock
	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

Pressure Resistance: up to 4,350 psi

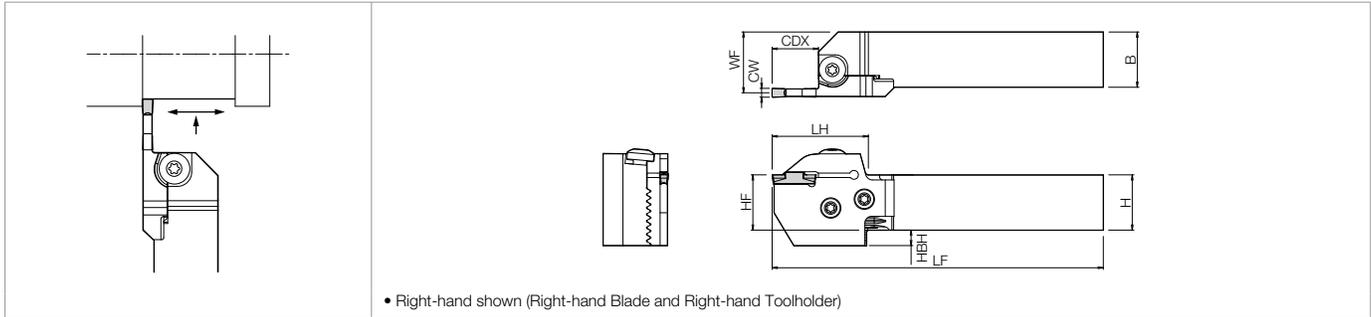
Shape	Part Number	Stock	Thread Standard		Dimensions (mm)
					L
	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●	UNF3/8	UNF3/8	250
	HS-ST-AN-200	●	UNF3/8	-	200
	HS-ST-AN-250	●	UNF3/8	(Banjo Bolt)	250
	HS-AN-AN-200	●	-	-	200
	HS-AN-AN-250	●	(Banjo Bolt)	(Banjo Bolt)	250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

EXTERNAL GROOVING / CUT-OFF TOOLHOLDERS

KGD-S (0° SwitchBlade Type)



Toolholder + Blade Dimensions (Inch Size)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

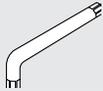
Shank Angle	Width (in)	Max. Grooving Depth (in)	Shank Size (in)	Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number ● G35	Blade Part Number ● G35	Dimensions (in)								Insert Width CW (in)					
					R	L			H	HF	HBH	B	LF	LH	WF	CDX*	MIN.	MAX.				
0°	0.079 (2mm)	0.669 (17mm)	□0.75	KGD% 12X-2T17S	●	●	KGD% 12-C	KGD% -2T17-C	0.75	0.75	0.472	0.75	4.80	1.57	0.88	0.669 (17mm)	0.079 (2mm)	0.118 (3mm)				
			□1.00	16X-2T17S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.79	1.57	1.13							
	0.118 (3mm)	0.394 (10mm)	□0.75	KGD% 12X-3T10S	●	●	KGD% 12-C	KGD% -3T10-C	0.75	0.75	0.472	0.75	4.53	1.30	0.87	0.394 (10mm)	0.118 (3mm)	0.157 (4mm)				
			□1.00	16X-3T10S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.51	1.30	1.12							
		0.787 (20mm)	□0.75	KGD% 12X-3T20S	●	●	KGD% 12-C	KGD% -3T20-C	0.75	0.75	0.472	0.75	4.92	1.69	0.87							
			□1.00	16X-3T20S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.91	1.69	1.12							
	0.157 (4mm)	0.394 (10mm)	□0.75	KGD% 12X-4T10S	●	●	KGD% 12-C	KGD% -4T10-C	0.75	0.75	0.472	0.75	4.53	1.30	0.85	0.394 (10mm)	0.157 (4mm)	0.197 (5mm)				
			□1.00	16X-4T10S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.51	1.30	1.10							
		0.787 (20mm)	□0.75	KGD% 12X-4T20S	●	●	KGD% 12-C	KGD% -4T20-C	0.75	0.75	0.472	0.75	4.92	1.69	0.85							
			□1.00	16X-4T20S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.91	1.69	1.10							
		0.984 (25mm)	□0.75	KGD% 12X-4T25S	●	●	KGD% 12-C	KGD% -4T25-C	0.75	0.75	0.472	0.75	5.12	1.89	0.85							
			□1.00	16X-4T25S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	6.10	1.89	1.10							
		0.197 (5mm)	0.394 (10mm)	□0.75	KGD% 12X-5T10S	●	●	KGD% 12-C	KGD% -5T10-C	0.75	0.75	0.472	0.75	4.53	1.30				0.83	0.394 (10mm)	0.197 (5mm)	0.236 (6mm)
				□1.00	16X-5T10S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	5.51	1.30				1.08			
	0.984 (25mm)		□0.75	KGD% 12X-5T25S	●	●	KGD% 12-C	KGD% -5T25-C	0.75	0.75	0.472	0.75	5.12	1.89	0.83							
			□1.00	16X-5T25S	●	●	KGD% 16-C		1.00	1.00	0.276	1.00	6.10	1.89	1.08							

- Note 1) When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
 2) The toolholder and blade part numbers are printed on the toolholder body. (Unit part numbers are not printed)
KGD-S: Right-hand blades for right-hand toolholders, and left-hand blades for left-hand toolholders.
 3) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 4) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table ● **G26~G27**

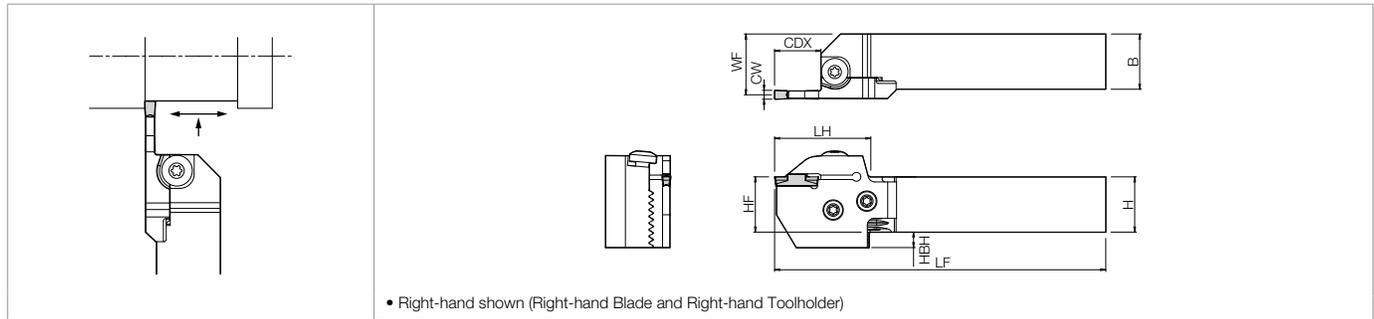
Spare Parts (Common with SwitchBlade Types)

* The parts are included in the toolholder and unit.

Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD%.....S	 BH6X10TR	 SB-60120TR	 LTW-25

EXTERNAL GROOVING / CUT-OFF TOOLHOLDERS

KGD-S (0° SwitchBlade Type)



Toolholder + Blade Dimensions (Metric Size)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank Size (mm)	Unit Part Number (Toolholder + Blade)		Stock		Toolholder Part Number G35	Blade Part Number G35	Dimensions (mm)							Insert Width CW (mm)	
				R	L	H	HF			HBH	B	LF	LH	WF	CDX*	MIN.	MAX.	
0°	2	17	□20	KGD% 2020X-2T17S	●	△	KGD% 2020-C	KGD% -2T17-C	20	20	12	20	122	40	23.4	17	2.0	3.0
			□25	2525X-2T17S	●	●	KGD% 2525-C		25	25	7	25	147	40	28.4			
			□32	No Unit Part Number →		●	△		KGD% 3232-C	32	32	-	32	167	40				35.4
	3	10	□20	KGD% 2020X-3T10S	●	△	KGD% 2020-C	KGD% -3T10-C	20	20	12	20	115	33	23.0	10	3.0	4.0
			□25	2525X-3T10S	●	△	KGD% 2525-C		25	25	7	25	140	33	28.0			
			□32	3232X-3T10S	△	△	KGD% 3232-C		32	32	-	32	160	33	35.0			
	20	□20	KGD% 2020X-3T20S	●	●	KGD% 2020-C	KGD% -3T20-C	20	20	12	20	125	43	23.0	20	3.0	4.0	
		□25	2525X-3T20S	●	●	KGD% 2525-C		25	25	7	25	150	43	28.0				
		□32	3232X-3T20S	●	△	KGD% 3232-C		32	32	-	32	170	43	35.0				
	4	10	□20	KGD% 2020X-4T10S	●	●	KGD% 2020-C	KGD% -4T10-C	20	20	12	20	115	33	22.5	10	4.0	5.0
			□25	2525X-4T10S	●	●	KGD% 2525-C		25	25	7	25	140	33	27.5			
		20	□20	KGD% 2020X-4T20S	●	●	KGD% 2020-C	KGD% -4T20-C	20	20	12	20	125	43	22.5	20		
			□25	2525X-4T20S	●	●	KGD% 2525-C		25	25	7	25	150	43	27.5			
		□32	3232X-4T20S	●	△	KGD% 3232-C	32	32	-	32	170	43	34.5					
			25	□20	KGD% 2020X-4T25S	●	●	KGD% 2020-C	KGD% -4T25-C	20	20	12	20	130	48	22.5		
	□25	2525X-4T25S		●	●	KGD% 2525-C	25	25		7	25	155	48	27.5				
	□32	3232X-4T25S		●	△	KGD% 3232-C	32	32		-	32	175	48	34.5				
	5	10	□20	KGD% 2020X-5T10S	●	●	KGD% 2020-C	KGD% -5T10-C	20	20	12	20	115	33	22.0	10	5.0	6.0
			□25	2525X-5T10S	●	●	KGD% 2525-C		25	25	7	25	140	33	27.0			
		25	□20	KGD% 2020X-5T25S	△	●	KGD% 2020-C	KGD% -5T25-C	20	20	12	20	130	48	22.0	25		
			□25	2525X-5T25S	●	●	KGD% 2525-C		25	25	7	25	155	48	27.0			
		□32	3232X-5T25S	●	●	KGD% 3232-C	32	32	-	32	175	48	34.0					

- Note 1) When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
 2) The toolholder and blade part numbers are printed on the toolholder body. (Unit part numbers are not printed)
KGD-S: Right-hand blades for right-hand toolholders, and left-hand blades for left-hand toolholders.
 3) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 4) Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [G26~G27](#)

Spare Parts (Common with SwitchBlade Types)

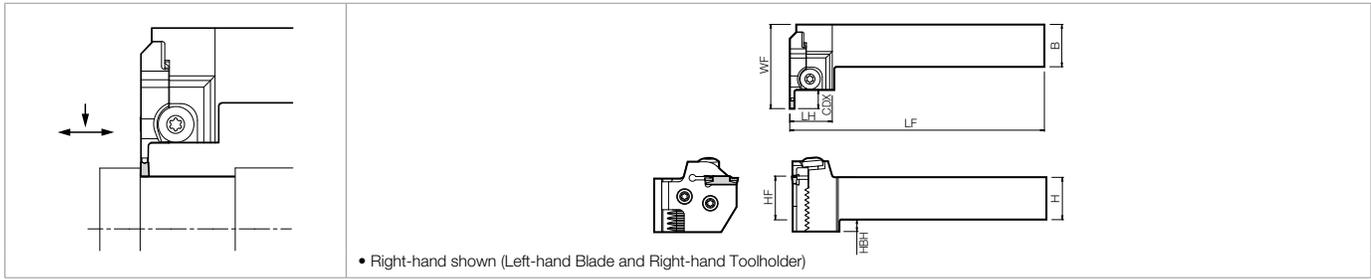
* The parts are included in the toolholder and unit.

Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD% .....S	 BH6X10TR	 SB-60120TR	 LTW-25

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EXTERNAL GROOVING TOOLHOLDERS

KGDS-S (90° SwitchBlade Type)



Toolholder + Blade Dimensions (Inch Size)

(Choose **Left-hand** Blade for **Right-hand** Toolholder and **Right-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank Size (mm)	Unit Part Number (Toolholder + Blade)	Toolholder Part Number G35	Blade Part Number G35	Dimensions (in)							Insert Width CW (in)		
							H	HF	HBH	B	LF	LH	WF	CDX*	MIN.	MAX.
90°	0.079 (2mm)	0.669 (17mm)	□0.75	No Unit Part Number →	KGDS% 12-C	KGD% -2T17-C	0.75	0.75	0.472	0.75	4.92	1.09	2.19	0.669 (17mm)	0.079 (2mm)	0.118 (3mm)
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	2.25			
	0.118 (3mm)	0.394 (10mm)	□0.75		KGDS% 12-C	KGD% -3T10-C	0.75	0.75	0.472	0.75	4.92	1.09	1.92	0.394 (10mm)	0.118 (3mm)	0.157 (4mm)
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	1.97			
		0.787 (20mm)	□0.75		KGDS% 12-C	KGD% -3T20-C	0.75	0.75	0.472	0.75	4.92	1.09	2.31	0.787 (20mm)		
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	2.37			
	0.157 (4mm)	0.394 (10mm)	□0.75		KGDS% 12-C	KGD% -4T10-C	0.75	0.75	0.472	0.75	4.92	1.09	1.92	0.394 (10mm)	0.157 (4mm)	0.197 (5mm)
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	1.97			
		0.787 (20mm)	□0.75		KGDS% 12-C	KGD% -4T20-C	0.75	0.75	0.472	0.75	4.92	1.09	2.31	0.787 (20mm)		
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	2.37			
		0.984 (25mm)	□0.75		KGDS% 12-C	KGD% -4T25-C	0.75	0.75	0.472	0.75	4.92	1.09	2.51	0.984 (25mm)		
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	2.56			
	0.197 (5mm)	0.394 (10mm)	□0.75		KGDS% 12-C	KGD% -5T10-C	0.75	0.75	0.472	0.75	4.92	1.09	1.92	0.394 (10mm)	0.197 (5mm)	0.236 (6mm)
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	1.97			
		0.984 (25mm)	□0.75		KGDS% 12-C	KGD% -5T25-C	0.75	0.75	0.472	0.75	4.92	1.09	2.51	0.984 (25mm)		
			□1.00		KGDS% 16-C		1.00	1.00	0.276	1.00	5.91	1.09	2.56			

Toolholder + Blade Dimensions (Metric Size)

(Choose **Left-hand** Blade for **Right-hand** Toolholder and **Right-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Width (mm)	Max. Grooving Depth (mm)	Shank Size (mm)	Unit Part Number (Toolholder + Blade)	Stock	Toolholder Part Number G35	Blade Part Number G35	Dimensions (mm)							Insert Width CW (mm)				
								R	L	H	HF	HBH	B	LF	LH	WF	CDX*	MIN.	MAX.
90°	2	17	□20	No Unit Part Number →		KGDS% 2020-C	KGD% -2T17-C	20	20	12	20	125	27.7	56.7	17	2.0	3.0		
			□25			KGDS% 2525-C		25	25	7	25	150	27.7	56.7					
	3	10	□20		KGDS% 2020X-3T10S	●	●	KGDS% 2020-C	KGD% -3T10-C	20	20	12	20	125	27.7	49.7	10	3.0	4.0
			□25		2525X-3T10S	●	●	KGDS% 2525-C		25	25	7	25	150	27.7	49.7			
		20	□20		KGDS% 2020-C		KGDS% 2020-C	KGD% -3T20-C	20	20	12	20	125	27.7	59.7	20			
			□25		KGDS% 2525-C		25		25	7	25	150	27.7	59.7					
	4	10	□20		No Unit Part Number →	KGDS% 2020-C	KGD% -4T10-C	20	20	12	20	125	27.7	49.7	10	4.0	5.0		
			□25			KGDS% 2525-C		25	25	7	25	150	27.7	49.7					
		20	□20			KGDS% 2020-C	KGD% -4T20-C	20	20	12	20	125	27.7	59.7				20	
			□25			KGDS% 2525-C		25	25	7	25	150	27.7	59.7					
		25	□20			KGDS% 2020-C	KGD% -4T25-C	20	20	12	20	125	27.7	64.7				25	
			□25			KGDS% 2525-C		25	25	7	25	150	27.7	64.7					
	5	10	□20		KGDS% 2020-C	KGD% -5T10-C	20	20	12	20	125	27.7	49.7	10	5.0	6.0			
			□25		KGDS% 2525-C		25	25	7	25	150	27.7	49.7						
		25	□20		KGDS% 2020-C	KGD% -5T25-C	20	20	12	20	125	27.7	64.7				25		
			□25		KGDS% 2525-C		25	25	7	25	150	27.7	64.7						

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G26-G27**

Note

- When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
- The toolholder and blade part numbers are printed on the toolholder body. (Unit part numbers are not printed)
KGDS-S: Left-hand blades for right-hand toolholders, and right-hand blades for left-hand toolholders.
- If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
- Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

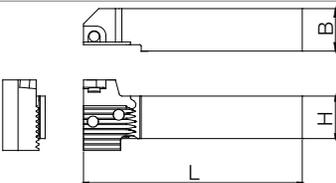
Spare Parts (Common with SwitchBlade Types)

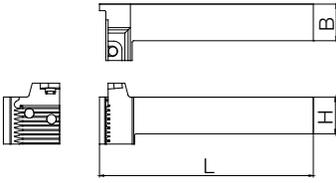
* The parts are included in the toolholder and unit.

Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Bolt (for Blade)	Wrench
KGDS% .....S	BH6X10TR	SB-60120TR	LTW-25

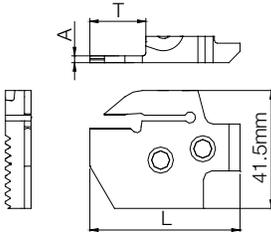
TOOLHOLDERS AND BLADES FOR GROOVING AND CUT-OFF

● Toolholder Dimensions

KGD-S (0° SwitchBlade Type) Right-hand shown	Toolholder Part Number	Stock		Unit	Dimensions		
		R	L		L	B	H
	KGD% 12-C	●	●	inch	4.09	0.75	0.75
		●	●		5.08	1.00	1.00
	KGD% 2020-C	●	●	mm	104	20	20
		●	●		129	25	25
	3232-C	●	●		149	32	32

KGDS-S (90° SwitchBlade Type) Right-hand shown	Toolholder Part Number	Stock		Unit	Dimensions		
		R	L		L	B	H
	KGDS% 12-C	●	●	inch	4.80	0.75	0.75
		●	●		5.79	1.00	1.00
	KGDS% 2020-C	●	●	mm	122	20	20
		●	●		147	25	25

● Blade Dimensions

Blade Right-hand shown	Blade Part Number	Stock		Unit	Dimensions		
		R	L		L	T	A
	KGD% -2T17-C	●	●	mm	51.2	17.2	1.7
		●	●		44.2	10.2	2.4
	-3T10-C	●	●		53.2	20.2	2.4
	-3T20-C	●	●		44.2	10.2	3.4
	-4T10-C	●	●		54.2	20.2	3.4
	-4T20-C	●	●		59.2	25.2	3.4
	-4T25-C	●	●		44.2	10.2	4.4
	-5T10-C	●	●		59.2	25.2	4.4

● Spare Parts (Common with SwitchBlade Types)

* The parts are included in the toolholder and unit.

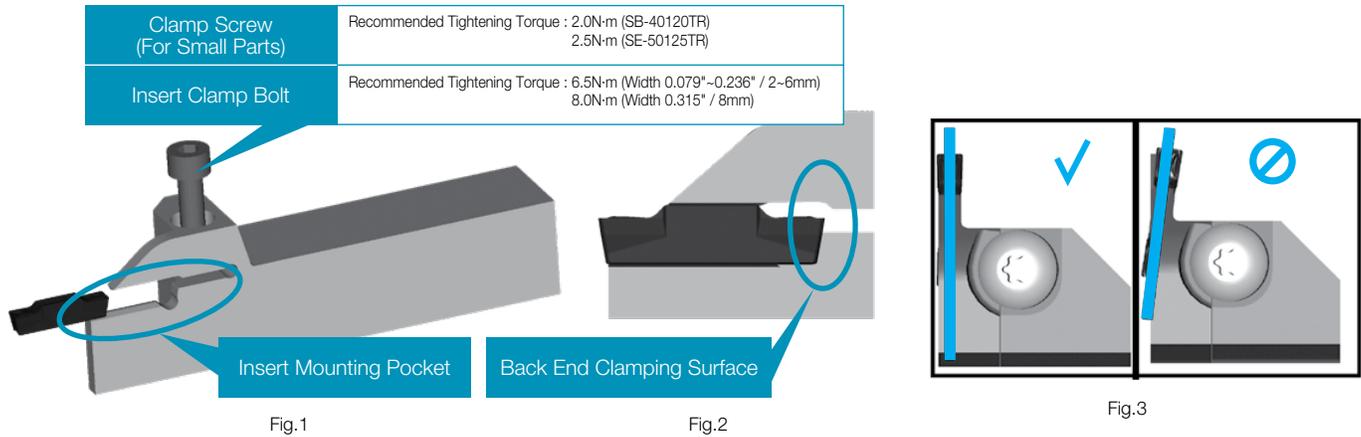
Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD%L.....S KGDS%L.....S	 BH6X10TR	 SB-60120TR	 LTW-25

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SETTING THE INSERTS AND THE BLADE

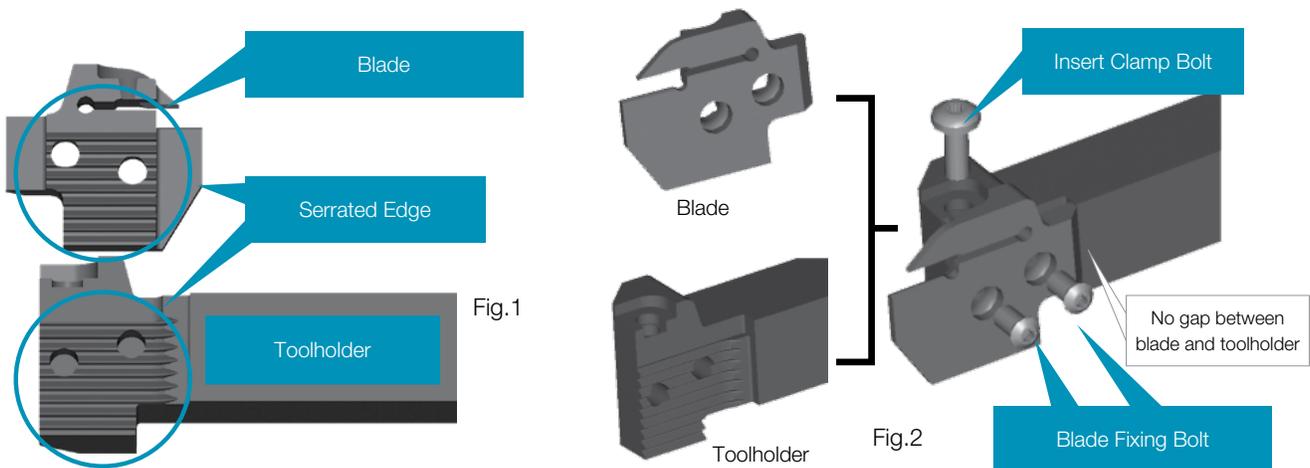
Setting the Insert

1. Completely eliminate chips from the insert mounting part. (see Fig.1)
2. Put the insert into the toolholder and push until it contacts the holder's surface for fixing the insert's back end. (see Fig.1, Fig.2)
3. Keeping the insert pushed against the toolholder's locating surface, tighten the insert clamp bolt at an appropriate torque.
4. Make sure there is no gap between the insert and the toolholder's locating surface and that the insert is set straight. (see Fig.2, Fig.3)



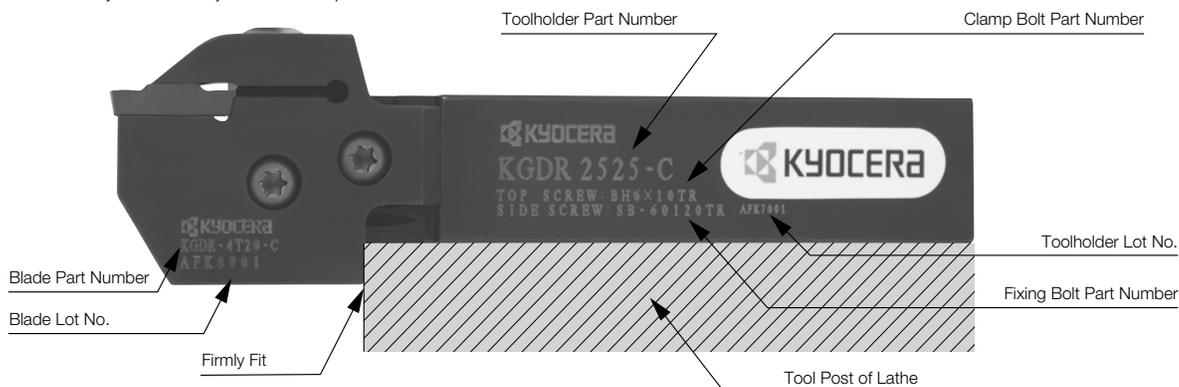
Setting the Blade (SwitchBlade Type toolholder)

1. Use compressed air or other measures to remove chips and dust from the serrated surface. (See Fig.1)
2. Mate and fit the serrations of the blade and toolholder. (See Fig.2)
3. Tighten the blade fixing screws at an appropriate torque. You can tighten them in any order. (See Fig.2) (Recommended tightening torque : 8Nm)
4. Mount the insert after setting the blade.



SwitchBlade Type Toolholder Identification System and Their Setting to Lathe

- Firmly fit the lower jaw to the tool post of the lathe.



RECOMMENDED CUTTING CONDITIONS

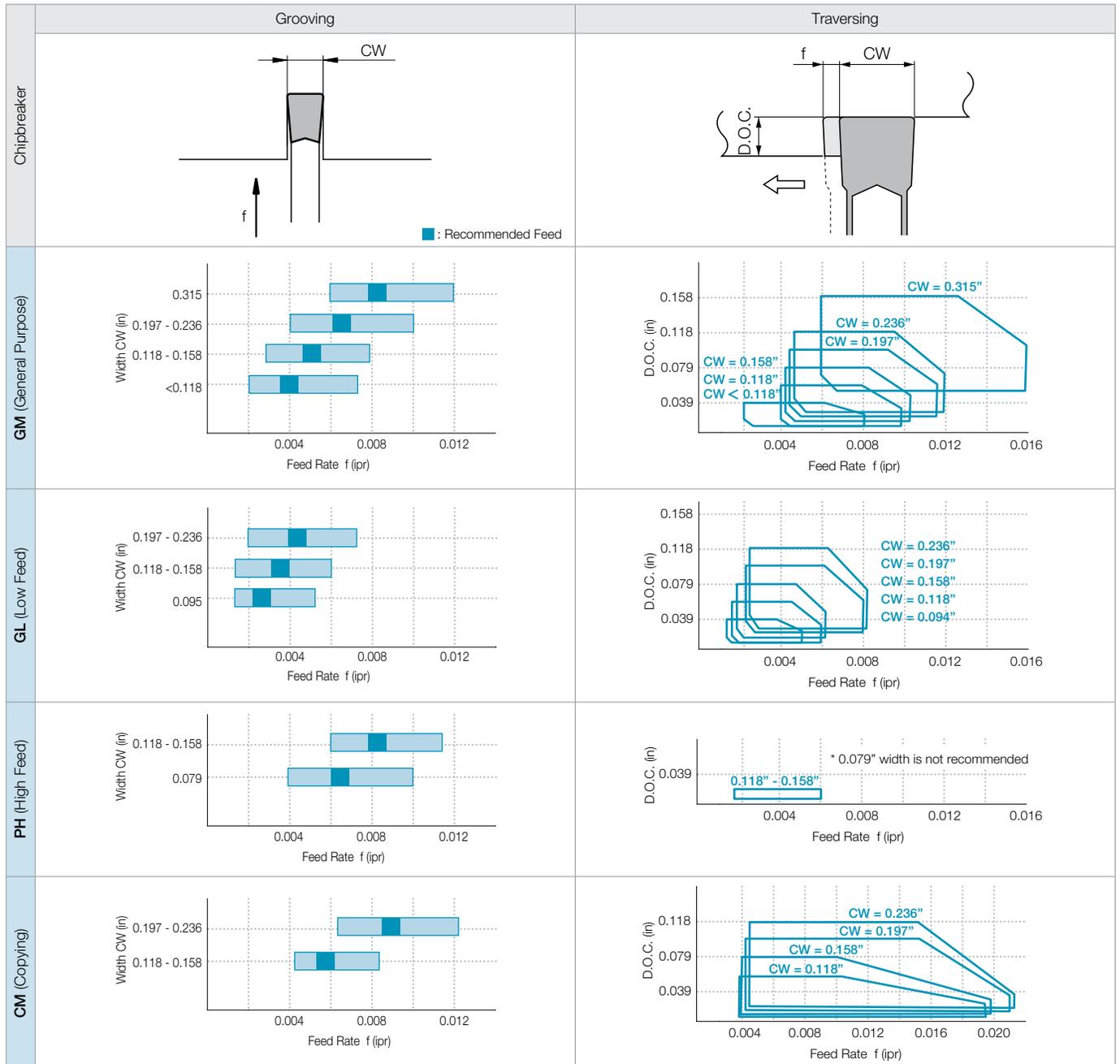
◆ Recommended Cutting Conditions (Vc)

Workpiece	Chipbreaker	Recommended Insert Grade (Vc : sfm)								Notes	
		Cermet		MEGACOAT NANO	MEGACOAT		Carbide	MEGACOAT CBN	CBN		PCD
		TN620	TN90	PR1535	PR1225	PR1215	GW15	KBN05M	KBN570		KPD001
Carbon Steel	GM	☆ 260 - 720	☆ 330 - 720	☆ 260 - 660	★ 260 - 660	☆ 330 - 660	-	-	-	-	
Alloy Steel	GL	☆ 230 - 660	☆ 260 - 660	☆ 230 - 590	★ 230 - 590	☆ 260 - 590	-	-	-	-	
Stainless Steel	CM	-	-	☆ 200 - 490	☆ 200 - 490	☆ 200 - 490	-	-	-	-	
Cast Iron	PH	-	-	★ 200 - 490	☆ 200 - 490	☆ 200 - 490	-	-	-	-	
Aluminum Alloy	GS	-	-	-	-	★ 330 - 660	-	-	-	-	
Brass	NB	-	-	-	-	-	☆ 660 - 1,640	-	-	★ 490 - 6,560	
Hard Materials	GS	-	-	-	-	-	☆ 330 - 660	-	-	★ 660 - 2,620	
Powdered Steel	NB	-	-	-	-	-	-	★ 260 - 490	-	-	
									★ 330 - 820		

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Feed Rate / D.O.C.)

(Workpiece Material : 1049)



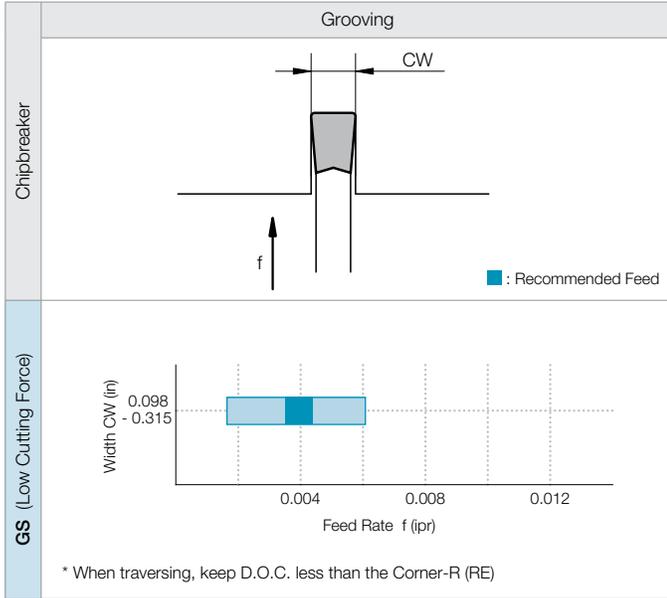
1) The above values reflect a CDX dimension that is 0.669" (17mm) or less.

2) If the toolholder is not for the 0.315" (8mm) width insert and its CDX dimension is over 0.669" (17mm), set the values for traversing to less than 90% of recommended cutting conditions above.

RECOMMENDED CUTTING CONDITIONS

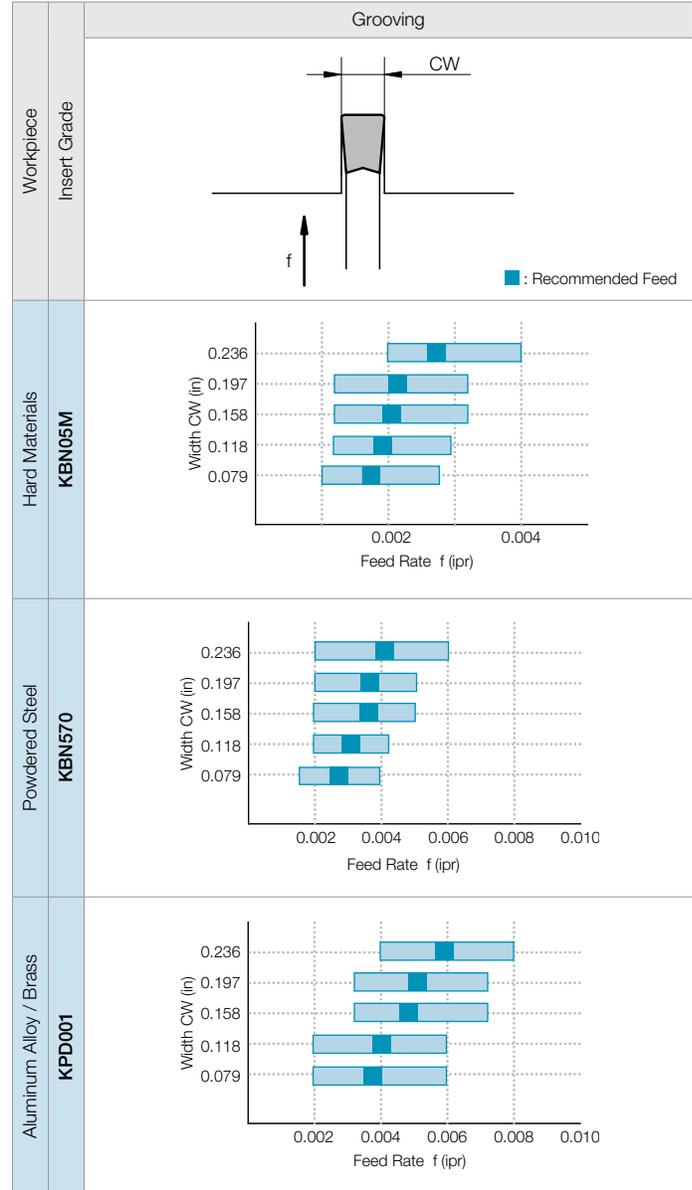
◆ Recommended Cutting Conditions (Feed Rate / D.O.C.)

(Workpiece Material : 1049)



1) The above values reflect a CDX dimension that is 0.669" (17mm) or less.

◆ Recommended Cutting Conditions (Feed Rate)

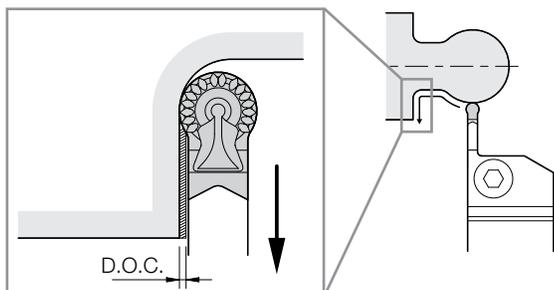


G	GROOVING
EXTERNAL	
INTERNAL	
FACE	

◆ CM Chipbreaker (Back Turning)

- Estimated maximum cutting amount (D.O.C.) for back turning

Part Number	Max. D.O.C. (in)				
	Toolholder Part Number				
	KGD...-2T...	KGD...-3T...	KGD...-4T...	KGD...-5T...	KGD...-6T...
GDM 3020N-150R-CM	0.009	0.008	-	-	-
4020N-200R-CM	-	0.009	0.008	-	-
5020N-250R-CM	-	-	0.012	0.008	-
6020N-300R-CM	-	-	-	0.012	0.010

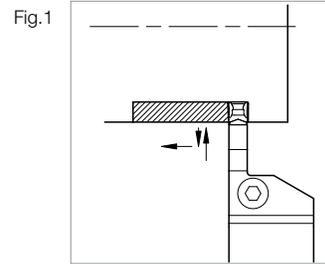


Guide for External Grooving

① Traversing After Grooving

1. Grooving Depths Over 0.020" (0.5mm) : When Roughing (see **Fig.1**)
Before traversing, pull the tool back about 0.004" (0.1mm) after grooving, instead of traversing subsequent to grooving.

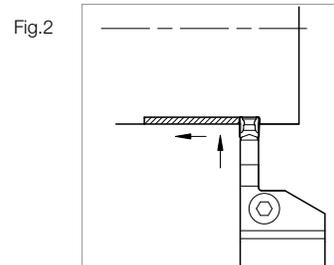
(Failure to pull the tool back before traversing will result in an unbalanced load applied on only one side of the cutting edge.)



Before traversing, pull the tool back about 0.004" (0.1mm) after grooving.
(Grooving Depth Over 0.020" (0.5mm) : When Roughing)

2. Grooving Depths Under 0.020" (0.5mm) : When Finishing (see **Fig.2**)

Traversing subsequent to grooving is possible because shallow groove depths apply a small load on the cutting edge.
(Dwell-motion is not necessary)



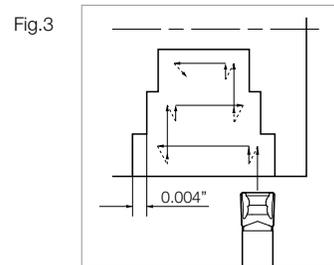
Traversing Subsequent to Grooving.
(Grooving Depth Under 0.020" (0.5mm) : When Finishing)

②

1. When widening the groove width, use "Step Traversing" as shown in **Fig.3**

2. The widened groove and side walls should be finished last.
(For better chip control, D.O.C. over 0.020" (0.5mm) is recommended.)

Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center

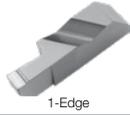


Case Studies

5120H (Grooving)	
<ul style="list-style-type: none"> • Gear • Vc = 370~540 sfm • f = 0.002 ipr • Wet • GDM4020N-040GM (PR1225) • KGDL2525X-3T10S 	
GM Chipbreaker (PR1225)	1,500 pcs/C
Competitor K (PVD Coated Carbide)	250 pcs/C
<ul style="list-style-type: none"> • KGD type grooving toolholder + GM chipbreaker (PR1225) showed 6 times longer tool life than that of Competitor K. • Good chip control without burned chips. 	
Competitor K	GM Chipbreaker
(User Evaluation)	

Structural Steel (Grooving, Traversing)	
<ul style="list-style-type: none"> • Gear • Vc = 560 sfm • f = 0.006 ipr (Roughing) 0.004 ipr (Finishing) • D.O.C = 0.008" (Finishing) • Wet • GDM4020N-040GM (PR1215) • KGDR2525X-4T20S 	
GM Chipbreaker (PR1215)	250 pcs/C
Competitor L (Roughing: PVD Coated Carbide) (Finishing: Cermet)	200 pcs/C
<ul style="list-style-type: none"> • GM chipbreaker reduced chip entanglement (occurrence rate 80% → 10%). The problem was persistent with Competitor L. Machining productivity is improved. 	
Chips easily tangled Competitor L (Finishing)	Smooth chip control GM Chipbreaker (Finishing)
(User Evaluation)	

KCG / KCGP / KCGDP / KCRP

Insert Right-handed Insert Shown	Part Number	Dimensions (in)								Insert Grade																
		CW		CDX	RE	W1	INSL	S	Cermet		MEGA COAT CVD		PVD		Carbide		Ceramic									
		(inch)	(mm)						TC40	TC60	PR1215	PR660	PR930	KW10	A65											
		R	L	R	L	R	L	R	L	R	L	R	L	R	L											
 2-Edge	KCG 2062%	0.062	1.57	0.110	0.008	0.150	0.540	0.219																		
	KCG 2125%	0.125	3.18																							
	KCG 3062%	0.062	1.57	0.094	0.008	0.195	0.810	0.344																		
	KCG 3094%	0.094	2.39																							
	KCG 3125%	0.125	3.18																							
KCG 3156%	0.156	3.96																								
 2-Edge	KCGP 2031%	0.031	0.79	0.050	0.003	0.150	0.540	0.219	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 2041%	0.041	1.04																							
	KCGP 2047%	0.047	1.19																							
	KCGP 2058%	0.058	1.47	0.110	0.008	0.150	0.540	0.219	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 2062%	0.062	1.57																							
	KCGP 2094%	0.094	2.39	0.110	0.008	0.150	0.540	0.219	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 2125%	0.125	3.18																							
	KCGP 3031%	0.031	0.79	0.050	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 3047%	0.047	1.19																							
	KCGP 3062%	0.062	1.57	0.094	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 3072%	0.072	1.83																							
	KCGP 3078%	0.078	1.98	0.094	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 3088%	0.088	2.24																							
	KCGP 3094%	0.094	2.39	0.150	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 3097%	0.097	2.46																							
	KCGP 3105%	0.105	2.67																							
	KCGP 3110%	0.110	2.79	0.150	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
	KCGP 3122%	0.122	3.10																							
	KCGP 3125%	0.125	3.18																							
	KCGP 3142%	0.142	3.61	0.150	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●					
KCGP 3156%	0.156	3.96																								
KCGP 3178%	0.178	4.52																								
KCGP 3185%	0.185	4.70	0.150	0.008	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●	●						
KCGP 3189%	0.189	4.80																								
KCGP 4125%	0.125	3.18	0.150	0.008	0.255	1.272	0.453	●	●	●	●	●	●	●	●	●	●	●	●	●						
KCGP 4189%	0.189	4.80																								
KCGP 4213%	0.213	5.41	0.250	0.018	0.255	1.272	0.453	●	●	●	●	●	●	●	●	●	●	●	●	●						
KCGP 4219%	0.219	5.56																								
KCGP 4250%	0.250	6.35																								
 1-Edge	KCGDP 3062%	0.062	1.57	0.125	0.008	0.195	0.886	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCGDP 3094%	0.094	2.39																							
	KCGDP 3125%	0.125	3.18	0.250	0.008	0.195	0.990	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCGDP 3189%	0.189	4.80																							
 2-Edge	KCRP 2031%	0.062	1.57	0.094	0.031	0.150	0.540	0.219	●	●	●	●	●	●	●	●	●	●	●	●						
	KCRP 2039%	0.078	1.98																							
	KCRP 2047%	0.094	2.39	0.150	0.047	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCRP 2062%	0.125	3.18																							
	KCRP 3031%	0.062	1.57	0.094	0.031	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCRP 3047%	0.094	2.39																							
	KCRP 3062%	0.125	3.18	0.150	0.062	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCRP 3078%	0.156	3.96																							
	KCRP 3094%	0.188	4.78	0.150	0.094	0.195	0.810	0.344	●	●	●	●	●	●	●	●	●	●	●	●						
	KCRP 4125%	0.250	6.35																							

● Dimension CDX shows available Grooving Depth.

Applicable Toolholders ● G43, G133

Recommended Cutting Conditions (Cera-Notch)

Workpiece Material	Cermet Feeds (ipr)	Carbide Feeds (ipr)	Recommended Insert Grade (Vc : sfm)						
			Cermet		MEGACOAT	Carbide		Ceramic	
			TC40	TC60	PR1215	PR660	PR930	KW10	A65
Carbon Steel	0.002~0.005	0.002~0.010	300~900	250~900	300~800	200~550	250~650	-	-
Alloy Steel	0.002~0.005	0.002~0.010	250~800	250~800	300~750	100~500	150~550	-	-
Stainless Steel	0.002~0.005	0.002~0.010	-	200~600	300~600	100~550	100~550	-	-
Tool Steel	0.002~0.005	0.002~0.010	200~650	200~650	300~600	-	100~550	-	-
Hardened Steel (>45Rc)	-	-	-	-	-	-	-	-	250~500*
Gray Cast Iron	0.003~0.006	0.002~0.012	200~700	-	300~700	-	-	-	500~1000
Ductile Iron	0.003~0.006	0.002~0.012	-	150~600	300~600	-	-	-	500~1000
Aluminum	0.002~0.008	0.002~0.012	150~1600	-	-	-	-	500~1600	-

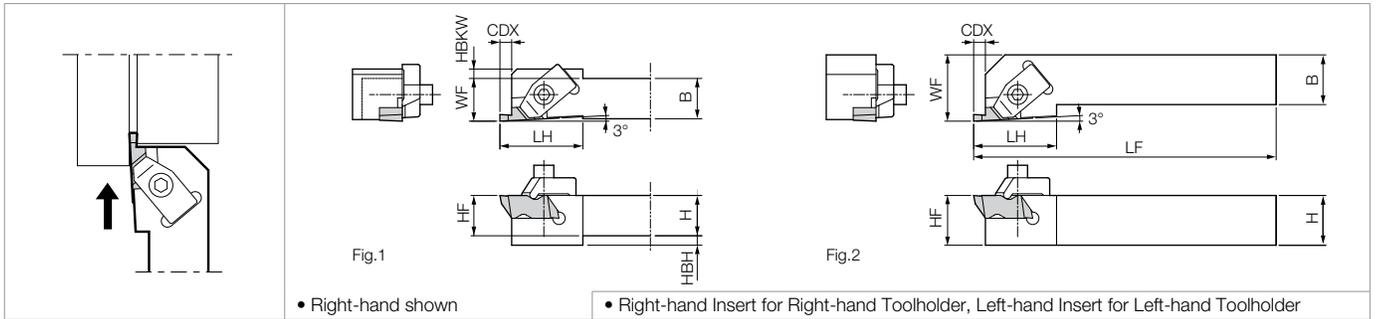
Speeds & Feeds listed are for external grooving. Reduce parameters by 10% for internal grooving.

*Feeds = 0.003~0.008 ipr

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● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

■ KKC



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Drawing	Spare Parts		
	R	L		H	HF	HBH	B	LF	LH	WF	HBKW	CDX*		Clamp	Clamp Screw	Wrench
KKC% 1212M-2-150F	●		mm	12	12	-	12	150	19.05	12.25	-	3.5	Fig.1	CKC-2%	SKC-2	(7/64 hex)
KKC% 6-2X	●	●	inch	0.375	0.375	-	0.375	2.500	0.750	0.562	-	0.138	Fig.2	CKC-2%	SKC-2	(7/64 hex)
6-2CF	●	●		0.375	0.375	0.125	0.375	5.000	0.750	0.385	0.125	0.138	Fig.1			
8-2X	●	●		0.500	0.500	-	0.500	3.500	0.750	0.750	-	0.138	Fig.2			
8-2DF	●	●		0.500	0.500	-	0.500	6.000	0.750	0.510	-	0.138	Fig.1			
10-2DF	●	●		0.625	0.625	-	0.625	6.00	0.750	0.635	-	0.138	Fig.1			
12-2B	●	●		0.750	0.750	-	0.750	4.50	0.750	1.000	-	0.138	Fig.2			
12-2C	●	□		0.750	0.750	-	0.750	5.00	0.750	1.000	-	0.138	Fig.2	CKC-2%	SKC-2	(7/64 hex)
16-2C	●	●		1.000	1.000	-	1.000	5.00	0.750	1.250	-	0.138	Fig.2			
16-2D	●	●		1.000	1.000	-	1.000	6.00	0.750	1.250	-	0.138	Fig.2			
12-3B	●	●		0.750	0.750	-	0.750	4.50	1.250	1.000	-	0.210	Fig.2	CKC-3%	SKC-3	LW-156
12-3C	●	●		0.750	0.750	-	0.750	5.00	1.250	1.000	-	0.210	Fig.2			
16-3C	●	●		1.000	1.000	-	1.000	5.00	1.250	1.250	-	0.210	Fig.2			
16-3D	●	●		1.000	1.000	-	1.000	6.00	1.250	1.250	-	0.210	Fig.2			
20-3D	●	●		1.250	1.250	-	1.250	6.00	1.250	1.500	-	0.210	Fig.2			
16-4D	●	●		1.000	1.000	-	1.000	6.00	1.380	1.250	-	0.294	Fig.2			
20-4D	●	●		1.250	1.250	-	1.250	6.00	1.380	1.500	-	0.294	Fig.2			

* CDX dimension shows the distance from the toolholder to the cutting edge. For actual maximum grooving depth, see CDX dimension in insert table.

Applicable Inserts **G42**

- Note: Right-hand bars require right-hand inserts and clamps
- Left-hand bars require left-hand inserts and clamps

Also Available for Threading. See Page **J24**

● Applicable Inserts

Toolholder	Inserts G42	
	2-Edge Use	1-Edge Use
KKC% ...-2	KCGP-2, KCG-2, KCRP-2	
KKC% ...-3	KCGP-3, KCG-3, KCRP-3	KCGDP-3
KKC% ...-4	KCGP-4, KCRP-4	

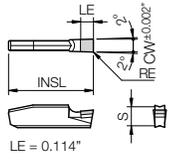
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MULTI-FUNCTION / GROOVING TOOLHOLDER

GMN

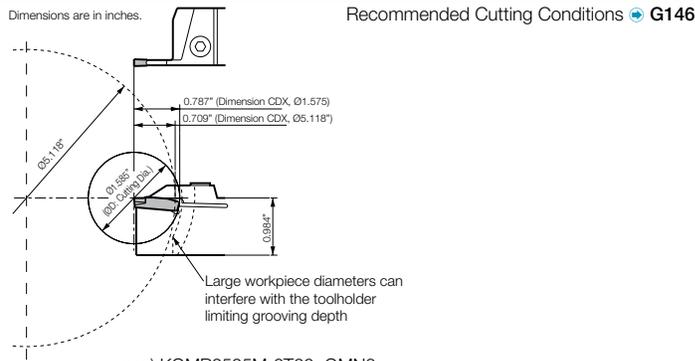
Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Material				RE	INSL	S	CBN		PCD		Ref. Page for Toolholder
	M	K	N	S				H	KBN510	KBN525	KPD001		KPD010
Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)	Hard materials (≥40HRC)		○	●			

Insert	Part Number	Dimensions (in)					CBN		PCD		Ref. Page for Toolholder	
		W		RE	INSL	S	KBN510	KBN525	KPD001	KPD010		
		inch	mm									
 <p>Deep Grooving 1-Edge</p>  <p>LE = 0.114"</p>	GMN 2	0.079	2.0	0.008 0.016	0.787	0.169	●	●	●	●	● G48-G49	
	3	0.118	3.0	0.008 0.016			●	●	●	●	●	● G48 ● G49 ● G50
	4	0.158	4.0	0.008 0.016			●	●	●	●	●	● G48-G49
	5	0.197	5.0	0.008 0.016			●	●	●	●	●	
	6	0.236	6.0	0.008 0.016			●	●	●	●	●	

KGM / KGM-T Available Cutting Diameter

There is a limit to available grooving depth depending on the workpiece diameter



KGM Available Cutting Diameter Table

Toolholders	ØD Cutting Diameter																	
	10mm	14mm	16mm	32mm	20mm	25mm	32mm	40mm	60mm	32mm	36mm	40mm	60mm	10mm	14mm	16mm	32mm	
KGM% 0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1010○-1.5...	-	-	-	-	-	-	-	-	-	-	-	-	-	∞	∞	∞	∞	∞
1212○-1.5...	-	-	-	-	25mm	26mm	28mm	32mm	36mm	40mm	60mm	100mm	-	-	-	-	-	-
0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	-	10mm	14mm	16mm	32mm	-
6-2-5	-	-	-	-	-	-	-	0.80"	1.00"	1.28"	1.60"	2.40"	-	-	-	-	-	-
1010○-2...	-	-	-	-	-	-	-	20mm	25mm	32mm	40mm	60mm	-	-	-	-	-	-
8-2-6	-	-	-	-	1.00"	1.04"	1.12"	2.00"	-	-	-	-	-	-	-	-	-	-
1212○-2...	-	-	-	-	25mm	26mm	28mm	50mm	∞	∞	∞	∞	-	-	-	-	-	-
1616○-2...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	-	-	-	-	∞	∞	∞	∞	∞	∞
1010○-2.5...	-	-	-	-	-	-	-	20mm	25mm	32mm	40mm	60mm	-	-	-	-	-	-
1212○-2.5...	-	-	-	-	25mm	26mm	28mm	32mm	36mm	40mm	60mm	100mm	-	-	-	-	-	-
1616○-2.5...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	∞	∞	∞	∞	-	-	-	-	-	-
1616○-3...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	∞	∞	∞	∞	-	-	-	-	-	-
Available Grooving Depth CDX (in)	0.64"	0.60"	0.56"	0.52"	0.50"	0.48"	0.44"	0.40"	0.36"	0.32"	0.28"	0.24"	0.20"	0.16"	0.12"	0.08"	0.04"	0.04"
Available Grooving Depth CDX (mm)	16mm	15mm	14mm	13mm	12.5mm	12mm	11mm	10mm	9mm	8mm	7mm	6mm	5mm	4mm	3mm	2mm	1mm	1mm

KGM-T Available Cutting Diameter Table (GMN, GM% When Using 1-edge Insert)

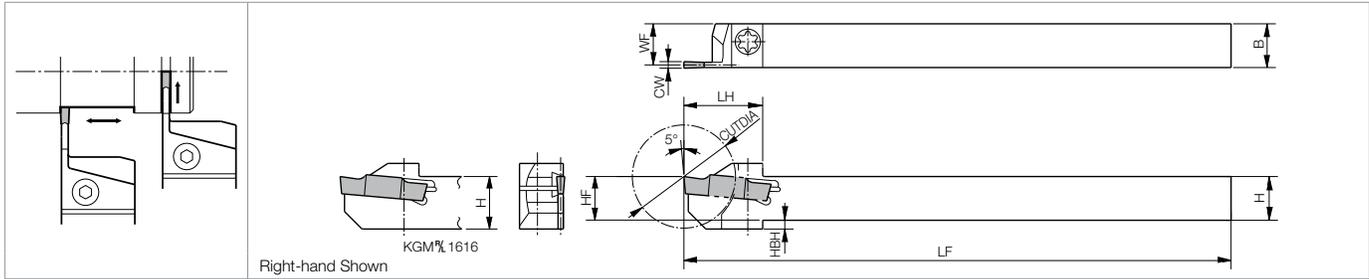
Toolholders	ØD Cutting Diameter																
	66mm	80mm	130mm	260mm	2.64"	3.20"	5.20"	10.40"	66mm	80mm	130mm	260mm	66mm	80mm	130mm	260mm	
KGM% 2012K-2T17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12-2T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020K-2T17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-2T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2525M-2T1710	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1616H-3T20	-	-	-	-	40mm	54mm	70mm	100mm	180mm	-	-	-	-	-	-	-	-
2012K-3T20	-	-	-	-	40mm	90mm	130mm	240mm	-	-	-	-	-	-	-	-	-
12-3T	-	-	-	-	1.60"	3.60"	5.20"	9.60"	-	-	-	-	-	-	-	-	-
2020K-3T20	-	-	-	-	40mm	90mm	130mm	240mm	-	-	-	-	-	-	-	-	-
16-3T	-	-	-	-	1.60"	3.60"	5.20"	9.60"	-	-	-	-	-	-	-	-	-
2525M-3T20	-	-	-	-	40mm	90mm	130mm	240mm	-	-	-	-	-	-	-	-	-
12-4T	-	-	-	-	1.60"	3.60"	5.20"	9.60"	-	-	-	-	-	-	-	-	-
2020K-4T20	-	-	-	-	40mm	90mm	130mm	240mm	-	-	-	-	-	-	-	-	-
2525M-4T20	-	-	-	-	40mm	90mm	130mm	240mm	-	-	-	-	-	-	-	-	-
16-4T	-	-	2.00"	5.60"	9.60"	-	-	-	-	-	-	-	-	-	-	-	-
2525M-4T25	-	-	50mm	140mm	240mm	-	-	-	-	-	-	-	-	-	-	-	-
16-5T	-	-	2.00"	5.60"	9.60"	-	-	-	-	-	-	-	-	-	-	-	-
2525M-5T25	-	-	50mm	140mm	240mm	∞	∞	∞	∞	-	-	-	-	-	-	-	-
3232P-5T25	-	-	50mm	280mm	600mm	-	-	-	-	-	-	-	-	-	-	-	-
2525M-6T30	100mm	300mm	∞	∞	∞	-	-	-	-	-	-	-	-	-	-	-	-
Available Grooving Depth CDX (in)	1.20"	1.08"	1.00"	0.92"	0.88"	0.80"	0.76"	0.72"	0.68"	0.64"	0.60"	0.56"	<0.52"	-	-	-	-
Available Grooving Depth CDX (mm)	30mm	27mm	25mm	23mm	22mm	20mm	19mm	18mm	17mm	16mm	15mm	14mm	<13mm	-	-	-	-

CBN & PCD Inserts are sold in 1 piece boxes.

EXTERNAL GROOVING TOOLHOLDERS

KGM (Small Parts) - Will be phased out and removed from catalog. Switch to KGD **G28**

Insert Width : 0.079"~0.118" / 1.5mm~4.0mm



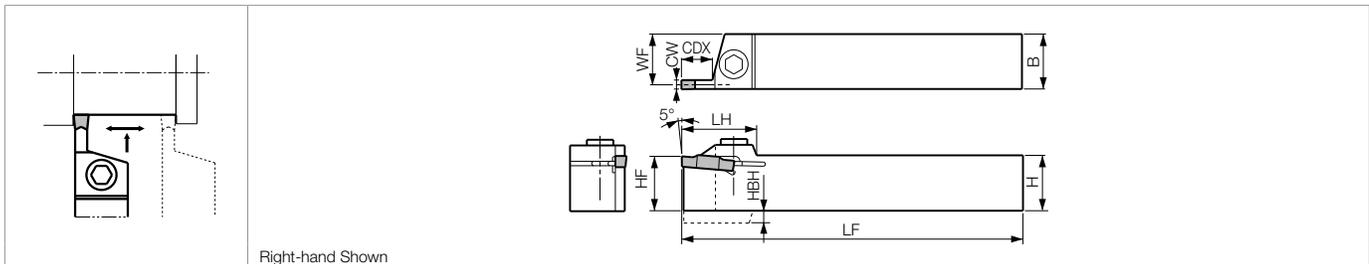
Toolholder Dimensions

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions								Insert Width CW		Spare Parts	
	R	L			CUTDIA	H	HF	HBH	B	LF	LH	WF	MIN	MAX	Clamp Screw	Wrench
KGM% 6-2-5	●	●	inch	0.787	0.375	0.375	0.079	0.375	5.000	0.750	0.342	0.079	0.118	SE-40120TR	LTW-15S	
8-2-6	●	●		0.984	0.500	0.500	0.051	0.500	6.000	0.830	0.467	0.079	0.118			
KGM% 1010JX-1.5	●	●	mm	18	10	10	2	10	120	18.0	9.40	1.5	2.0	SE-40120TR	LTW-15S	
1212JX-1.5	●	●		23	12	12	2	12	120	20.5	11.40	1.5	2.0			
KGM% 1010JX-2	●	●	mm	18	10	10	2	10	120	18.0	9.15	2.0	3.0	SE-40120TR	LTW-15S	
1212JX-2	●	●		23	12	12	2	12	120	19.0	11.15	2.0	3.0			
1616JX-2	●	●	mm	30	16	16	-	16	120	24.5	15.15	2.0	3.0	SE-50125TR	LTW-20	
KGM% 1212JX-2.5	●	●		23	12	12	2	12	120	20.5	11.00	2.4	3.0			
1616JX-2.5	●	●	mm	30	16	16	-	16	120	25.5	15.00	2.4	3.0	SE-50125TR	LTW-20	
KGM% 1616JX-3	●	●		30	16	16	-	16	120	25.5	14.80	3.0	4.0			
KGM% 1212F-1.5-85	●		mm	23	12	12	2	12	85	19.0	11.40	1.5	2.0	SE-40120TR	LTW-15S	
1212F-2-85	●			23	12	12	2	12	85	19.0	11.15	2.0	3.0			
1212F-2.5-85	●			23	12	12	2	12	85	19.0	11.00	2.4	3.0			

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G44~G47**

KGM - Will be phased out and removed from catalog. Switch to KGD **G30~G35**

Insert Width : 0.118"~0.315" / 3mm~8mm



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Insert Width CW		Spare Parts			
	R	L		H	HF	HBH	B	LF	LH	WF	CDX	MIN	MAX	Clamp Screw	Wrench	Wrench	
KGM% 12-3	●		inch	0.750	0.750	-	0.750	5.000	1.070	0.702	0.354	0.118	0.157	-	HH5X16	-	LW-4
16-3	●			1.000	1.000	-	1.000	6.000	1.070	0.953	0.354	0.118	0.157		HH5X25		
KGM% 1212H-3	●		mm	12	12	4	12	100	27	10.8	9	3.0	3.0	SB-5TR	-	LTW-20	-
1616H-3	●			16	16	4	16	100	27	14.8	9	3.0	4.0				
2020K-3	●	●	mm	20	20	-	20	125	27	18.8	9	3.0	4.0	-	HH5X16	-	LW-4
2525M-3	●	●		25	25	-	25	150	27	23.8	9	3.0	4.0		HH5X25		
KGM% 2020K-4	●		mm	20	20	-	20	125	27	18.3	10	4.0	5.0	-	HH5X16	-	LW-4
2525M-4	●	●		25	25	-	25	150	27	23.3	10	4.0	5.0		HH5X25		
KGM% 2020K-5	●	△	mm	20	20	-	20	125	27	17.8	10	5.0	6.0	-	HH5X16	-	LW-4
2525M-5	●			25	25	-	25	150	27	22.8	10	5.0	6.0		HH5X25		
KGM% 2525M-8	●	●	mm	25	25	7.5	25	150	40	22.0	25	8.0	8.0	-	HH6X25	-	LW-5

- Dimension CDX shows available grooving depth
- 4.0mm width insert can be installed in KGM% 1212H-3, but is not recommended due to the toolholder's rigidity

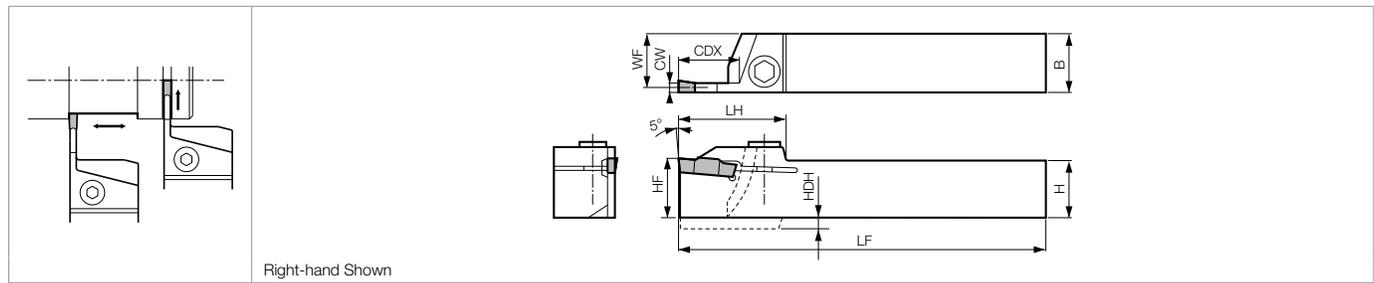
Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above.

Insert table **G44~G47**

MULTI-FUNCTION / GROOVING TOOLHOLDER

KGM-T - Will be phased out and removed from catalog. Switch to KGD G30~G35

Insert Width : 0.078"~0.236" / 2.0mm~5.0mm



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Insert Width CW		Spare Parts					
	R	L		H	HF	HBH	B	LF	LH	WF	CDX	MIN	MAX	Clamp Screw	Wrench	Wrench			
KGM% 12-2T	●	●	inch	0.75	0.75	-	0.75	5.0	1.30	0.717	0.669	0.078	0.118	-	HH5X16	-	LW-4		
16-2T	●	●		1.00	1.00	-	1.00	6.0	1.30	0.967	0.669			-	HH5X25	-			
KGM% 12-3T	●	●		0.75	0.75	-	0.75	5.0	1.42	0.702	0.787	0.118	0.157	-	HH5X16	-			
16-3T	●	●		1.00	1.00	-	1.00	6.0	1.42	0.953	0.787			-	HH5X25	-			
KGM% 12-4T	●	●		0.75	0.75	-	0.75	5.0	1.42	0.683	0.787	0.157	0.197	-	HH5X16	-			
16-4T	●	●		1.00	1.00	-	1.00	6.0	1.22	0.933	0.984			-	HH5X25	-			
KGM% 16-5T	●	●		1.00	1.00	-	1.00	6.0	1.22	0.913	0.984	0.197	0.236	-	HH5X25	-			
KGM% 2012K-2T17	●	●		mm	20	20	-	12	125	33	11.15	17	2.0	3.0	SB-5TR	-		LTW-20	-
2020K-2T17	●	●			20	20	-	20	125	33	19.15	17	2.0	3.0	-	HH5X16		-	LW-4
2525M-2T17	●	●			25	25	-	25	150	33	24.15	17	2.0	3.0	-	HH5X25		-	
KGM% 1616H-3T20	●	●			16	16	4	16	100	36	14.8	20	3.0	4.0	-	HH5X16		-	LW-4
2012K-3T20	●	●			20	20	-	12	125	36	10.8	20	3.0	4.0	SB-5TR	-		LTW-20	-
2020K-3T20	●	●	20		20	-	20	125	36	18.8	20	3.0	4.0	-	HH5X16	-	LW-4		
2525M-3T20	●	●	25		25	-	25	150	36	23.8	20	3.0	4.0	-	HH5X25	-			
KGM% 2020K-4T20	●	●	20		20	-	20	125	36	18.3	20	4.0	5.0	-	HH5X16	-	LW-4		
2525M-4T20	●	●	25		25	-	25	150	36	23.3	20	4.0	5.0	-	HH5X25	-			
2525M-4T25	●	●	25		25	-	25	150	41	23.3	25	4.0	5.0	-	HH5X25	-			
KGM% 2525M-5T25	●	●	25		25	-	25	150	42	22.8	25	5.0	6.0	-	HH5X25	-	LW-4		
3232P-5T25	●	●	32		32	-	32	170	42	29.8	25	5.0	6.0	-	HH5X25	-			
KGM% 2525M-6T30	●	●	25	25	-	25	150	45	22.4	30	6.0	6.0	-	HH5X25	-	LW-4			

- Dimension **CDX** shows the distance from the toolholder to the cutting edge. Refer to table on G47 for relationship between available grooving depth and cutting diameter
 - When using GMG / GMM type 2-edge insert, set groove depth under 0.591"(15mm)
- Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table G44~G47

Applicable Inserts

Application	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Full-R / Copying	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving
Ref. Page	G44	G44	G44	G44	G45	G46	G46	G46	G46	G46	G47
Insert	MW	MS	MG			MT	NB	TK	TK		CBN • PCD
Toolholder											
KGM%...1.5	-	-	-	-	-	GMM1520...MT GMM2020...MT GMM1520%...MT GMM2020%...MT	GMM1520...NB GMM2020...NB	GMM2020...TK GMM2020%...TK	GMN2...TK GM%2...TK	-	-
KGM%...-2- KGM%...-2(T)	GMM2420...MW GMM3020...MW	GMG3020...MS GMM3020...MS	GMG2520...MG GMG3020...MG	GMG3020...R GMM3020...R	-	GMM2020...MT GMM2520...MT GMM3020...MT GMM2020%...MT GMM2520%...MT GMM3020%...MT	GMM2020...NB GMM2520...NB GMM3020...NB	GMM2020...TK GMM2520...TK GMM3020...TK GMM2020%...TK GMM2520%...TK GMM3020%...TK	GMN2...TK GMN3...TK GM%2...TK GM%3...TK	GMN2.2 GMN3 GM%2.2 GM%3	GMN2 GMN3
KGM%...2.5	GMM2420...MW GMM3020...MW	GMG3020...MS GMM3020...MS	GMG2520...MG GMG3020...MG	GMG3020...R GMM3020...R	-	GMM2520...MT GMM3020...MT GMM2520%...MT GMM3020%...MT	GMM2520...NB GMM3020...NB	GMM2520...TK GMM3020...TK GMM2520%...TK GMM3020%...TK	GMN3...TK GM%3...TK	GMN3 GM%3	GMN3
KGM%...-3(T)	GMM3020...MW GMM4020...MW	GMG3020...MS GMG4020...MS GMM4020...MS	GMG3020...MG GMG3520...MG GMG4020...MG	GMG3020...R GMG4020...R GMM4020...R	-	GMM3020...MT GMM3020%...MT	GMM3020...NB	GMM3020...TK GMM3020%...TK	GMN3...TK GMN4...TK GM%3...TK GM%4...TK	GMN3 GMN4 GM%3 GM%4	GMN3 GMN4
KGM%...-4(T)	GMM4020...MW GMM5020...MW	GMG4020...MS GMM4020...MS GMG5020...MS GMM5020...MS	GMG4020...MG GMG5020...MG	GMG4020...R GMG5020...R GMM5020...R	-	-	-	-	GMN4...TK GM%4...TK	GMN4 GMN5 GM%4	GMN4 GMN5
KGM%...-5(T)	GMM5020...MW GMM6020...MW	GMG5020...MS GMM5020...MS GMG6020...MS GMM6020...MS	GMG5020...MG GMG6020...MG	GMG5020...R GMM5020...R GMG6020...R GMM6020...R	GMGA6020..R	-	-	-	-	GMN5 GMN6	GMN5 GMN6
KGM%...-6T	GMM6020..MW	GMG6020..MS GMM6020..MS	GMG6020..MG	GMG6020..R GMM6020..R	GMGA6020..R	-	-	-	-	GMN6	GMN6
KGM%...8	GMM8030..MW	-	GMG8030..MG	-	GMGA8030..R	-	-	-	-	-	-

● If using a full-R insert, you need to modify the insert seat tip of the toolholder.

Recommended Cutting Conditions G147

Recommended Cutting Conditions (CBN / PCD) G146

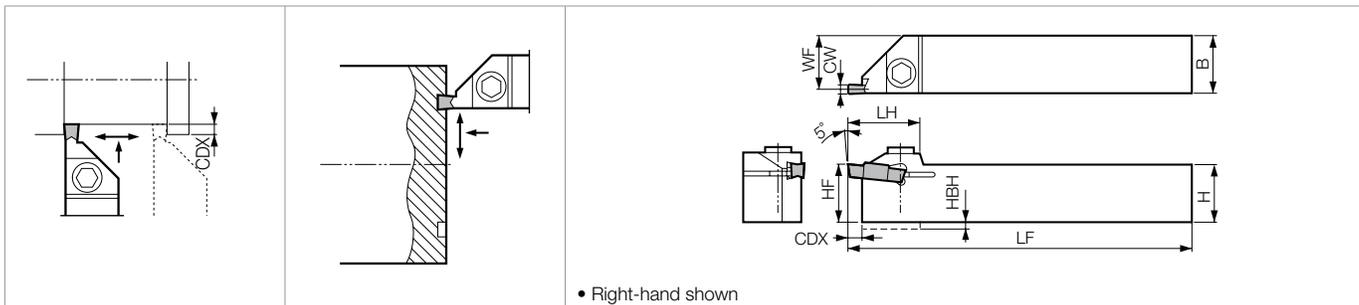
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

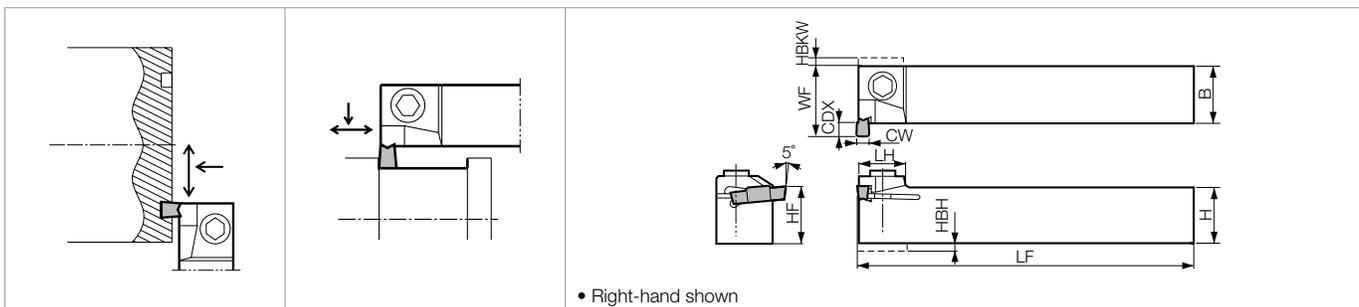


EXTERNAL GROOVING (EXTERNAL / FACE GROOVING) TOOLHOLDERS

KGMM



KGMS



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Insert Width CW (mm)		Spare Parts			
	R	L		H	HF	HBH	B	LF	LH	WF	HBKW	CDX	MIN	MAX	Screw		Wrench	
															Image 1	Image 2	Image 3	Image 4
KGMMR 2525M-3	●		mm	25	25	-	25	150	25	23.8	-	4.8	3.0	5.0	-	HH5X25	-	LW-4
KGMSR 2525M-3	●			25	25	-	25	150	17	30	-	4.8	3.0	5.0	-	HH5X25	-	LW-4

• Dimension CDX shows available grooving depth. (Ref. to the table [G49](#) for Face Grooving and minimum cutting diameter)

Applicable Inserts [External Grooving]

Application	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving	Grooving	Grooving
Ref. Page	G44	G44	G44	G44	G46	G46	G46	G46	G46	G46
Insert	MW	MS	MG		MT	NB	TK	TK		CBN • PCD
Toolholder										
KGMMR...3 KGMSR...3	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3..TK GMN4..TK	GMN3 GMN4 GMN5	GMN3 GMN4 GMN5

Applicable Inserts [Face Grooving]

Application	Grooving / Traversing	Undercutting	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Grooving	Grooving	Grooving	Grooving
Ref. Page	G45	G44	G44	G44	G44	G44	G46	G46	G46	G46
Insert		MW	MS	MG		MT	NB	TK		
Toolholder										
KGMMR...3 KGMSR...3	FGG% 3020.. FGG% 4020.. FGG% 5020..	GMG3020..RU GMG4020..RU GMG5020..RU	GMM3020..MW GMM4020..MW GMM5020..MW	GMG3020..MS GMM3020..MS GMG4020..MS GMM4020..MS GMG5020..MS GMM5020..MS	GMG3020..MG GMG3520..MG GMG4020..MG GMG5020..MG	GMG3020..R GMM3020..R GMG4020..R GMM4020..R GMG5020..R GMM5020..R	GMM3020..MT	GMM3020..NB	GMM3020..TK	GMN3 GMN4 GMN5 GMN3..TK GMN4..TK

Recommended Cutting Conditions [G147](#)
Recommended Cutting Conditions (CBN / PCD) [G146](#)

◆ Selection of Insert & Toolholder (Face Grooving)

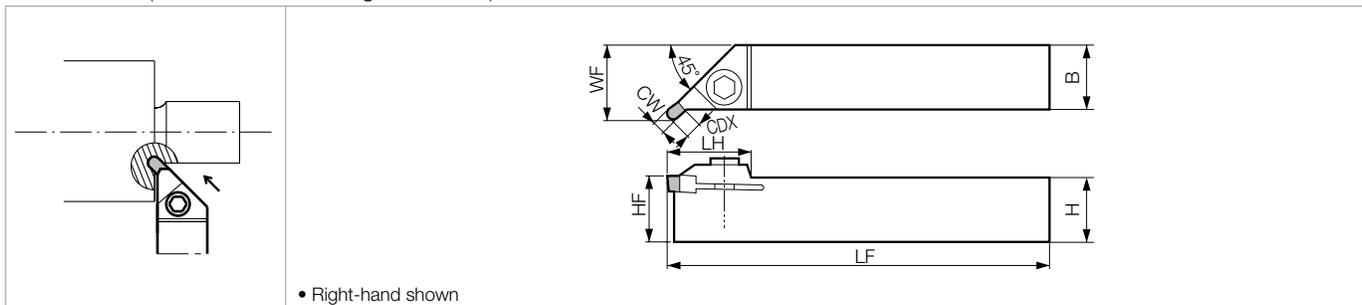
● KGMM

Toolholder	Left-hand (L)		Toolholder	Right-hand (R)
Insert	Left-hand (L)		Insert	Right-hand (R)
Toolholder	Right-hand (R)		Toolholder	Left-hand (L)
Insert	Left-hand (L)		Insert	Right-hand (R)

● KGMS

Toolholder	Right-hand (R)		Toolholder	Left-hand (L)
Insert	Left-hand (L)		Insert	Right-hand (R)

■ KGMU (External Undercutting Toolholder)



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Insert Width CW (mm)		Spare Parts	
	R	L		H	HF	B	LF	LH	WF	CDX	MIN	MAX	Clamp Bolt	Wrench
KGMUR 2525M	●		mm	25	25	25	150	28.5	28.6	4.8	3.0	5.0 (6.0)	HH5X25	LW-4

- Dimension CDX shows the distance from the Toolholder to the cutting edge. Ref. to the table below for the available Grooving Depth.
- Dimension WF shows for GMM5020-RU. MAX CW in () indicates external grooving inserts when installed.

● Applicable Inserts

Application	Undercutting
Ref. Page	G44
Insert	
Toolholder	
KGMU% 2525M	GMG3020..RU GMG4020..RU

- External grooving inserts (grooving width 3mm-6mm) will be attached. (In case of using GMG0020-0000□□, GMM0020-0000□□, GMN0 insert)

◆ Undercut Depth

Part Number	Undercut Depth	Distance from the face of the workpiece.
	CD (mm)	D.O.C. (mm)
GMG3020-150RU	3.5	1.8
GMG4020-200RU	4.0	1.9
GMG5020-250RU	4.5	2.1

*In case of undercutting for the diameter over 100mm, external grooving inserts GMG0020-0000□□, GMM0020-0000□□, GMN0 are also available.

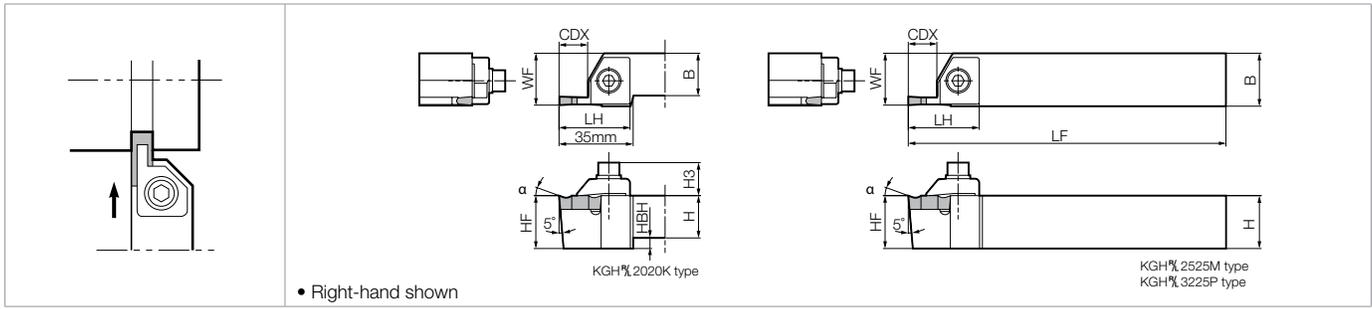
◆ Min. Cutting Dia. & Grooving Depth (Face Grooving)

● KGMM / KGMS

Part Number	DAXN	CD
GMG/GMM3020-0000□□	Ø100mm	4.8mm
GMG/GMM4020-0000□□		
GMG/GMM5020-0000□□		
FGG%L 3020-02	Ø22mm	4.3mm
FGG%L 4020-04	Ø28mm	4.8mm
FGG%L 5020-04	Ø30mm	
GMG3020-150RU	Ø22mm	4.3mm
GMG4020-200RU	Ø28mm	4.8mm

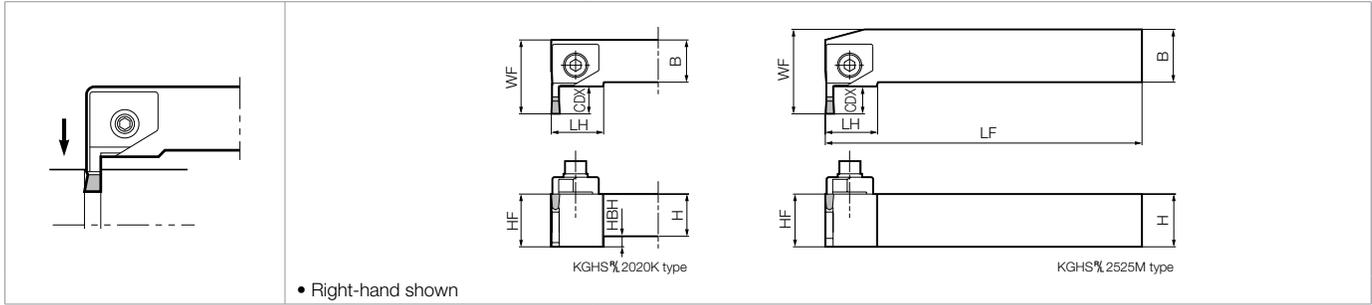
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGH



• Right-hand shown

KGHS



• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Spare Parts				
	R	L		H	HF	HBH	B	LF	LH	WF	CDX	Clamp	Clamp Bolt	Washer	Spring	Wrench
KGH% 2020K-4 2525M-4 2020K-5 2525M-5 3225P-5 2020K-7 2525M-7 2525M-10 3225P-10	●	●	mm	20	20	5	20	125	33.5	24.5-24.8	13	CGH-1%	HH6X25	W-6	SP-6	LW-5
	●	●		25	25	-	25	150	33.5	24.5-24.8	13					
	●	●		20	20	5	20	125	33.5	25.0-25.8	13					
	●	●		25	25	-	25	150	33.5	25.0-25.8	13					
	●	●		32	32	-	25	170	33.5	25.0-25.8	13					
	●	●		20	20	5	20	125	33.5	24.5-25.0	13	CGH-2%	HH6X25	W-6	SP-6	LW-5
	●	●		25	25	-	25	150	33.5	24.5-25.0	13					
	●	●		25	25	-	25	150	41.0	25.5-26.5	17					
	●	●		32	32	-	25	170	41.0	25.5-26.5	17	CGH-3%	HH6X25	W-6	SP-6	LW-5
	KGHS% 2020K-4 2525M-4 2020K-5 2525M-5	●		●	mm	20	20	5	20	125	25.0	35.0	13	CGH-1%	HH6X25	W-6	SP-6	LW-5
●		●	25	25		-	25	150	25.0	40.0	13					
●		●	20	20		5	20	125	25.0	35.0	13					
●		●	25	25		-	25	150	25.0	40.0	13					

- Dimension CDX shows available grooving depth.
- Dimension F1 of KGH% Toolholder depends on the insert's edge width.
- Clamp KGH% ... CGH-OR for Right-hand Toolholder, and CGH-OL for Left-hand Toolholder.
KGHS% ... CGH-OL for Right-hand Toolholder, and CGH-OR for Left-hand Toolholder.

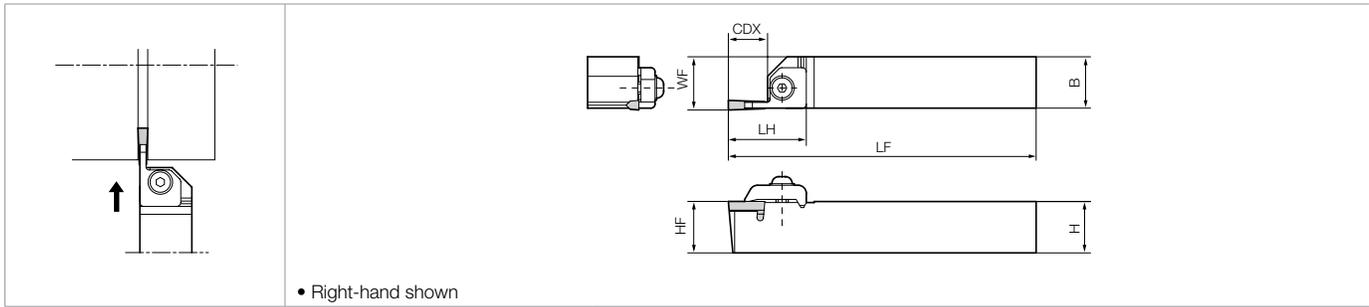
Applicable Inserts G53

Rake Angle (α) after Installment of GH / GHU

GH-0000-00		GHU00-00	
α (°)	Insert Grade	α (°)	Insert Grade
0°	A65, A66N, PT600M	10°	TN60 CR9025
10°	TC40		
20°	TN90, TC60 PR930 KW10		

EXTERNAL GROOVING TOOLHOLDERS [GG INSERT]

EGT



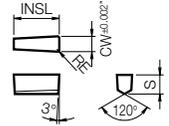
• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Spare Parts	
	R	L		H	HF	B	LF	LH	WF	CDX	Clamp Set	Wrench
	EGT ^{R/L} 16-1	●		□	inch	1.00	1.00	1.00	6.00	1.34	1.0085~1.0285	0.63	R: HCL-009 L: HCL-011	LW-156

• Clamp Set: ETG^{R/L}... HCL-009 for Right-hand Toolholder, HCL-011 for Left-hand Toolholder

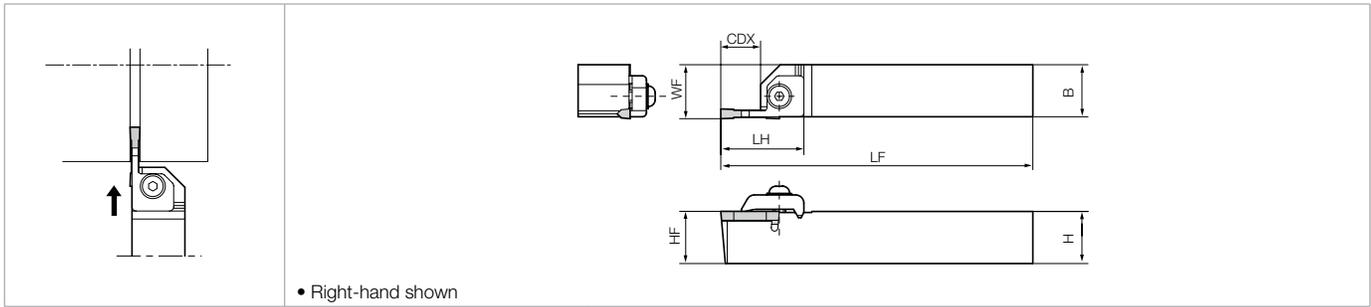
Applicable Inserts

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Unit	Dimensions					Insert Grade
				CW		RE	INSL	S	Ceramic
				inch	mm				A65
 	GG 157-20 T00320	-	inch	0.157	4.0	0.020	0.591	0.197	●
	197-32 T00320	-		0.197	5.0	0.032	0.591	0.197	●

G
GROOVING
EXTERNAL
INTERNAL
FACE

EXTERNAL GROOVING TOOLHOLDERS [DB INSERT]

KDB

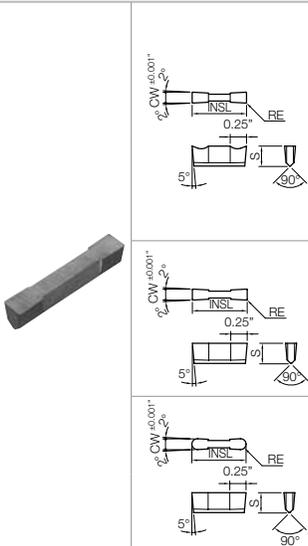


Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Spare Parts	
	R	L		H	HF	B	LF	LH	WF	CDX	Clamp Set	Wrench
KDB 16-1	●	□	inch	1.00	1.00	1.00	6.00	-	1.0050~1.0360	0.75		
											R: HCL-009 L: HCL-011	LW-156

• Clamp Set: KDB%... HCL-009 for Right-hand Toolholder, HCL-011 for Left-hand Toolholder

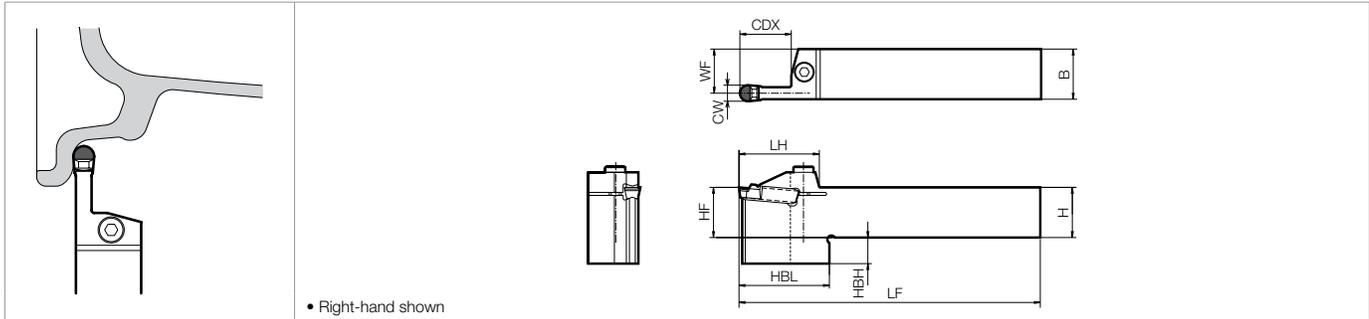
Applicable Inserts

Insert	Part Number	Unit	Dimensions					Insert Grade		
			CW		RE	INSL	S	Cemmet		Ceramic
			inch	mm				TN60	TC30		A65
	DB 125R15	inch	0.125	3.18	0.015	1.125	0.250	●	●	
	187R15		0.187	4.75	0.015	1.125	0.250		●	
	187R30		0.187	4.75	0.030	1.125	0.250	●	●	
	250R15		0.250	6.35	0.015	1.125	0.250	●		
	375R30		0.375	9.525	0.030	1.125	0.250	●	●	
	DB 125R15 T00420		0.125	3.18	0.015	1.125	0.250			●
	187R30 T00420		0.187	4.75	0.030	1.125	0.250			●
	DB 125FNR T00420		0.125	3.18	0.063	1.125	0.250			●
	187FNR T00420		0.187	4.75	0.094	1.125	0.250			●

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FOR ALUMINUM WHEEL EXTERNAL GROOVING

KGMW (External / Facing / Copying)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)									Spare Parts		Applicable Inserts
	R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX	Clamp Bolt	Wrench	
												HH6X25	LW-5	
KGMWR 2525M-6	●		25	25	13	25	150	40	55	22.8	25	HH6X25	LW-5	GMGW6030-30R

Applicable Inserts

Insert	Part Number	Dimensions (mm)						No. of Edges	PCD
		W	rε	L	H	M	S		
	 GMGW 6030-30R	6	3	30	5.5	5	4.5	1	●
	 GMGW 8030-40R	8	4	30	5.5	6	6.0	1	●
	 GMGW 8030-40R-HR	8	4	30	5.5	6	5.0	1	●

- GMGW inserts are exclusively used for KGMW type toolholder. It cannot be used for other toolholder because of its different installation angle.
- GMGW inserts Edge Preparation: R-honed Cutting Edge.

PCD Inserts are sold in 1 piece boxes.

Recommended Cutting Conditions

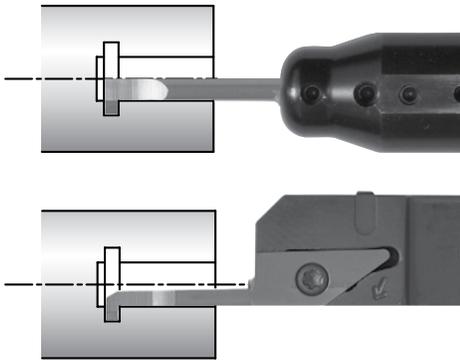
Workpiece Material	Recommended Insert Grade (Vc sfm)	① f (feed) during Grooving (ipr)
		PCD	② f (feed) during Traversing (ipr)
	KPD001	③ D.O.C. during Traversing (in)
Aluminum	★ 490~8,860	① 0.0020~0.0120
		② 0.0080~0.0310
		③ MAX 0.118

★ : 1st Recommendation

INTERNAL GROOVING SUMMARY

Small Diameter Internal Grooving $\varnothing 0.118'' \sim / (\varnothing 3\text{mm}) \sim$ (➔ G59~G61)

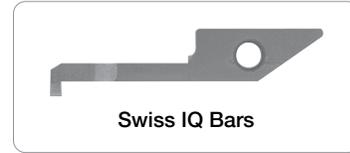
EZ Bar / Double-Sided Micro Bar / Swiss IQ Bar



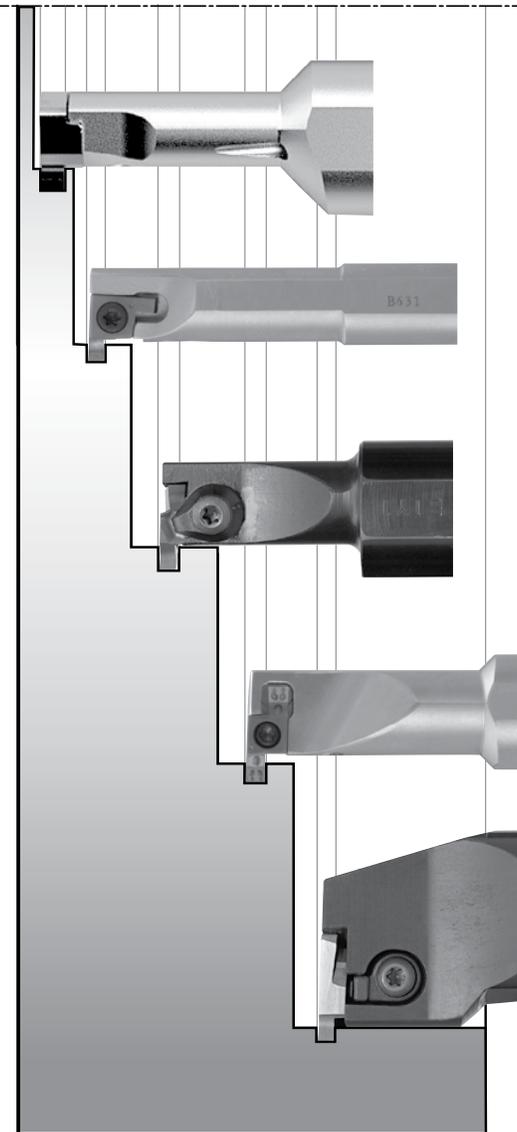
Type	EZG
Min. Bore Dia.	0.118"~0.315" (3.00mm~8.00mm)
Edge Width	0.020"~0.079" (0.50mm ~ 2.00mm)
Grooving Depth	0.039"~0.079" (1.00mm ~ 2.00mm)
Ref. Page	➔ G59



Type	VNG
Min. Bore Dia.	0.158"~0.276" (4.0mm~7.0mm)
Edge Width	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth	0.032"~0.079" (0.8mm ~ 2.0mm)
Ref. Page	➔ G61



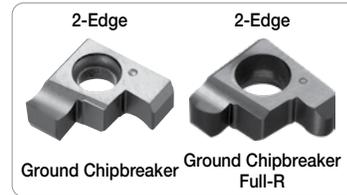
Internal Shallow Grooving $\varnothing 0.315'' \sim / (\varnothing 8\text{mm}) \sim$ (➔ G65~G77)



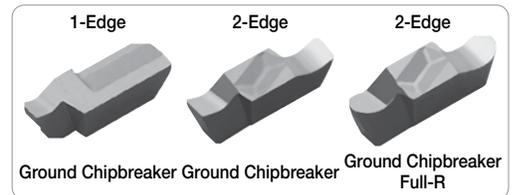
Type	SIGC
Min. Bore Dia.	8.0mm~12.00mm
Edge Width	1.0mm ~ 3.0mm
Grooving Depth	1.0mm ~ 3.0mm
Ref. Page	➔ G65



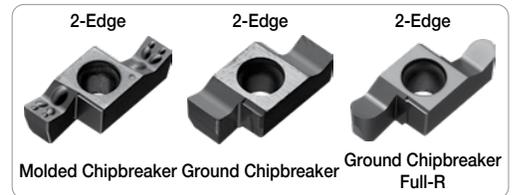
Type	SIGE
Min. Bore Dia.	0.315"~0.375" (8.0mm~12.00mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.059"~0.087" (1.5mm ~ 2.2mm)
Ref. Page	➔ G69



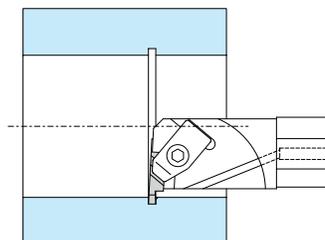
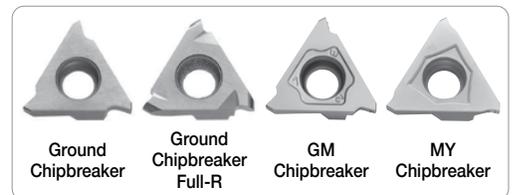
Type	SI-GIV / GIV
Min. Bore Dia.	0.472"~0.984" (12.0mm~40.0mm)
Edge Width	0.031"~0.197" (1.0mm~5.0mm)
Grooving Depth	0.067"~0.248" (1.7mm~6.5mm)
Ref. Page	➔ G74



Type	SIGE
Min. Bore Dia.	0.551"~1.575" (14.0mm~40.0mm)
Edge Width	0.039"~0.197" (1.0mm~5.0mm)
Grooving Depth	0.098"~0.256" (2.5mm~6.5mm)
Ref. Page	➔ G69



Type	KIGBA
Min. Bore Dia.	1.378"~1.575" (35.0mm~40.0mm)
Edge Width	0.013"~0.189" (0.33mm~4.8mm)
Grooving Depth	0.032"~0.110" (0.8mm~2.8mm)
Ref. Page	➔ G76



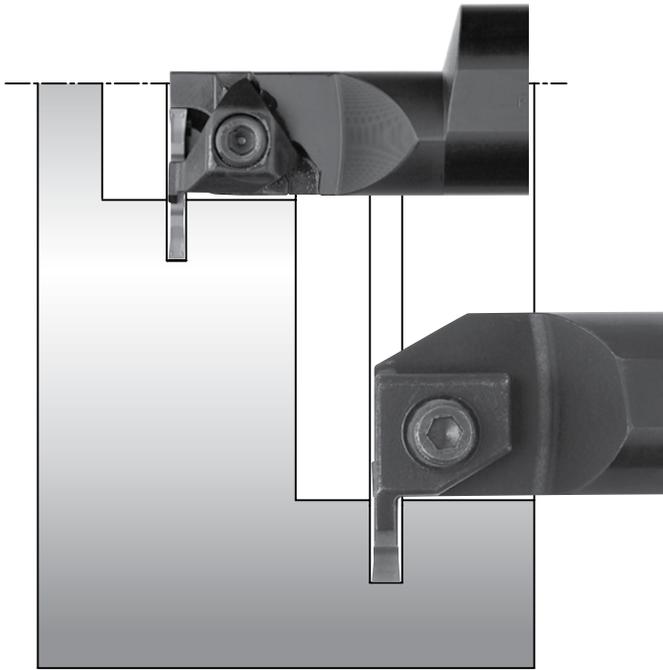
Type	A-KKC
Min. Bore Dia.	1.000"~2.750"
Edge Width	0.031"~0.189"
Grooving Depth	0.040"~0.240"
Ref. Page	➔ G85



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SUMMARY OF INTERNAL GROOVING

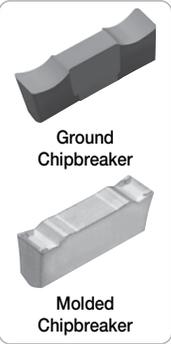
Internal Deep Grooving (➔ G80, G82)



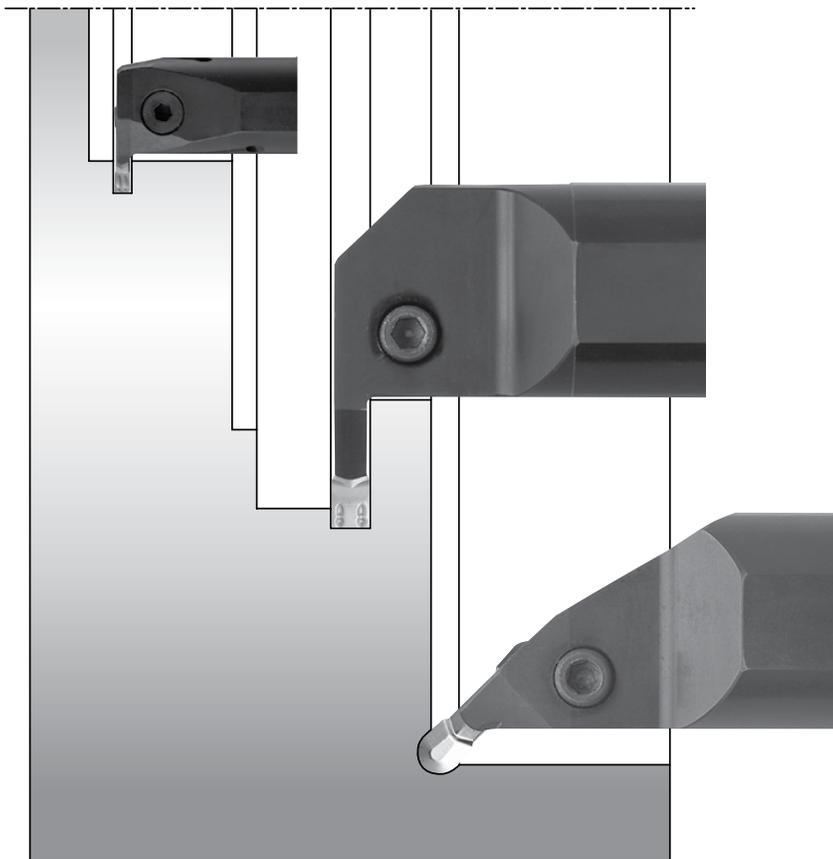
Type	KGIA
Min. Bore Dia.	1.260" - 2.598" (32.0mm - 66.0mm)
Edge Width	0.118" - 0.197" (3.0mm - 5.0mm)
Grooving Depth	0.394" - 0.591" (10.0mm - 15.0mm)
Ref. Page	➔ G82



Type	KIGH
Min. Bore Dia.	1.772" - 2.559" (45.0mm - 65.0mm)
Edge Width	1.575" - 0.315" (4.0mm - 8.0mm)
Grooving Depth	0.472" (12.0mm)
Ref. Page	➔ G80



Internal Grooving & Traversing Ø0.787"~ (Ø20mm~) (➔ G79, G81, G83)



Type	KGDI
Min. Bore Dia.	0.709" - 1.575" (18.0mm - 40.0mm)
Edge Width	0.079" - 0.197" (2.0mm - 5.0mm)
Grooving Depth	0.177" - 0.433" (4.5mm - 11.0mm)
Ref. Page	➔ G79



Type	KIGM-V
Min. Bore Dia.	0.787" - 1.575" (20.0mm - 40.0mm)
Edge Width	0.118" - 0.197" (3.0mm - 5.0mm)
Grooving Depth	0.217" - 0.433" (5.5mm - 11.0mm)
Ref. Page	➔ G83



Type	KIGM-8
Min. Bore Dia.	2.559" (65.0mm)
Edge Width	0.315" (8.0mm)
Grooving Depth	0.787" (20mm)
Ref. Page	➔ G81



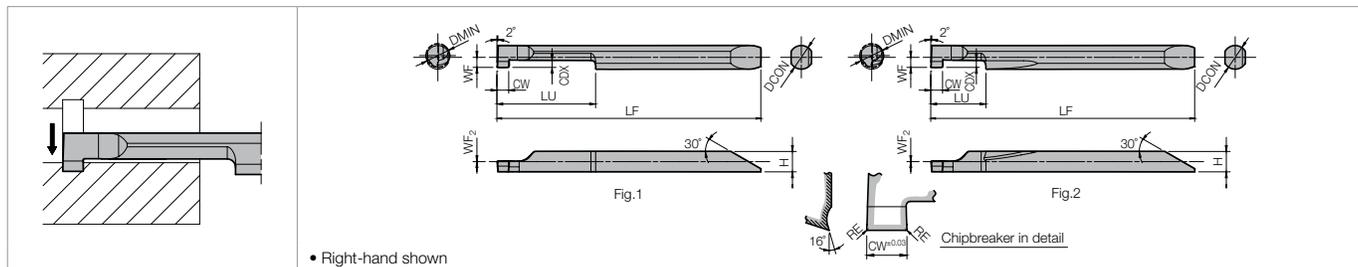
Type	KIGMU-8
Min. Bore Dia.	2.559" (65.0mm)
Edge Width	0.315" (8.0mm)
Grooving Depth	0.087" (2.2mm)
Ref. Page	➔ G81



SMALL DIAMETER INTERNAL GROOVING EZ BARS

NEW ITEMS!

EZG (Small Diameter Internal Grooving) NEW



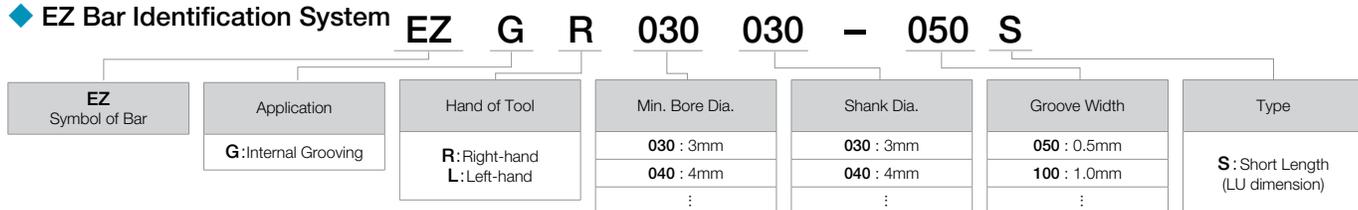
• Right-hand shown

Micro Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)									Drawing	MEGACOAT NEW		Carbide NEW	Applicable Sleeves F30~F34	
		DMIN	CW ^{+0.03}	RE	DCON	H	LF	LU	WF	WF ₂		CDX	PR1225			GW05
													R	L		R
EZG% 040040-050	4	0.5	±0.013 0.05	4	3.45	44.7	12	1.70	0	1.0	Fig. 2	●	●	●	EZH040..	
040040-100	4	1.0		4	3.45	44.7	12	1.70	0	1.0		●	●	●		
040040-150	4	1.5		4	3.45	44.7	12	1.70	0	1.0		●	●	●		
040040-200	4	2.0		4	3.45	44.7	12	1.70	0	1.0	●	●	●	EZH050..		
050050-100	5	1.0		5	4.30	52.8	20	2.15	0	1.5	Fig. 1	●	●		●	
050050-150	5	1.5		5	4.30	52.8	20	2.15	0	1.5		●	●		●	
050050-200	5	2.0		5	4.30	52.8	20	2.15	0	1.5	●	●	●	EZH060..		
060060-100	6	1.0		6	5.15	60.7	20	2.65	0	2.0	Fig. 1	●	●		●	
060060-150	6	1.5		6	5.15	60.7	20	2.65	0	2.0		●	●		●	
060060-200	6	2.0		6	5.15	60.7	20	2.65	0	2.0	●	●	●	EZH070..		
070070-100	7	1.0		7	6.20	63.7	25	3.05	0	2.0	Fig. 1	●	●		●	
070070-150	7	1.5		7	6.20	63.7	25	3.05	0	2.0		●	●		●	
070070-200	7	2.0		7	6.20	63.7	25	3.05	0	2.0	●	●	●	EZH070..		
080070-100	8	1.0		7	6.20	63.7	25	3.45	0	2.0	Fig. 1	●	●		●	
080070-150	8	1.5	7	6.20	63.7	25	3.45	0	2.0	●		●	●			
080070-200	8	2.0	7	6.20	63.7	25	3.45	0	2.0	●	●	●	EZH030..			
EZGR 030030-050S	3	0.5	±0.013 0.05	3	2.50	38.7	5	1.25	0	0.8	Fig. 2	●				
030030-100S	3	1.0		3	2.50	38.7	5	1.25	0	0.8		●				
040040-050S	4	0.5		4	3.45	44.7	8	1.70	0	1.0		●				
040040-100S	4	1.0		4	3.45	44.7	8	1.70	0	1.0	Fig. 2	●				
040040-150S	4	1.5		4	3.45	44.7	8	1.70	0	1.0		●				
040040-200S	4	2.0		4	3.45	44.7	8	1.70	0	1.0	Fig. 2	●				
050050-100S	5	1.0		5	4.30	52.8	10	2.15	0	1.5		●				
050050-150S	5	1.5		5	4.30	52.8	10	2.15	0	1.5	Fig. 2	●				
050050-200S	5	2.0		5	4.30	52.8	10	2.15	0	1.5		●				
060060-100S	6	1.0		6	5.15	60.7	10	2.65	0	2.0	Fig. 2	●				
060060-150S	6	1.5		6	5.15	60.7	10	2.65	0	2.0		●				
060060-200S	6	2.0		6	5.15	60.7	10	2.65	0	2.0	Fig. 2	●				
070070-100S	7	1.0		7	6.20	63.7	10	3.05	0	2.0		●				
070070-150S	7	1.5		7	6.20	63.7	10	3.05	0	2.0	Fig. 2	●				
070070-200S	7	2.0	7	6.20	63.7	10	3.05	0	2.0	●						
080070-100S	8	1.0	7	6.20	63.7	10	3.45	0	2.0	Fig. 2	●					
080070-150S	8	1.5	7	6.20	63.7	10	3.45	0	2.0		●					
080070-200S	8	2.0	7	6.20	63.7	10	3.45	0	2.0	●						

- Dimension CDX shows available grooving depth
- "S" in part number represents short length

EZ Bar Identification System



Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfrm)		EZGR030030-...S	EZGR040040-...(S) EZGR050050-...(S)	EZGR060060-...(S) EZGR070070-...(S) EZGR080070-...(S)	Notes
	MEGACOAT	Carbide				
	PR1225	GW05				
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0020	Wet
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0012	
Non-Ferrous	-	★ ~980	-	~0.0020	~0.0031	

EZ Bars are sold in 1 piece boxes.

★ : 1st Recommendation

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

APPLICABLE SLEEVES FOR INTERNAL GROOVING BARS

Sleeve Part Number			Applicable Internal Grooving Bar			Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) F30-F31	EZH-HP (Adjustable Overhang Length) F32-F33	EZH-ST F34	Sleeve Shank Dia.	EZG	EZ Bar Shank Dia.	
			DCON (mm)		DCON (mm)	
-	-	EZH 03012ST-80 04012ST-80 05012ST-80 06012ST-80 07012ST-80	12.00	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	(General purpose)
-	EZH 03016HP-100 04016HP-100 05016HP-100 06016HP-100 07016HP-100	EZH 03016ST-100 04016ST-100 05016ST-100 06016ST-100 07016ST-100	16.00	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	(General purpose)
EZH 03019CT-120 04019CT-120 05019CT-120 06019CT-120 07019CT-120	EZH 03019HP-120 04019HP-120 05019HP-120 06019HP-120 07019HP-120	EZH 03019ST-120 04019ST-120 05019ST-120 06019ST-120 07019ST-120	0.750"	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	Citizen Machinery
EZH 03020CT-120 04020CT-120 05020CT-120 06020CT-120 07020CT-120	EZH 03020HP-120 04020HP-120 05020HP-120 06020HP-120 07020HP-120	EZH 03020ST-120 04020ST-120 05020ST-120 06020ST-120 07020ST-120	20.00	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
EZH 03022CT-135 04022CT-135 05022CT-135 06022CT-135 07022CT-135	EZH 03022HP-135 04022HP-135 05022HP-135 06022HP-135 07022HP-135	EZH 03022ST-135 04022ST-135 05022ST-135 06022ST-135 07022ST-135	22.00	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	Star Micronics Nomura DS Tsugami
EZH 03025.0CT-135 04025.0CT-135 05025.0CT-135 06025.0CT-135 07025.0CT-135	EZH 03025.0HP-135 04025.0HP-135 05025.0HP-135 06025.0HP-135 07025.0HP-135	EZH 03025.0ST-135 04025.0ST-135 05025.0ST-135 06025.0ST-135 07025.0ST-135	25.00	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	Amada Machine Tools Eguro Tsugami Citizen Machinery (General purpose)
EZH 03025.4CT-120 04025.4CT-120 05025.4CT-120 06025.4CT-120 07025.4CT-120	EZH 03025.4HP-120 04025.4HP-120 05025.4HP-120 06025.4HP-120 07025.4HP-120	EZH 03025.4ST-120 04025.4ST-120 05025.4ST-120 06025.4ST-120 07025.4ST-120	1.000"	EZG_ 030030-... EZG_ 040040-... EZG_ 050050-... EZG_ 060060-... EZG_ 070070-... EZG_ 080070-...	3 4 5 6 7 8	Citizen Machinery

- Choose sleeves' (DCON) that match with DCON dimension of Internal Grooving Bars.
- Adjustment Pin cannot be installed to EZH-ST Sleeves. To adjust overhang of the bar, please use EZH-CT/HP Sleeves.
- Machine manufacturers in random order.

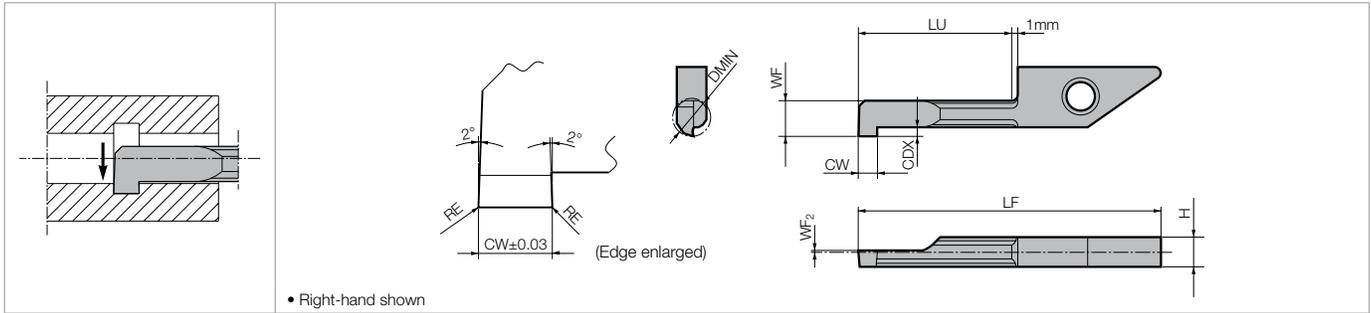
G GROOVING

EXTERNAL

INTERNAL

FACE

VNG



Dimensions

Classification of Usage		P	M	K	N	S	H
● : Light Interruption / 1st Choice		●	●				
○ : Light Interruption / 2nd Choice		○	○				
● : Continuous / 1st Choice						●	
○ : Continuous / 2nd Choice						○	
P Carbon Steel / Alloy Steel		●	○				
M Stainless Steel		●	○				
K Cast Iron				●			
N Non-ferrous Metals					●		
S Titanium Alloy					●		
H Hard materials (≤40HRC)		○	○				
H Hard materials (≥40HRC)							

Part Number	Min. Bore Dia.	Dimensions (mm)										MEGA COAT	PVD	Carbide	PCD	Ref. Page for Toolholder				
		CW		RE	H	LF	LU	WF	WF ₂	CDX	PR1225						PR930	KW10	KPD001	KPD010
		DMIN	inch																		mm
VNGR	0410-11	4	0.039	1.0	0.05	3.9	30.8	11	0.1	3.5	0.8		●	●						
	0420-11	4	0.079	2.0	0.05	3.9	30.8	11	0.1	3.5	0.8		●	●						
	0510-11	5	0.039	1.0	0.05	3.9	30.8	11	0.1	4.4	1.0		●	●						
	0520-11	5	0.079	2.0	0.05	3.9	30.8	11	0.1	4.4	1.0		●	●						
	0610-20	6	0.039	1.0	0.05	3.9	39.8	20	0.3	5.2	1.8		●	●						
	0620-20	6	0.079	2.0	0.05	3.9	39.8	20	0.3	5.2	1.8		●	●						
	0710-20	7	0.039	1.0	0.05	3.9	39.8	20	0.3	6.2	2.0		●	●						
	0720-20	7	0.079	2.0	0.05	3.9	39.8	20	0.3	6.2	2.0		●	●						
VNGR	0410-11NB	4	0.039	1.0	0.05	3.9	30.8	11	0.1	3.5	0.8				□					
	0420-11NB	4	0.079	2.0	0.05	3.9	30.8	11	0.1	3.5	0.8				□					
	0510-11NB	5	0.039	1.0	0.05	3.9	30.8	11	0.1	4.4	1.0				□					
	0520-11NB	5	0.079	2.0	0.05	3.9	30.8	11	0.1	4.4	1.0				□					
	0610-20NB	6	0.039	1.0	0.05	3.9	39.8	20	0.3	5.2	1.8				□	□				
	0620-20NB	6	0.079	2.0	0.05	3.9	39.8	20	0.3	5.2	1.8				□	□				
	0710-20NB	7	0.039	1.0	0.05	3.9	39.8	20	0.3	6.2	2.0				□	□				
	0720-20NB	7	0.079	2.0	0.05	3.9	39.8	20	0.3	6.2	2.0				□	□				

- Dimension CDX shows available grooving depth
- Dimension WF₂ indicates the cutting edge is above the tool's center position

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)			VNG04 VNG05	VNG06 VNG07	Notes
	MEGACOAT	PVD	Carbide			
	PR1225	PR930	KW10	Feed Rate (ipr)		
Carbon Steel / Alloy Steel	★ 100~325	☆ 100~325	-	~0.0012	~0.0020	Wet
Stainless Steel	★ 100~250	☆ 100~250	-	~0.0008	~0.0012	
Non-ferrous Metals	-	-	★ ~975	~0.0020	~0.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

Swiss IQ Bars are sold in 5 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SIGC

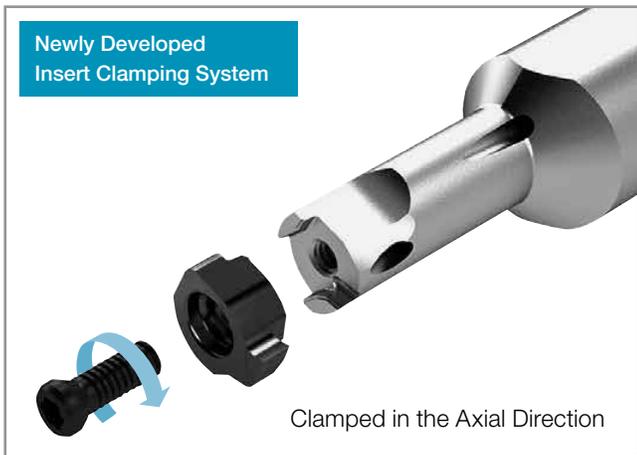
Small Internal Grooving Series

- New Clamping System Ensures a Firm Insert Hold for High-Precision Machining
- Excellent Chip Evacuation with Double Coolant Holes
- Optimized Flute Shape with a $\varnothing 8\text{mm}$ Minimum Bore Diameter

1 Firm Insert Clamping System for High-Precision Machining

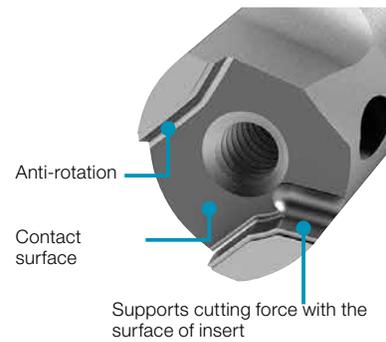
High strength clamping action by pulling the bottom surface of the insert in axial direction
 Stable machining is achieved by ensuring a firm clamp on the insert

G	GROOVING
EXTERNAL	
INTERNAL	
FACE	



Clamping Part

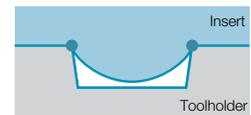
Large contact surface improves chip stability



SIGC

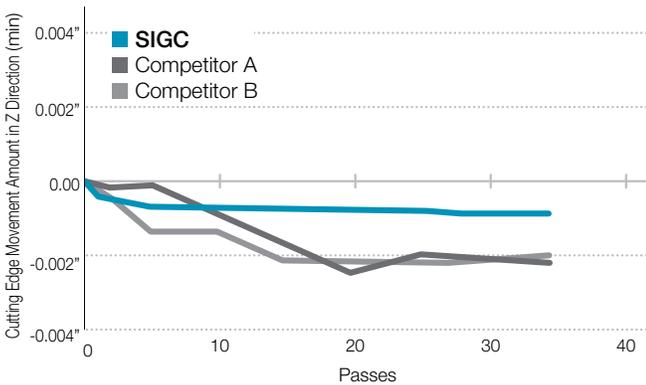
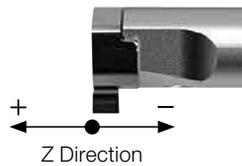


Competitor A

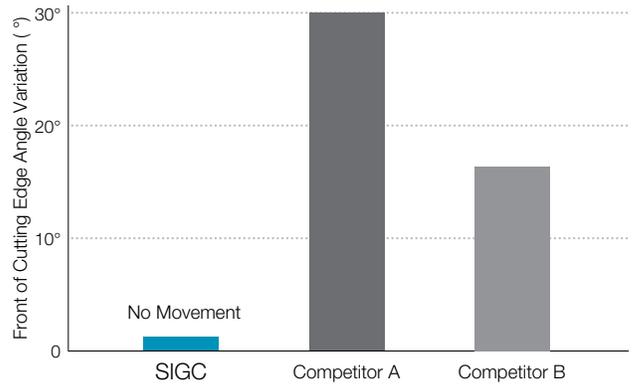
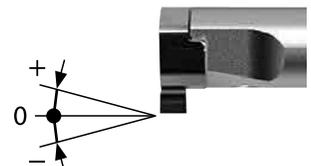


Cutting Edge Stability Position Comparison (Internal evaluation)

Cutting Edge Movement Amount in Z Direction (in.)



Front of Cutting Edge Angle Variation (°)



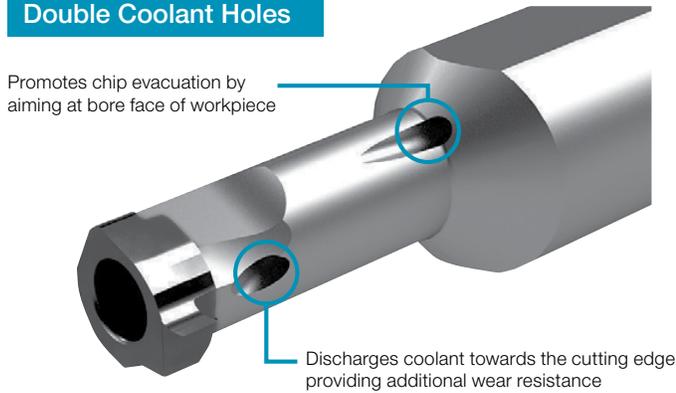
Cutting Conditions : $V_c = 160 \text{ sfm}$, $D.O.C. = 0.008''$, $f = 0.002 \text{ ipr}$, Wet Workpiece: 4137 External Turning

SIGC ensures high precision machining by preventing cutting edge position movement

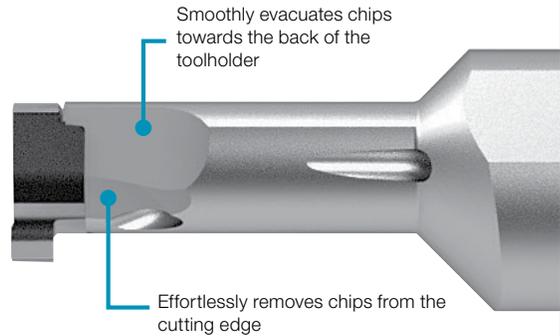
2 Firm Insert Clamping System for High-Precision Machining

Excellent chip evacuation with double coolant holes and optimized flute shape

Double Coolant Holes



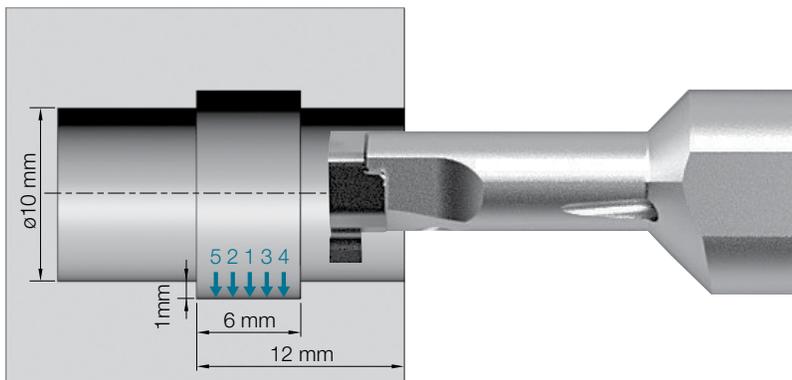
Flute Shape



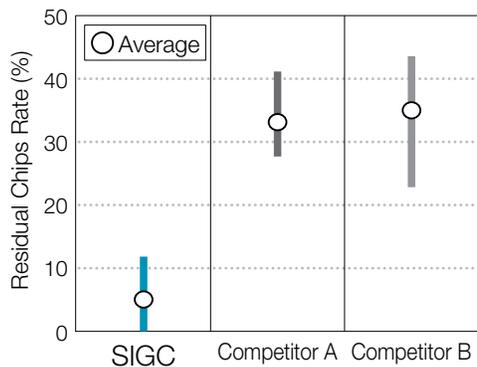
Provides better solutions for chip evacuation in small internal grooving applications
Prevents chip crunching

Chip Evacuation Comparison (Internal evaluation)

Cutting Conditions : Vc = 164 sfm, D.O.C. = 0.039" (Shouldering), f = 0.001 ipr, Wet (Internal Coolant), Workpiece : SCM415 (JIS), With Edge Width 0.079"

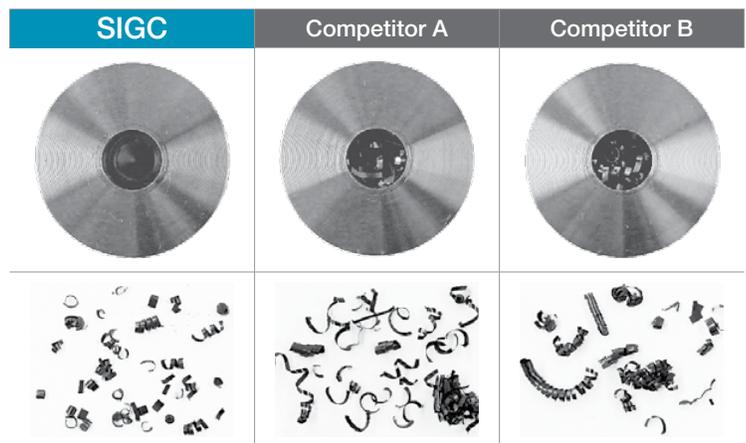


Residual Chips Rate (%)



$$\text{Residual Chips Rate (\%)} = \frac{\text{Weight of remaining chip in the hole (g)}}{\text{Weight of chips removed (g)}} \times 100$$

Chip Evacuation Comparison



No Remaining Chips
Good Chip Evacuation

- A INSERT GRADES
- B TURNING INSERTS
- C GEN/PCD INSERTS
- D TURNING HOLDERS
- E SMALL TOOLS
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- K DRILLING
- M MILLING
- N QUICK CHANGE TOOLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Applicable Inserts

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)							MEGACOAT NANO PLUS		MEGACOAT NANO		Applicable Toolholders							
		CW	CDX	RE	W1	INSL	S	D1	PR1725		PR1535									
									R	L	R	L								
	GC08% 100-005	1.00	1.5	0.05	3.4	7.7	3.5	2.7	●	●	●	●	SIGC% 0812-EH SIGC% 0806-WH							
	120-005	1.20							●	●	●	●								
	125-005	1.25		●					●	●	●									
	150-010	1.50		0.1					●	●	●	●								
	200-010	2.00							●	●	●	●								
	GC10% 100-005	1.00	2.2	0.05	4.7	9.6	4.4	3.5	●	●	●	●		SIGC% 1016-EH SIGC% 1008-WH-L85 SIGCR1008-WH-L100						
	120-005	1.20							●	●	●	●								
	125-005	1.25							●	●	●	●								
	145-010	1.45		0.1					●	●	●	●								
	150-010	1.50							●	●	●	●								
	200-010	2.00		0.2					●	●	●	●								
	250-020	2.50							●	●	●	●								
	300-020	3.00							●	●	●	●								
	GC12% 100-005	1.00		2.2					0.05	4.7	11.6	5.4			3.5	●	●	●	●	SIGC% 1216-EH SIGCR1210-WH-L95 SIGC% 1210-WH-L110
	120-005	1.20														●	●	●	●	
	125-005	1.25	●		●	●	●													
	145-010	1.45	0.1		●	●	●	●												
	150-010	1.50			●	●	●	●												
	200-010	2.00	0.2		●	●	●	●												
	250-020	2.50			●	●	●	●												
	300-020	3.00			●	●	●	●												

• Dimension CDX shows available grooving depth.

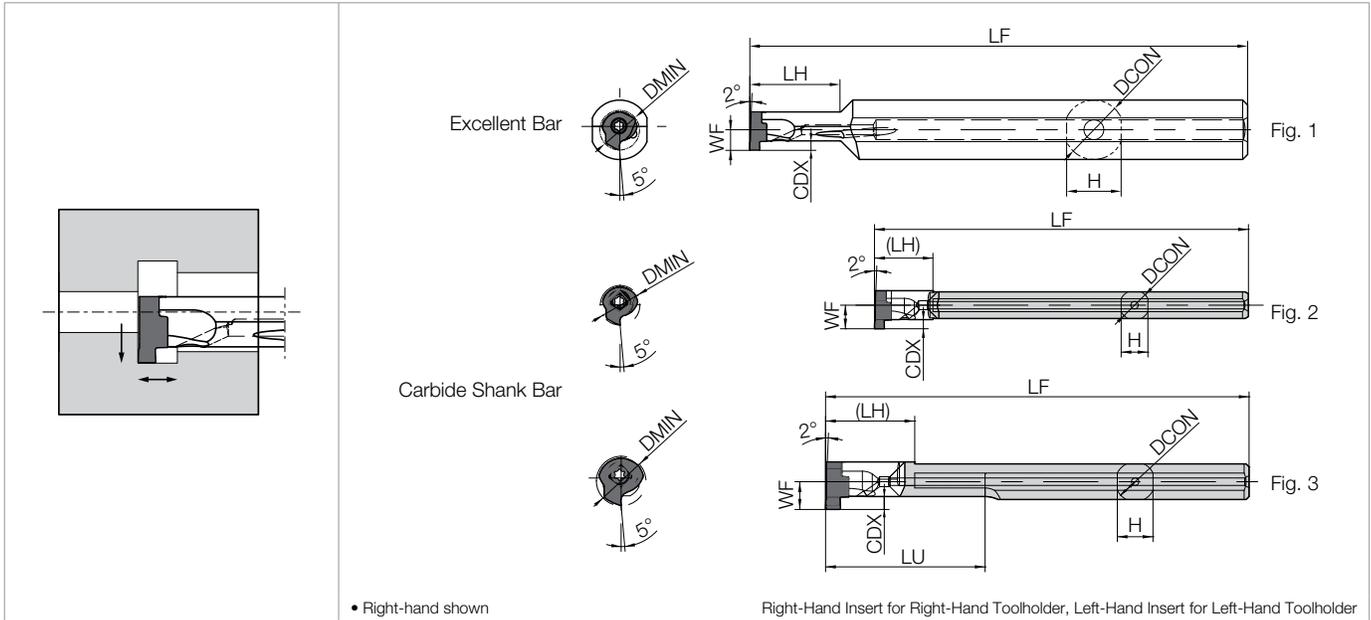
Inserts are sold in 5 piece boxes.

Recommended Cutting Conditions

Workpiece	Recommended Insert Grade (Vc : sfm)		(1) Feed Rate for Grooving (ipr)			Notes
	MEGACOAT NANO PLUS	MEGACOAT NANO	(2) Feed Rate for Traversing (ipr)			
			(3) D.O.C. for Traversing (in)			
			PR1725	PR1535	GC08% ...		GC10%, GC12% 100 ~ 200...	GC10%, GC12% 250 ~ 300...
Carbon Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0008 ~ 0.0016	(1) 0.0008 ~ 0.0016	Coolant
			(2) 0.0004 ~ 0.0012	(2) 0.0008 ~ 0.0016	(2) 0.0008 ~ 0.0016	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	
Alloy Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0008 ~ 0.0016	(1) 0.0008 ~ 0.0016	
			(2) 0.0004 ~ 0.0012	(2) 0.0008 ~ 0.0016	(2) 0.0008 ~ 0.0016	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	
Stainless Steel	☆ 160 - 260	★ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0004 ~ 0.0012	(1) 0.0004 ~ 0.0012	
			(2) 0.0004 ~ 0.0012	(2) 0.0004 ~ 0.0012	(2) 0.0004 ~ 0.0012	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	

★ : 1st Recommendation ☆ : 2nd Recommendation

SIGC Bar (With Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							Drawing	Spare Parts		Applicable Inserts G64	
	R	L		DMIN	DCON	H	LF	LU	LH	WF		CDX	Clamp Screw		Wrench
SIGC% 0812-EH	●	●	8	12	11	100	-	18	4.1	1.5	Fig.1	SB-2270T%	FT-7	GC08% 100-005 ~ GC08% 200-010	
SIGC% 1016-EH	●	●	10	16	15	100	-	21	5.0	2.2		SB-3070T%	FT-8	GC10% 100-005 ~ GC10% 300-020	
SIGC% 1216-EH	●	●	12	16	15	110	-	25	6.0	2.2	Fig.2	SB-2270T%	FT-7	GC12% 100-005 ~ GC12% 300-020	
SIGC% 0806-WH	●	●	8	6	5.4	75	-	12	4.8	1.5		SB-2270T%	FT-7	GC08% 100-005 ~ GC08% 200-010	
SIGC% 1008-WH-L85	●	●	10	8	7.2	85	32	18	5.6	2.2	Fig.3	SB-3070T%	FT-8	GC10% 100-005 ~ GC10% 300-020	
SIGCR 1008-WH-L100	●					100								45	GC10R100-005 ~ GC10R300-020
SIGCR 1210-WH-L95	●		12	10	9.2	95	32	18	6.6	2.2	Fig.3	SB-3070T%	FT-8	GC12R100-005 ~ GC12R300-020	
SIGC% 1210-WH-L110	●	●				110								45	GC12% 100-005 ~ GC12% 300-020

Mounting Inserts

Use compressed air or other measures to remove chips or debris from the insert pocket
 Mount the insert into the toolholder and ensure the bottom makes contact with the end of the toolholder's surface
 Keeping the insert seated, tighten the insert clamp screw at an appropriate torque
 Recommended tightening torque for clamp screw: 0.8 Nm (SB-2270TR) 1.2 Nm (SB-3070TR)

L-hand clamp screw for L-hand Toolholders (See table to the right)

GC**R-***	GC**L-***
Right-hand screw	Left-hand screw
Toolholder : SIGCR****** Insert : GC**R-*** Clamp Screw : SB-****TR	Toolholder : SIGCL****** Insert : GC**L-*** Clamp Screw : SB-****TL

Applicable Sleeve

Shank Size (Diameter : mm)	06 (6 mm)	08 (8 mm)	10 (10 mm)	12 (12 mm)	16 (16 mm)
Toolholders	SIGC% 0806-WH	SIGC% 1008-WH-L85 SIGC% 1008-WH-L100	SIGC% 1210-WH-L95 SIGC% 1210-WH-L110	SIGC% 0812-EH	SIGC% 1016-EH SIGC% 1216-EH
SH Sleeve (for Boring Bars)	SH 06...	SH 08...	SH 10...	SH 12...	SH 16...
SHC Sleeve (for Coolant-Through)	-	SHC 08...	SHC 10...	SHC 12...	SHC 16...
SHA Sleeve	-	SHA 08...	SHA 10...	SHA 12...	-
EZH Sleeve (for EZ Bars)	EZH 06...ST/CT/HP...	EZH 08...ST/CT/HP...	-	-	-

Remove the positioning pin when mounting SIGC to the EZH-CT/HP Sleeve.
 (Positioning function is not available.)

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

SIGE INTERNAL GROOVING

Applicable Inserts

					P	M	K	N	S	H											Classification of Usage ● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Ref. Page for Toolholder
					(in)																	
Part Number	W1	INSL	S	D1	Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)												
GE%...-A	0.263	0.256	0.102	0.098																		
GER...-AR																						
GE%...-B	0.333	0.323	0.125	0.106																		
GER...-BR																						
Insert Right-handed Insert Shown	Part Number	Dimensions (in)				Cermet		MEGACOAT		PVD Coated Carbide		Carbide				Applicable Toolholders						
		CW		CDX	RE	TN6020		PR1225		PR1025		GW15		KW10								
		inch	mm			R	L	R	L	R	L	R	L	R	L							
<p>2-Edge</p>	GE% 031-002A	0.031	-	0.037	0.059					●	●							SIGE%05EH SIGE%...A-EH SIGE%...A-WH	● G69 ● G70			
	041-002A	0.041		0.002								●	●									
	047-002A	0.047		0.002								●	●									
	058-002A	0.058		0.002								●	●									
	062-004A	0.062		0.004								●	●									
	072-004A	0.072		0.004								●	●									
	078-004A	0.078		0.004								●	●									
	GE% 100-005A	1.00	-	0.002	0.059	●	●	●	●	●	●					●		SIGE%06EH SIGE%...B-EH SIGE%...B-WH SIGER...B-WH-90	● G69 ● G70 ● G71			
	120-005A	1.20		0.002													△					
	125-005A	1.25		0.002		△	●	●	●	●							●					
	150-010A	1.50		0.004		●	●	●	●	●							●			●		
	200-010A	2.00		0.004		●	●	●	●	●							●					
	GE% 031-002B	0.031	-	0.044	0.087						●	●							SIGE%06EH SIGE%...B-EH SIGE%...B-WH SIGER...B-WH-90	● G69 ● G70 ● G71		
	041-002B	0.041		0.002									●	●								
	047-002B	0.047		0.002									●	●								
	058-002B	0.058		0.002									●	●								
	062-004B	0.062		0.004									●	●								
	072-004B	0.072		0.004									●	●								
	078-004B	0.078		0.004									●	●								
	088-004B	0.088		0.004									●	●								
094-004B	0.094	0.004										●	●									
097-004B	0.097	0.004										●	●									
105-008B	0.105	0.008										●	●									
110-008B	0.110	0.008										●	●									
122-008B	0.122	0.008										●	●									
GE% 100-005B	1.00	-	0.002	0.087	●	●	●	●	●	●					●	●	SIGER05EH SIGER...A-EH SIGER...A-WH	● G69 ● G70				
120-005B	1.20		0.002													●						
125-005B	1.25		0.002		△	●	●	●	●							●						
145-010B	1.45		0.004		●	●	●	●	●							●						
150-010B	1.50		0.004		●	●	●	●	●							●						
200-010B	2.00		0.004		●	●	●	●	●							●			●			
250-020B	2.50		0.008		●	●	●	●	●							●						
300-020B	3.00		0.008		●	●	●	●	●							●			●			
GER 100-050AR	1.00	-	0.020	0.059						●	●				●		SIGER05EH SIGER...A-EH SIGER...A-WH	● G69 ● G70				
200-100AR	2.00		0.039													△						
GER 100-050BR	1.00	-	0.020	0.087						●	●				●		SIGER...B-EH SIGER...B-WH SIGER...B-WH-90	● G69 ● G70 ● G71				
200-100BR	2.00		0.039									●	●			●						

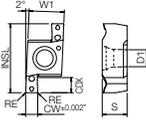
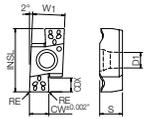
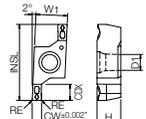
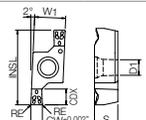
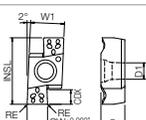
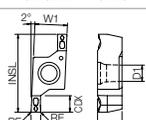
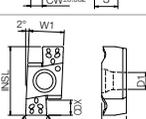
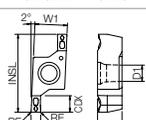
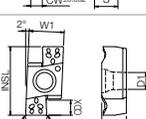
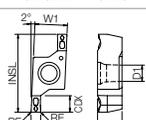
• Dimension CDX shows available grooving depth.

Recommended Cutting Conditions ● G72

Inserts are sold in 10 piece boxes.

SIGE INTERNAL GROOVING

Applicable Inserts

Part Number	W1	INSL	S	D1	Material				Classification of Usage	Applicable Toolholders	Ref. Page for Toolholder											
					P	M	K	N														
					S	H	Dimensions (in)															
GER...-CM	0.228	0.452	0.159	0.110	Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)	Hard materials (≥40HRC)	● : Light Interruption / 1st Choice ⊙ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice										
GER...-DM	0.268	0.647	0.199	0.134																		
GER...-EM	0.376	0.853	0.219	0.173																		
Insert		Part Number			Dimensions (in)				Cermets		MEGA COAT		PVD Coated Carbide		Carbide				Applicable Toolholders	Ref. Page for Toolholder		
Right-handed Insert Shown					CW		CDX	RE	TN6020		PR1225		PR1025		GW15		KW10					
					inch	mm			R	L	R	L	R	L	R	L	R	L				
 <p>2-Edge Molded Chipbreaker</p>			GER 150-010CM	1.50	0.098		0.004			●	●									SIGE%...C-EH SIGE%...C-WH SIGER...C-WH-90	● G69 ● G70 ● G71	
			200-010CM	2.00						●	●											
			250-020CM	2.50							●	●										
			300-020CM	3.00	0.098		0.008				●	●										
			350-020CM	3.50							●	●										
			GER 150-010DM	1.50	0.118		0.004				●	●									SIGER...D-EH	● G69
			200-010DM	2.00							●	●										
			230-020DM	2.30	0.126						●	●										
			250-020DM	2.50							●	●										
			300-020DM	3.00							●	●										
			350-020DM	3.50	0.177						●	●										
			400-020DM	4.00							●	●										
			GER 150-010EM	1.50	0.118		0.004				●	●									SIGER...E-EH	● G69
			200-010EM	2.00	0.126						●	●										
			250-020EM	2.50							●	●										
			300-020EM	3.00	0.177						●	●										
		350-020EM	3.50							●	●											
		400-020EM	4.00	0.217						●	●											
		450-020EM	4.50							●	●											
		GER 500-020EM	5.00		0.256					●	●											

• Dimension CDX shows available grooving depth.

Recommended Cutting Conditions ● G72

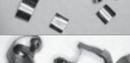
Chip Evacuation Comparison (Molded Chipbreaker)

Toolholder	f (ipr)	SCM415 (Min. Bore Dia.)			Evaluation
		0.0020"	0.0028"	0.0039"	
SIGER1612C-EH GER300-020CM (PR1025)					Good Chip Control
Competitor A (Width 0.1181")				Insert Cracks	Unstable Chip Control and Biting
Competitor B (Width 0.1181")					Unstable Chip Control and Biting

(Vc = 330 sfm, D.O.C. = 0.079", Wet)

(Internal Evaluation)

Chip Evacuation Comparison (Min. Cutting Dia. Ø0.3150")

Toolholder	f (ipr)	SCM415	Evaluation
SIGER0808A-EH GER200-010A (PR1025)			Good Chip Control
Competitor C (Width 0.079")			Unstable Chip Control and Biting

(Vc = 175 sfm, D.O.C. = 0.049", Wet)

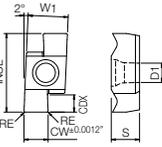
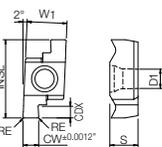
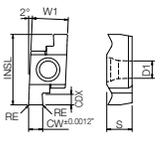
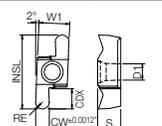
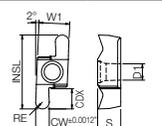
(Internal Evaluation)

Inserts are sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SIGE INTERNAL GROOVING

Applicable Inserts

Part Number	W1	INSL	S	D1	(in)	P	Material		Coating		Classification of Usage	Ref. Page for Toolholder										
						M	K	N	S	H			●	○								
						Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy			Hard materials (≤40HRC)	Hard materials (≥40HRC)	Light Interruption / 1st Choice	Light Interruption / 2nd Choice	Continuous / 1st Choice	Continuous / 2nd Choice				
Insert	Part Number	Dimensions (in)				Cermet	MEGACOAT	PVD Coated Carbide	Carbide				Applicable Toolholders									
		CW		CDX	RE				TN6020		PR1225			PR1025		GW15		KW10				
		inch	mm						R	L	R	L		R	L	R	L	R	L			
 2-Edge		GE% 100-005C 120-005C 125-005C 140-005C 145-010C 150-010C 170-010C 185-010C 195-010C 200-010C 250-020C 300-020C 350-020C	-	1.00	0.002	●	●	●	●	●	●	●	●	●	●	SIGE%...C-EH SIGE%...C-WH SIGER...C-WH-90	G69 G70 G71					
				1.20	0.002	●	●	●	●	●	●	●	●	●	●			●	●			
				1.25	0.002	●	●	●	●	●	●	●	●	●	●			●	●	●		
				1.40	0.002	●	●	●	●	●	●	●	●	●	●			●	●	●		
				1.45	0.002	●	●	●	●	●	●	●	●	●	●			●	●	●		
				1.50	0.002	●	●	●	●	●	●	●	●	●	●			●	●	●		
				1.70	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				1.85	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				1.95	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				2.00	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				2.50	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				3.00	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				3.50	0.008	0.004	●	●	●	●	●	●	●	●	●			●	●	●		
				 2-Edge		GE% 100-005D 140-005D 145-010D 150-010D 170-010D 185-010D 195-010D 200-010D 225-010D 230-020D 250-020D 275-020D 280-020D 300-020D 330-020D 350-020D 400-020D	-	1.00	0.002	●	●	●	●	●	●			●	●	●	SIGE%...D-EH	-
								1.40	0.002	●	●	●	●	●	●			●	●	●		
1.45	0.002	●	●					●	●	●	●	●	●	●	●	●	●					
1.50	0.002	●	●					●	●	●	●	●	●	●	●	●	●					
1.70	0.118	0.004	●					●	●	●	●	●	●	●	●	●	●					
1.85	0.118	0.004	●					●	●	●	●	●	●	●	●	●	●					
1.95	0.118	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.00	0.118	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.25	0.118	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.30	0.126	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.50	0.126	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.75	0.126	0.004	●					●	●	●	●	●	●	●	●	●	●					
2.80	0.126	0.004	●					●	●	●	●	●	●	●	●	●	●					
3.00	0.008	0.008	●					●	●	●	●	●	●	●	●	●	●					
3.30	0.177	0.008	●					●	●	●	●	●	●	●	●	●	●					
3.50	0.177	0.008	●	●	●	●	●	●	●	●	●	●	●									
4.00	0.177	0.008	●	●	●	●	●	●	●	●	●	●	●									
 2-Edge		GE% 100-005E 150-010E 170-010E 185-010E 195-010E 200-010E 225-010E 230-020E 250-020E 275-020E 280-020E 300-020E 330-020E 350-020E 400-020E 430-020E 450-020E 460-020E 500-020E	-	1.00	0.002	●	●	●	●	●	●	●	●	●	SIGE%...E-EH	G69						
				1.50	0.002	●	●	●	●	●	●	●	●	●			●	●	●			
				1.70	0.118	0.004	●	●	●	●	●	●	●	●			●	●	●			
				1.85	0.118	0.004	●	●	●	●	●	●	●	●			●	●	●			
				1.95	0.118	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.00	0.118	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.25	0.126	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.30	0.126	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.50	0.126	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.75	0.126	0.004	●	●	●	●	●	●	●	●			●	●	●			
				2.80	0.177	0.008	●	●	●	●	●	●	●	●			●	●	●			
				3.00	0.177	0.008	●	●	●	●	●	●	●	●			●	●	●			
				3.30	0.177	0.008	●	●	●	●	●	●	●	●			●	●	●			
				3.50	0.177	0.008	●	●	●	●	●	●	●	●			●	●	●			
				4.00	0.217	0.008	●	●	●	●	●	●	●	●			●	●	●			
4.30	0.217	0.008	●	●	●	●	●	●	●	●	●	●	●									
4.50	0.256	0.008	●	●	●	●	●	●	●	●	●	●	●									
4.60	0.256	0.008	●	●	●	●	●	●	●	●	●	●	●									
5.00	0.256	0.008	●	●	●	●	●	●	●	●	●	●	●									
 2-edge Full-R		GER 200-100CR 250-125CR 300-150CR GER 200-100DR 300-150DR	-	2.00	0.039	●	●	●	●	●	●	●	●	●	SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G69 G70 G71						
				2.50	0.098	0.049	●	●	●	●	●	●	●	●			●	●				
				3.00	0.098	0.059	●	●	●	●	●	●	●	●			●	●	●			
				2.00	0.126	0.039	●	●	●	●	●	●	●	●			●	●	●			
				3.00	0.177	0.059	●	●	●	●	●	●	●	●			●	●	●			
 2-edge Full-R		GER 200-100DR 300-150DR	-	2.00	0.126	0.039	●	●	●	●	●	●	●	●	SIGER...D-EH	G69						
				3.00	0.177	0.059	●	●	●	●	●	●	●	●			●	●				

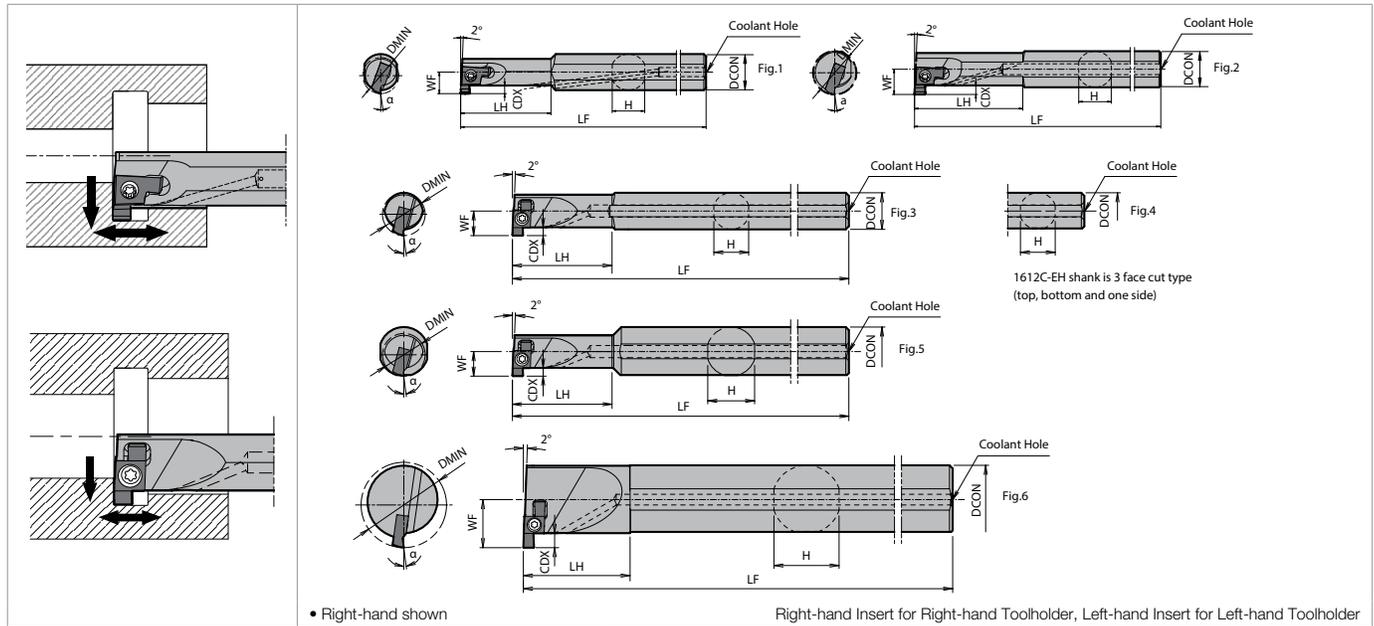
• Dimension CDX shows available grooving depth.

Recommended Cutting Conditions **G72**

Inserts are sold in 10 piece boxes.

SIGE INTERNAL GROOVING

■ SIGE-EH Excellent Bar (With Coolant Hole)



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Drawing	Spare Parts		Applicable Inserts ➔ G66-G68	
	R	L		Min. Bore Dia.	DMIN	DCON	H	LF	LH	WF		CDX	Clamp Screw		Wrench
SIGE 05EH	●	●	inch	0.313	0.313	0.283	3.940	0.787	0.177	0.059	Fig.1	SB-2045TRN	FT-6	-	GE% 031-002A-GE% 200-010A GER100-050AR-GER200-100AR
06EH	●	●		0.394	0.375	0.354	4.920	0.984	0.232	0.087	Fig.1	SB-2255TR	-	DT-7	GE% 031-002B-GE% 300-020B GER100-050BR-GER200-100BR
0809C-EH	●	●		0.551	0.500	0.460	5.900	1.300	0.315	0.098	Fig.3	SB-2570TR	FT-8	-	GE% 100-005C-GE% 350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR
0810C-EH	●	●		0.630	0.500	0.460	5.900	0.788	0.335	0.098					
1213D-EH	●	●		0.790	0.750	0.710	7.09	1.575	0.477	0.177	Fig.5	SB-3080TR	FT-10	-	GE% 100-005D-GE% 400-020D GER150-010DM-GER400-020DM GER200-100DR-GER300-150DR
1616E-EH	●	●		1.000	1.000	0.960	7.88	1.772	0.614	0.255	Fig.5	SB-4085TR	FT-15	-	GE% 100-005E-GE% 500-020E GER150-010EM-GER500-020EM
2020E-EH	●	●		1.250	1.250	1.170	8.66	2.166	0.748	0.255					
2025E-EH	●	●		1.575	1.250	1.170	9.84	1.772	0.906	0.255	Fig.6				
SIGE 0808A-EH	●	●	mm	8	8	7.2	100	20	4.8	1.5	Fig.1	SB-2045TRN	FT-6	-	GE% 031-002A-GE% 200-010A GER100-050AR-GER200-100AR
1010B-EH	●	●		10	10	9.0	125	25	6.2	2.2	Fig.1	SB-2255TR	-	DT-7	GE% 031-002B-GE% 300-020B GER100-050BR-GER200-100BR
1210B-EH	●	●		12	10	9.0	125	30	7.0	2.2	Fig.2				
1412C-EH	●	●		14	12	11.4	150	33	8.0	2.5	Fig.3	SB-2570TR	FT-8	-	GE% 100-005C-GE% 350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR
1612C-EH	●	●		16	12	11.4	150	20	8.5	2.5	Fig.4				
1616C-EH	●	●		16	16	15.0	160	36	9.0	2.5	Fig.5				
2020D-EH	●	●		20	20	19.0	180	40	12.1	4.5	Fig.5	SB-3080TR	FT-10	-	GE% 100-005D-GE% 400-020D GER150-010DM-GER400-020DM GER200-100DR-GER300-150DR
2525E-EH	●	●		25	25	24.0	200	45	15.6	6.5	Fig.5	SB-4085TR	FT-15	-	GE% 100-005E-GE% 500-020E GER150-010EM-GER500-020EM
3232E-EH	●	●		32	32	30.4	220	55	19.0	6.5					
4032E-EH	●	●		40	32	30.4	250	45	23.0	6.5						Fig.6

● Dimension CDX shows available grooving depth. See CDX dimension of insert table for actual grooving depth.

■ Features

- Traditional top clamp has been replaced with a screw clamp only. This design creates a large chip pocket that provides excellent chip evacuation



- Cutting Edge is Protected in the Pocket



- 8mm Minimum Cutting Diameter with 2-Edge Design

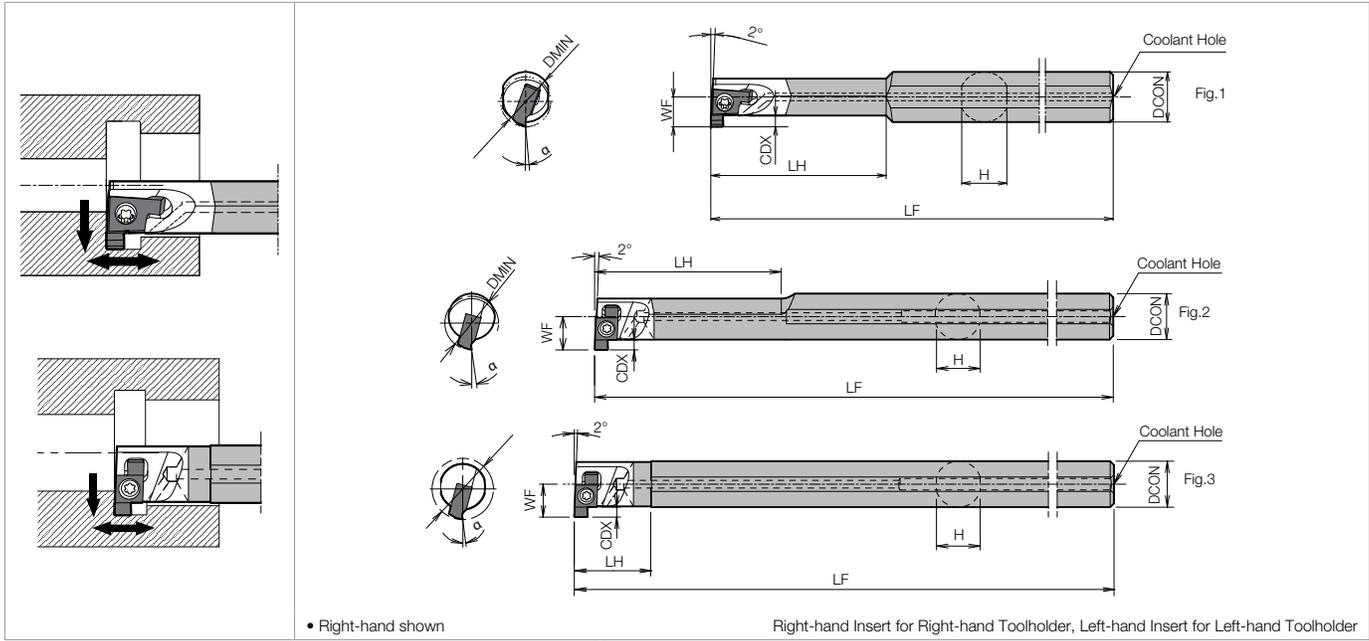


- Cost effective chip control from a molded chipbreaker

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

SIGE INTERNAL GROOVING

SIGE-WH Carbide Shank Bar (With Coolant Hole)



Toolholder Dimensions

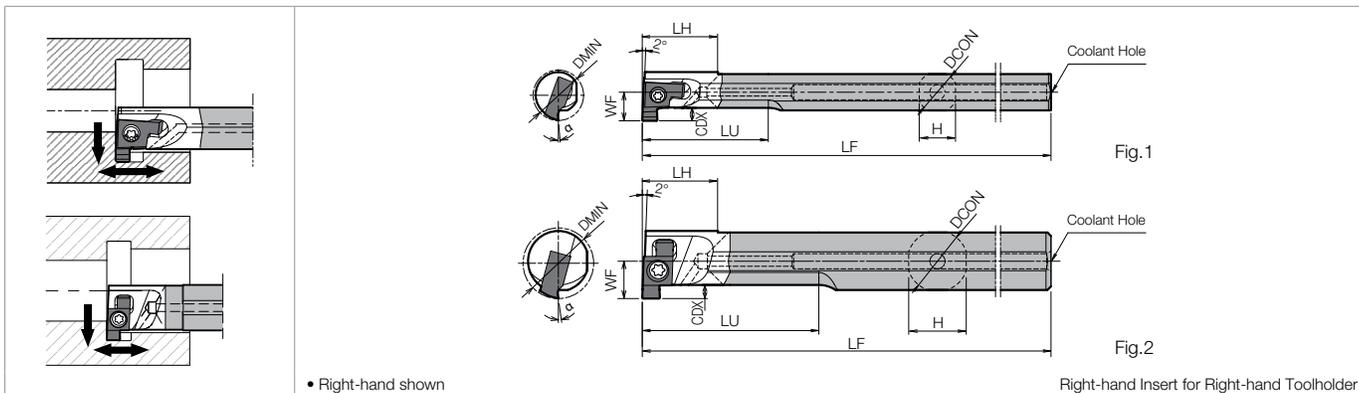
Part Number	Stock		Min. Bore Dia.	Dimensions (mm)						Drawing	Spare Parts			Applicable Inserts G66-G68	
	R	L		DMIN	DCON	H	LF	LH	WF		CDX	Clamp Screw	Wrench		
												SB-2045TRN	FT		DT
SIGE% 0808A-WH	●	●	8	8	7.2	125	28	4.8	1.5	Fig.1	SB-2045TRN	FT-6	-	GE%031-002A-GE%200-010A GER100-050AR-GER200-100AR	
1010B-WH	●	●	10	10	9.0	125	35	6.2	2.2	Fig.1	SB-2255TR	-	DT-7	GE%031-002B-GE%300-020B GER100-050BR-GER200-100BR	
1210B-WH	●	●	12	10	9.0	140	45	7.0	2.2	Fig.2	-	-	-	GE%100-005C-GE%350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR	
1412C-WH	●	●	14	12	11.4	150	50	8.7	2.5	Fig.2	-	-	-	GE%100-005C-GE%350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR	
1612C-WH	●	●	16	12	11.4	180	20	8.5	2.5	Fig.3	SB-2570TR	FT-8	-	GE%100-005C-GE%350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR	

• Dimension CDX shows available grooving depth. See CDX dimension of insert table for actual grooving depth.

Applicable Inserts and Rake Angle (α) After Installment of Insert

Toolholder	Ground Chipbreaker	α (°)	Molded Chipbreaker	α (°)
SIGE% 05EH	GE%031-002A-GE%200-010A GER100-050AR-GER200-100AR	5°	-	-
06EH	GE%031-002B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
SIGE% 0808A-EH	GE%100-005A-GE%200-010A GER100-050AR-GER200-100AR	5°	-	-
0809C-EH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
0810C-EH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
1010B-EH	GE%100-005B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
1210B-EH	GE%100-005B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
1213D-EH	GE%100-005D-GE%400-020D GER200-100DR-GER300-150DR	9°	GER150-010DM-GER400-020DM	10°
1412C-EH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
1612C-EH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
1616C-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
2020D-EH	GE%100-005D-GE%400-020D GER200-100DR-GER300-150DR	9°	GER150-010DM-GER400-020DM	10°
2020E-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
2025E-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
2525E-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
3232E-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
4032E-EH	GE%100-005E-GE%500-020E	10°	GER150-010EM-GER500-020EM	10°
SIGE% 0808A-WH	GE%031-002A-GE%200-010A GER100-050AR-GER200-100AR	5°	-	-
1010B-WH	GE%031-002B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
1008B-WH-90	GE%031-002B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
1210B-WH-90	GE%031-002B-GE%300-020B GER100-050BR-GER200-100BR	5°	-	-
1412C-WH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
1612C-WH	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°
1412C-WH-90	GE%100-005C-GE%350-020C GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM	10°

■ SIGE-WH-90 Carbide Shank Bar (With Coolant Hole)



• Right-hand shown

Right-hand Insert for Right-hand Toolholder

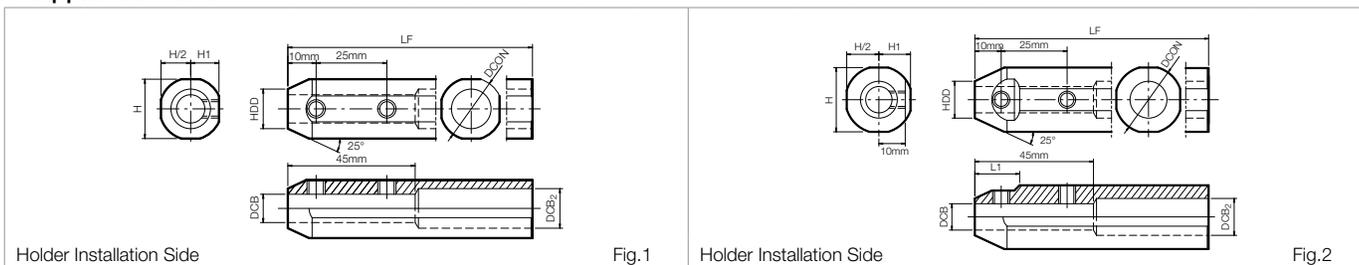
● Toolholder Dimensions

Part Number	Stock	Min. Bore Dia.	Dimensions (mm)							Drawing	Spare Parts		Applicable Inserts ➔ G66-G68
			DMIN	DCON	H	LF	LU	*LH	WF		CDX	Clamp Screw		Wrench
SIGER 1008B-WH-90	●	10	8	7.2	90	25	15	5.6	2.2	Fig.1	SB-2255TR	FT-7	GER031-002B-GER300-020B GER100-050BR-GER200-100BR
1210B-WH-90	●	12	10	9.4	90	30	15	6.6	2.2				
1412C-WH-90	●	14	12	11.4	90	35	15	7.4	2.5	Fig.2	SB-2570TR	FT-8	GER100-005C-GER350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR

*Dimension LH shows minimum overhang length.

• Ref. to Page **G70** for applicable Insert & Rake Angle (α) after Installment of Insert.

● Applicable Sleeves



Holder Installation Side

Fig.1

Holder Installation Side

Fig.2

Part Number	Stock	Dimensions (mm)								Drawing	Spare Parts		Applicable Machine Manufacturer
		DCB	DCON	HDD	DCB ₂	H	H1	LF	L1		Screw	Wrench	
SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-	Fig.1	HS6x4P	LW-3	Amada Machine Tools Eguro Tsugami Citizen Machinery
1020-120	●	10	20.00	14	12	19.0	9.25	120	-				
SHA 0825.0-135	●	8	25.00	14	14	24.0	11.50	135	17	Fig.2	HS6x4P	LW-3	
1025.0-135	●	10	25.00	14	14	24.0	11.50	135	17				
1225.0-135	●	12	25.00	16	14	24.0	11.50	135	17	Fig.1	HS6x4P	LW-3	
SHA 0819-120	□	8	19.05	14	12	18.0	8.75	120	-				
1019-120	□	10	19.05	14	12	18.0	8.75	120	-	Fig.2	HS6x4P	LW-3	Citizen Machinery
SHA 0820-120	□	8	20.00	14	12	19.0	9.25	120	-				
1020-120	●	10	20.00	14	12	19.0	9.25	120	-	Fig.2	HS6x4P	LW-3	
SHA 0825.4-120	●	8	25.40	14	14	24.4	12.00	120	17				
1025.4-120	●	10	25.40	14	14	24.4	12.00	120	17	Fig.1	HS6x4P	LW-3	Star Micronics Nomura DS
1225.4-120	●	12	25.40	16	14	24.4	12.00	120	17				
SHA 0822-125	●	8	22.00	14	14	21.0	10.00	125	-	Fig.1	HS6x4P	LW-3	
1022-125	●	10	22.00	14	14	21.0	10.00	125	-				
1222-125	□	12	22.00	16	14	21.0	10.00	125	-	Fig.2	HS6x4P	LW-3	Nomura DS
SHA 0823-120	□	8	23.00	14	14	22.0	10.50	120	16				
1023-120	□	10	23.00	14	14	22.0	10.50	120	16	Fig.2	HS6x4P	LW-3	
1223-120	□	12	23.00	16	14	22.0	10.50	120	16				

※ : Depth of DCB...45mm (All types of SHA sleeves)

- Choose sleeves with **DCB** dimension that matches the **DCON** dimension of the toolholder.
- Machine manufacturers are in random order.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions (Ground Chipbreaker : GE%...A(R), GE%...B(R))

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)			Notes
	Cermet	MEGACOAT	PVD	Carbide	② f (feed) during Traversing (ipr)			
					③ D.O.C. during Traversing (in)			
TN6020	PR1225	PR1025	KW10	GE%031-002A - GE%078-004A GE%100-005A - GE%200-010A GER100-050AR - GER200-100AR	GE%031-002B - GE%088-004B GE%100-005B - GE%200-010B GER100-050BR - GER200-100BR	GE%094-004B - GE%122-008B GE%250-020B - GE%300-020B		
Carbon Steel	☆ 160-260	★ 160-260	☆ 160-260	-	① 0.0004-0.0012	① 0.0008-0.0016	① 0.0008-0.0016	
					② 0.0004-0.0012	② 0.0008-0.0016	② 0.0008-0.0016	
					③ Max. 0.0020	③ Max. 0.0020	③ Max. 0.0039	
Alloy Steel	☆ 160-260	★ 160-260	☆ 160-260	-	① 0.0004-0.0012	① 0.0008-0.0016	① 0.0008-0.0016	
					② 0.0004-0.0012	② 0.0008-0.0016	② 0.0008-0.0016	
					③ Max. 0.0020	③ Max. 0.0020	③ Max. 0.0039	
Stainless Steel	-	★ 160-260	☆ 160-260	-	① 0.0004-0.0012	① 0.0004-0.0012	① 0.0004-0.0012	
					② 0.0004-0.0012	② 0.0004-0.0012	② 0.0004-0.0012	
					③ Max. 0.0020	③ Max. 0.0020	③ Max. 0.0039	
Cast Iron	-	-	-	★ 160-260	① 0.0004-0.0012	① 0.0008-0.0016	① 0.0008-0.0016	
					② 0.0004-0.0012	② 0.0008-0.0016	② 0.0008-0.0016	
					③ Max. 0.0020	③ Max. 0.0020	③ Max. 0.0039	
Aluminum	-	-	-	★ 160-330	① 0.0004-0.0012	① 0.0008-0.0016	① 0.0008-0.0016	
					② 0.0004-0.0012	② 0.0008-0.0016	② 0.0008-0.0016	
					③ Max. 0.0039	③ Max. 0.0039	③ Max. 0.0079	
Brass	-	-	-	★ 160-330	① 0.0004-0.0012	① 0.0008-0.0016	① 0.0008-0.0016	
					② 0.0004-0.0012	② 0.0008-0.0016	② 0.0008-0.0016	
					③ Max. 0.0039	③ Max. 0.0039	③ Max. 0.0079	

• Use PVD coated grade or uncoated carbide for traversing with edge width 0.0394"(1mm). (GE%100-005A/100-005B) ★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (Ground Chipbreaker : GE%...C(R), GE%...D(R), GE%...E)

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)						Notes
	Cermet	MEGA-COAT	PVD	Carbide	② f (feed) during Traversing (ipr)						
					③ D.O.C. during Traversing (in)						
TN6020	PR1225	PR1025	GW15	GE%100-200-010C 200-100CR	GE%250-350-020C 250-300-150CR	GE%200-280-020D 200-100DR	GE%300-400-020D 300-150DR	GE%350-430-020E	GE%450-500-020E		
Carbon Steel	☆ 390-590	★ 200-460	☆ 200-460	-	① 0.0012-0.0031	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047
					② 0.0012-0.0031	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197
Alloy Steel	☆ 330-520	★ 200-390	☆ 200-390	-	① 0.0012-0.0028	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0020-0.0039	① 0.0020-0.0039
					② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197
Stainless Steel	☆ 230-430	★ 200-360	☆ 200-360	-	① 0.0012-0.0028	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0020-0.0039	① 0.0020-0.0039
					② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197
Cast Iron	-	-	-	★ 200-330	① 0.0012-0.0031	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047
					② 0.0012-0.0031	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0118	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197
Aluminum	-	-	-	★ 490-980	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059	① 0.0031-0.0059
					② 0.0020-0.0047	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059	② 0.0031-0.0059
					③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0315	③ Max. 0.0315	③ Max. 0.0315
Brass	-	-	-	★ 330-820	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059	① 0.0031-0.0059
					② 0.0020-0.0047	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059	② 0.0031-0.0059
					③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0197	③ Max. 0.0315	③ Max. 0.0315	③ Max. 0.0315

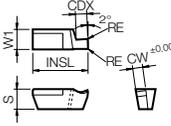
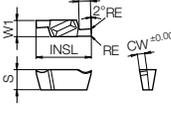
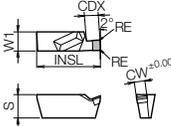
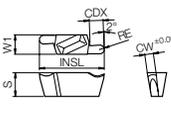
• Use PVD coated grade or uncoated carbide for traversing with edge width 0.0394" (1mm). (GE%100-010C / 100-010D / 100-010E) ★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (Molded Chipbreaker : GER...CM, GER...DM, GER...EM)

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)						Notes
	Cermet	MEGA COAT	PVD	Carbide	② f (feed) during Traversing (ipr)						
					③ D.O.C. during Traversing (in)						
TN6020	PR1225	PR1025	GW15	GER150-200-010CM GER150-200-010DM GER150-200-010EM	GER250-350-020CM	GER230-250-020DM	GER300-400-020DM	GER250-350-020EM	GER350-400-020EM	GER450-500-020CM	
Carbon Steel	-	★ 200-520	☆ 200-520	-	① 0.0012-0.0039	① 0.0012-0.0047	① 0.0016-0.0047	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047
					② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0394	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591
Alloy Steel	-	★ 200-460	☆ 200-460	-	① 0.0012-0.0039	① 0.0012-0.0039	① 0.0016-0.0047	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0047
					② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0394	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591
Stainless Steel	-	★ 200-360	☆ 200-360	-	① 0.0012-0.0031	① 0.0012-0.0031	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0020-0.0039	① 0.0020-0.0039	① 0.0020-0.0039
					② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039
					③ Max. 0.0394	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591	③ Max. 0.0591

★ : 1st Recommendation ☆ : 2nd Recommendation

Applicable Inserts (GIV / GIV-E / GIV-W)

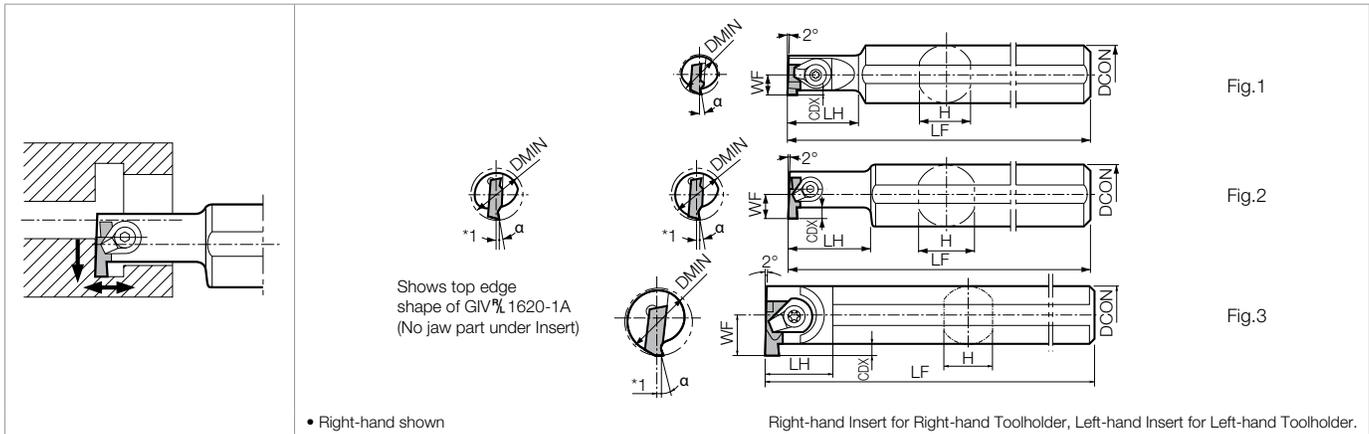
Part Number	W1	INSL	S	Classification of Usage ● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P Carbon Steel / Alloy Steel	M Stainless Steel	K Cast Iron	N Non-ferrous Metals	S Heat-resistant Alloy	H Hard materials (≤40HRC)	H Hard materials (≥40HRC)	Dimensions (in)																Cermet	MEGA COAT	PVD Carbide	Carbide	PCD	Applicable Toolholders G75		
												CW		CDX	RE	TN90		TC40		TC60		PR1225		PR930		KW10								KPD010	
												inch	mm			R	L	R	L	R	L	R	L	R	L	R	L							R	L
 1-Edge		GV%L 100-020SS	GV%L 100SS	0.039	1.00	0.091	0.008	△																				GIV%...1SS SI-GIVR10-09							
		GVR 09-031	GV%L 09-031	0.031	0.79																														
		GVR 09-062	GV%L 09-062	0.062	1.57																														
		GVR 09-125	GV%L 09-125	0.125	3.18																														
		GV%L 100-020S	GV%L 100S	0.039	1.00																											GIV%...1S GIV%...1SE			
		GVR 12-032	GV%L 12-032	0.032	0.81																														
		GVR 12-062	GV%L 12-062	0.062	1.57																														
		GVR 12-094	GV%L 12-094	0.094	2.39																														
		GVR 12-125	GV%L 12-125	0.125	3.18																														
		GV%L 100-020A	GV%L 100A	0.039	1.00																												SI-GIVR12-12 GIV%...1A GIV%...1AE GIV%...1AW		
GVR 15-062	GVR 15-062	0.062	1.57																																
GVR 15-094	GVR 15-094	0.094	2.39																																
GV%L 100-020A	GV%L 100A	0.039	1.00																																
GV%L 125-020A	GV%L 125A	0.049	1.25																																
GV%L 145-020A	GV%L 145A	0.057	1.45																																
 2-Edge		GVR 12-032	GV%L 12-032	0.032	0.81	0.091	0.008																					SI-GIVR16-15 GIV%...1B GIV%...1BE GIV%...1BW							
		GVR 12-062	GV%L 12-062	0.062	1.57																														
		GVR 12-094	GV%L 12-094	0.094	2.39																														
		GVR 12-125	GV%L 12-125	0.125	3.18																														
		GV%L 145-020B	GV%L 145B	0.057	1.45																														
		GVR 15-062	GVR 15-062	0.062	1.57																														
		GVR 15-094	GVR 15-094	0.094	2.39																														
		GV%L 185-020B	GV%L 185B	0.073	1.85																														
		GV%L 200-020B	GV%L 200B	0.079	2.00																														
		GV%L 230-020B	GV%L 230B	0.091	2.30																														
 1-Edge		GVR 21-125	GVR 21-125	0.125	3.18	0.165	0.008																					SI-GIVR16-15 GIV%...2B GIV%...2BE GIV%...2BW							
		GV%L 280-020C	GV%L 280C	0.110	2.80																														
		GV%L 300-020C	GV%L 300C	0.118	3.00																														
		GV%L 340-020C	GV%L 340C	0.134	3.40																														
		GV%L 400-020C	GV%L 400C	0.157	4.00																														
		GV%L 430-020C	GV%L 430C	0.169	4.30																														
		GV%L 460-020C	GV%L 460C	0.181	4.60																														
		GV%L 500-020C	GV%L 500C	0.197	5.00																														
		GV%L 145-020A	GV%L 145A	0.057	1.45																														
		GV%L 200-020A	GV%L 200A	0.079	2.00																														
 2-Edge Full-R		GV%L 200-020B	GV%L 200B	0.079	2.00	0.126	0.008																					SI-GIVR16-15 GIV%...1B GIV%...1BE GIV%...1BW							
		GV%L 250-020B	GV%L 250B	0.098	2.50																														
		GV%L 300-020B	GV%L 300B	0.118	3.00																														
		GV%L 300-020C	GV%L 300C	0.118	3.00																														
		GV%L 400-020C	GV%L 400C	0.157	4.00																														
		GV%L 200-100AR	GV%L 100AR	0.079	2.00																														
		GV%L 250-125AR	GV%L 125AR	0.098	2.50																														
		GV%L 300-150AR	GV%L 150AR	0.118	3.00																														
		GV%L 200-100BR	GV%L 100BR	0.079	2.00																														
		GV%L 300-150BR	GV%L 150BR	0.118	3.00																														

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

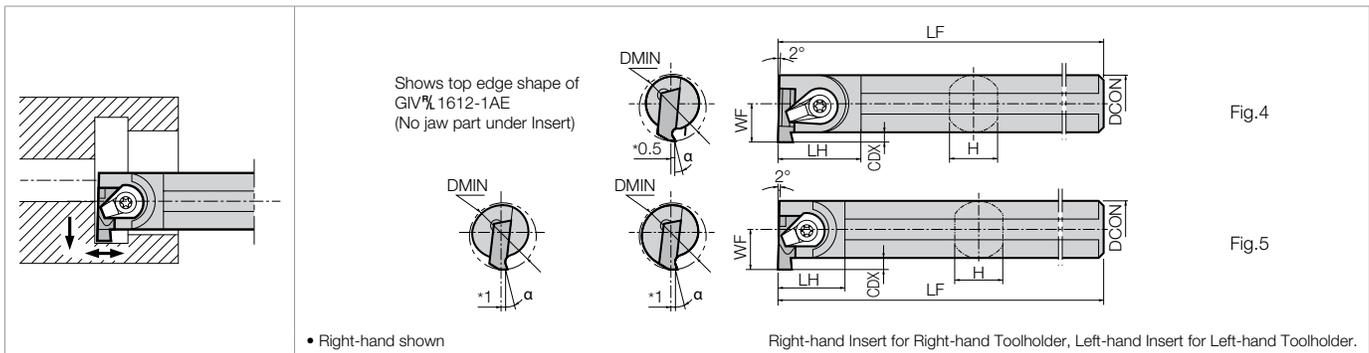
• Dimension CDX shows available grooving depth. Inserts are sold in 10 piece boxes. CBN & PCD Inserts are sold in 1 piece boxes. Recommended Cutting Conditions G145 Applicable Toolholders G75

INTERNAL SMALL DIAMETER GROOVING TOOLHOLDERS [GV INSERT]

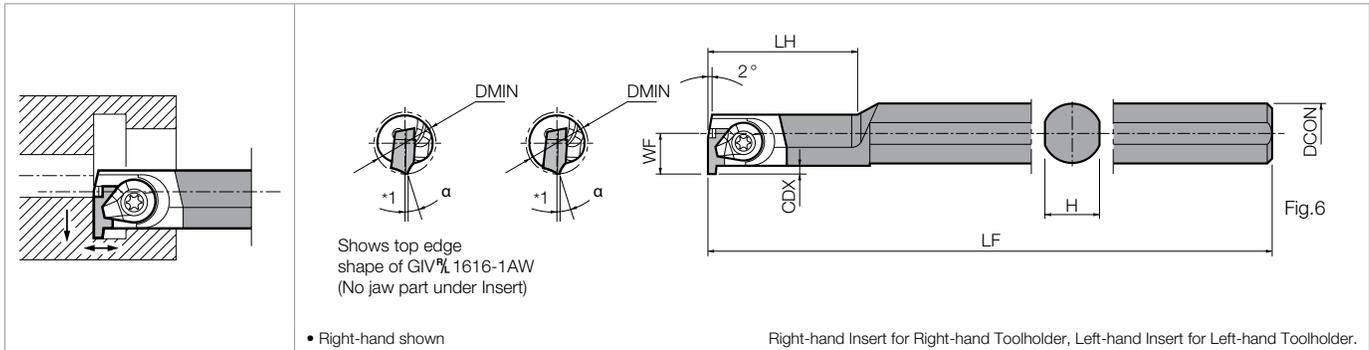
GIV (SI-GIV)



GIV-E Excellent Bar



GIV-W Carbide Shank Bar



Applicable Inserts and Rake Angle (α) After Installment of Insert

Toolholder	Insert Part Number G73		Rake Angle (α)	
	General Grooving (Square)	Full-R Grooving (Round)	TC40	TN90,TC60 PR930,PR1225 KW10
SI-GIVR10-09	GVR09-...	GV% 100~300-020SS	-	-
SI-GIVR12-12	GVR12-...	GV% 100~340-020A	GVR12-R	-
SI-GIVR16-15	GVR15-...	GV% 145~400-020B	-	10°
SI-GIVR20-21	GVR21-...	GV% 280~500-020C	-	10°
GIV% ...1SS	GV% 100~300-020SS	GVR09-...	-	10°
GIV% ...1S	GV% 100~340-020S	-	-	10°
GIV% ...1SE	GV% 100~340-020S	-	-	3°
GIV% ...1A(□)	GV% 100~340-020A	GVR12-...	GV% 200-100AR~300-150AR	8°
GIV% ...1B(□)	GV% 145~250-020B	GVR15-...	GV% 200-100BR	9°
GIV% ...2B(□)	GV% 280~400-020B		GV% 300-150BR	
GIV% ...1C(□)	GV% 280~340-020C	GVR21-...	-	10°
GIV% ...2C(□)	GV% 400~500-020C		-	

* GIV, GIV-E and GIV-W are designed to set the cutting edge height 1mm above the center height. (0.5mm for GIV% 1612-1AE)

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Drawing	Spare Parts				Ref. Page for Applicable Inserts
	R	L		DMIN	DCON	H	LF	LH	WF	CDX		Clamp Set		Wrench	Wrench	
																
SI-GIVR 10-09	●		inch	0.472	0.625	0.590	5.910	0.787	0.236	0.087	Fig.1		-	FT-10	-	
12-12	●			0.630	0.750	0.710	6.300	1.100	0.314	0.090	Fig.2		-	FT-15	-	
16-15	●			0.790	1.000	0.960	7.100	1.380	0.394	0.125	Fig.2	-	CPS-6V	-	LW-3	
20-21	●			0.984	1.250	1.170	7.875	1.700	0.492	0.177	Fig.2	-	CPS-6V	-	LW-3	
GIV% 1216-1SS	●	●	mm	12	16	15.0	150	20	6.0	2.2	Fig.1		-	FT-10	-	
1420-1S	●	●		14	20	19.0	150	24	7.0	2.2	Fig.1		-	FT-15	-	
1620-1A	●	●		16	20	19.0	160	28	8.0	2.2	Fig.2		-	FT-15	-	
2025-1B	●	●		20	25	23.0	180	35	10.0	Note 1) 2,8	Fig.2		-	FT-15	-	
2025-2B	●	●		20	25	23.0	180	35	10.0	Note 2) 3,2	Fig.2		-	FT-15	-	
2532-1C	●	●		25	32	30.0	200	43	12.5	Note 3) 4,5	Fig.2	-	CPS-6V	-	LW-3	
3232-1C	●	●		32	32	30.0	220	52	16.0	Note 3) 4,5	Fig.2	-	CPS-6V	-	LW-3	
4032-1C	●	●		40	32	30.0	250	43	21.0	Note 3) 4,5	Fig.3	-	CPS-6V	-	LW-3	
2532-2C	●	●		25	32	30.0	200	43	12.5	Note 4) 5,5	Fig.2	-	CPS-6V	-	LW-3	
3232-2C	●	●		32	32	30.0	220	52	16.0	Note 4) 5,5	Fig.2	-	CPS-6V	-	LW-3	
4032-2C	●	●		40	32	30.0	250	43	22.2	Note 4) 5,5	Fig.3	-	CPS-6V	-	LW-3	
GIV% 1412-1SE	●	●		mm	14	12	11.4	150	18	7.7	1.7	Fig.4		-	FT-15	-
1612-1AE	●	●	16		12	11.4	150	19	8.2	2.2	Fig.5		-	FT-15	-	
2016-1BE	●	●	20		16	15.2	180	20	11.2	Note 1) 2,8	Fig.5		-	FT-15	-	
2016-2BE	●	●	20		16	15.2	180	19	11.7	Note 5) 3,2	Fig.5		-	FT-15	-	
2520-1CE	●	●	25		20	19.0	200	25	14.5	Note 6) 4,5	Fig.5	-	CPS-6V	-	LW-3	
3225-1CE	●	●	32		25	24.0	220	24	17.5	Note 7) 4,5	Fig.5	-	CPS-6V	-	LW-3	
4032-1CE	●	●	40		32	31.0	240	29	21.0	Note 7) 4,5	Fig.5	-	CPS-6V	-	LW-3	
2720-2CE	●	●	27		20	19.0	200	25	16.2	Note 4) 5,5	Fig.5	-	CPS-6V	-	LW-3	
3225-2CE	●	●	32		25	24.0	220	24	18.7	Note 4) 5,5	Fig.5	-	CPS-6V	-	LW-3	
4032-2CE	●	●	40		32	31.0	240	29	22.2	Note 4) 5,5	Fig.5	-	CPS-6V	-	LW-3	
GIV% 1616-1AW	●	●	mm		16	16	15.0	175	48	10.6	2.2	Fig.6		-	FT-15	-
2020-1BW	●	●			20	20	19.0	220	60	14.6	Note 1) 2,8	Fig.6		-	FT-15	-
2020-2BW	●	●		20	20	19.0	220	60	14.6	Note 2) 3,2	Fig.6		-	FT-15	-	
2525-1CW	●	●		25	25	24.0	260	70	19.1	Note 3) 4,5	Fig.6	-	CPS-6V	-	LW-3	
2525-2CW	●	●		25	25	24.0	260	70	19.1	Note 4) 5,5	Fig.6	-	CPS-6V	-	LW-3	

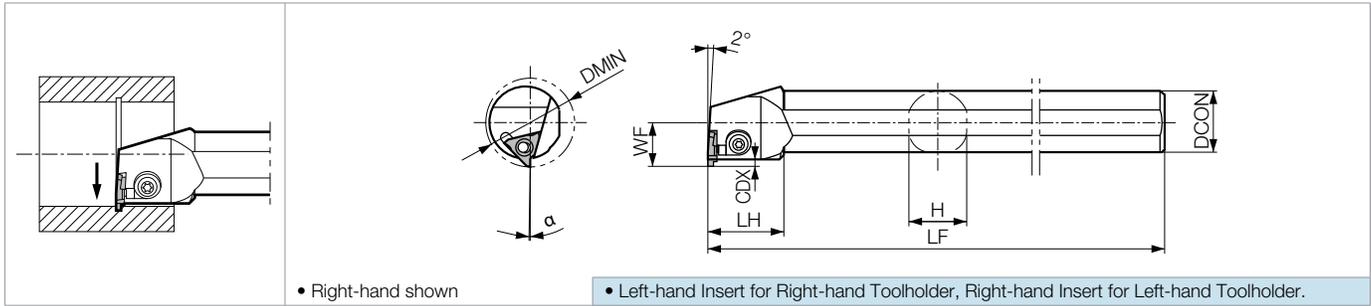
● Dimension CDX shows available grooving depth.

- Note 1: GV% 200-250-020B Insert can be used up to a Groove Depth 3.2mm.
 - Note 2: GV% 300-400-020B Insert can be used up to a Groove Depth 4.2mm.
 - Note 3: GV% 340-020C Insert can be used up to a Groove Depth 5.5mm.
 - Note 4: GV% 430-500-020C Insert can be used up to a Groove Depth 6.3mm.
 - Note 5: GV% 300-400-020B Insert can be used up to a Groove Depth 3.8mm. (When using GIV% 2016-2BE)
 - Note 6: GV% 340-020C Insert can be used up to a Groove Depth 4.7mm. (When using GIV% 2520-1CE)
 - Note 7: GV% 340-020C Insert can be used up to a Groove Depth 5.3mm. (When using GIV% 3225-1CE, GIV% 4032-1CE)
- If you need any of insert groove depth specified in notes 1 to 7, modify the dimension CDX of toolholder.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

INTERNAL LARGE DIA. SHALLOW GROOVING TOOLHOLDERS

KIGBA



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						Spare Parts		Applicable Inserts ● G6~G11
	R	L			DMIN	DCON	H	LF	LH	WF	*CDX	Clamp Set		Wrench
KIGBA 16-3	●	●	inch	1.38	1.00	0.92	9.0	1.18	0.69	0.12	LGBA-16%LS	FT-15	GBA32%L Type
	●	●		1.57	1.25	1.18	10.0	1.18	0.90	0.12	LGBA-22%LS	FT-15	GBA43%L Type
KIGBA 3525-16	●	●	mm	35	25	23	220	30	17.5	2.8	LGBA-16%LS	FT-15	GBA32%L type
	●	●		40	32	30	250	30	23.0	3.0	LGBA-22%LS	FT-15	GBA43%L type

*Dimension CDX shows the distance from the Toolholder to the cutting edge.

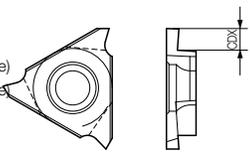
Available Grooving Depth depends on the insert.

KIGBA 3525-16: Dimension CDX of the applicable insert (GBA32 type)

4032-22: Dimension CDX of the applicable insert (GBA43 type)

1. 2.0mm (Dimension CDX < 2.8mm)

2. 2.8mm (Dimension CDX ≥ 2.8mm)



• Clamp Set : LGBA-00LS for Right-hand Toolholder, and LGBA-00RS for Left-hand Toolholder.

G
GROOVING
EXTERNAL
INTERNAL
FACE

● Rake Angle (α) after Installment of GBA

GBA32% $\frac{1}{2}$ ○○○-○○○		GBA43% $\frac{1}{2}$ ○○○-○○○		GBA43% $\frac{1}{2}$ ○○○-○○○R (Full-R)		
α (°)	Insert Grade	α (°)	Insert Grade	α (°)	Insert Grade	Full-R
+1°	TN620, TN90, PV7040, PR930, PR1115, PR1215, PR1625, PR905 KPD001, KPD010	-9°	KBN510, KBN525	+1°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR1625, PR905	050R~150R
		+1°	TN620, TC40, TN90, PV7040 PR930, PR1115, PR1215 PR1625, PR905 KPD001, KPD010	+5°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR1625, PR905	200R
+11°	KW10	+11°	KW10	+5°	KW10	050R~200R

● Rake Angle (α) after Installment of GBA-GM

α (°)	Insert Part Number
+1°	GBA43% $\frac{1}{2}$ 150-020GM
+6°	GBA43% $\frac{1}{2}$ 175-020GM ~ GBA43% $\frac{1}{2}$ 265-030GM
	GBA43% $\frac{1}{2}$ 300-030GM ~ GBA43% $\frac{1}{2}$ 400-040GM

● Rake Angle (α) after Installment of GBA-MY

α (°)	Insert Part Number
+6°	GBA43% $\frac{1}{2}$ 175-020MY ~ GBA43% $\frac{1}{2}$ 350-030MY
+5°	GBA43% $\frac{1}{2}$ 400-040MY

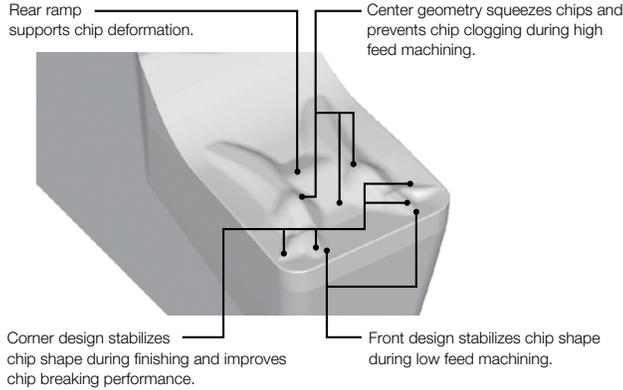
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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KGDI Internal Grooving

Stable Machining with Excellent Chip Control and Smooth Chip Evacuation

1 Excellent Chip Control with GMI Chipbreaker for Internal Grooving

Evenly breaks chips in various cutting conditions with newly designed chipbreaker geometry. Good chip control even in finishing applications with small depths of cut.



Chip Control Comparison (Internal Evaluation)

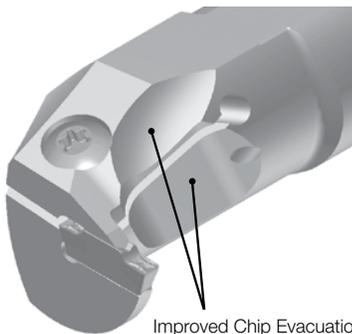


Smooth chip control with stable chip shape compared with Competitor A and Conventional F. Prevents frequent machine stops caused by tangled chips.

Cutting Conditions: $V_c = 330$ sfm, $f = 0.003$ ipr Toolholder: KGDIR3225B-3 Insert: GDM3015N-040GMI Workpiece: 5120 Steel

2 Smooth Chip Evacuation by Creating Chip Pocket

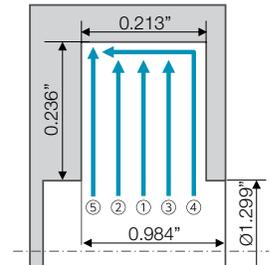
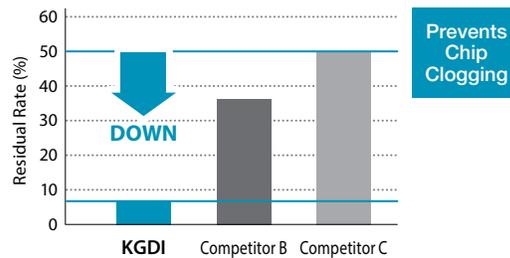
Smooth chip evacuation when grooving and finishing.



Improved Chip Evacuation with Innovative Chip Pockets

Cutting Conditions:
 $V_c = 330$ sfm
 ① : D.O.C. = 0.118", ②③ : D.O.C. = 0.039", ④⑤ : D.O.C. = 0.008"
 $f = 0.003$ ipr
 Toolholder: KGDIR3225B-3
 Insert: GDM3015N-040GMI
 Workpiece: 4131 Steel

Residual Chips (Internal Evaluation)

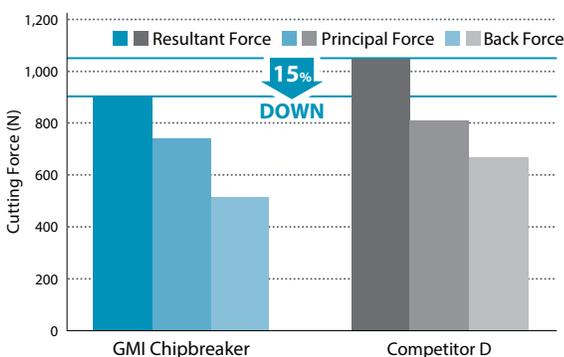


Chips remaining in machined bore were greatly reduced compared with Competitor B and C.

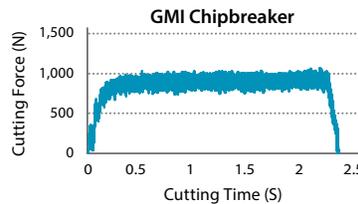
3 Low Cutting Forces and Stable Machining

GMI chipbreaker prevents chip clogging and reduces cutting forces.

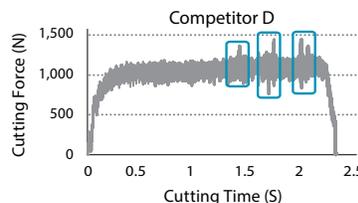
Cutting Force Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, $f = 0.004$ ipr Toolholder: KGDIR3225B-3 Insert: GDM3015N-040GMI Workpiece: 4131 Steel

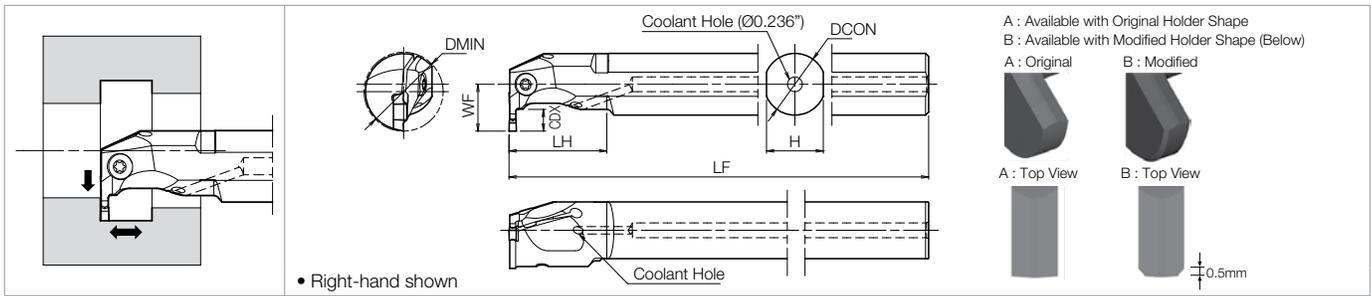


Stable machining with consistent in cutting force.



Cutting force spike due to clogged chips.

KGDI



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.		Dimensions							Edge Width CW		Spare Parts			
	R	L		DMIN		DCON	H	LF	LH	WF	CDX	MIN	MAX	Clamp Screw		Wrench		
				GMI	CM									GS-50	SB-5TR	LW-3	LTW-20	
KGDIR 10B-2	●		mm	0.709	-	0.625	0.591	6	0.984	0.374	0.177	0.079	0.079	GS-50	-	LW-3	-	
	●			0.984	-	0.75	0.709	7	1.181	0.571	0.236	0.079	0.079	-	SB-5TR	-	LTW-20	
	●			1.260	-	1	0.906	8	1.575	0.748	0.276	0.079	0.079	-	SB-5TR	-	LTW-20	
KGDIR 10B-3	●		mm	0.787	0.827	0.625	0.591	6	0.984	0.453	0.217	0.118	0.118	GS-50	-	LW-3	-	
	●			0.984	1.024	0.75	0.709	7	1.181	0.571	0.236	0.118	0.118	-	SB-5TR	-	LTW-20	
	●			1.260	1.299	1	0.906	8	1.575	0.748	0.315	0.118	0.118	-	SB-5TR	-	LTW-20	
KGDIR 16B-4	●		inch	1.260	A: 1.575 B: 1.299	1	0.906	8	1.575	0.748	0.335	0.157	0.197	-	SB-5TR	-	LTW-20	
	●			1.575	A: 1.890 B: 1.614	1.25	1.142	8.5	1.969	0.925	0.433	0.157	0.197	-	SB-5TR	-	LTW-20	
KGDIR 16B-5	●		mm	1.260	A: 1.457 B: 1.338	1	0.906	8	1.575	0.748	0.335	0.197	0.197	-	SB-5TR	-	LTW-20	
	●			1.575	A: 1.772 B: 1.653	1.25	1.142	8.5	1.969	0.925	0.433	0.197	0.197	-	SB-5TR	-	LTW-20	
KGD1% 1816B-2	●	●	mm	18	-	16	15	150	25	9.5	4.5	2	2	GS-50	-	LW-3	-	
	●	●		25	-	20	18	180	30	14.5	6	2	2	-	SB-5TR	-	LTW-20	
	●	●		32	-	25	23	200	40	19	7	2	2	-	SB-5TR	-	LTW-20	
KGD1% 2016B-3	●	●	mm	20	21	16	15	150	25	11.5	5.5	3	3	GS-50	-	LW-3	-	
	●	●		25	26	20	18	180	30	14.5	6	3	3	-	SB-5TR	-	LTW-20	
	●	●		32	33	25	23	200	40	19	8	3	3	-	SB-5TR	-	LTW-20	
KGD1% 3225B-4	●	●	mm	32	40 (34*)	25	23	200	40	19	8.5	4	5	-	SB-5TR	-	LTW-20	
	●	●		40	48 (42*)	32	29	220	50	23.5	11	4	5	-	SB-5TR	-	LTW-20	
KGD1% 3225B-5	●	●	mm	32	37 (34*)	25	23	200	40	19	8.5	5	5	-	SB-5TR	-	LTW-20	
	●	●		40	45 (42*)	32	29	220	50	23.5	11	5	5	-	SB-5TR	-	LTW-20	

* Possible by slightly chamfering toolholder's tip about 0.5 mm

Applicable Inserts

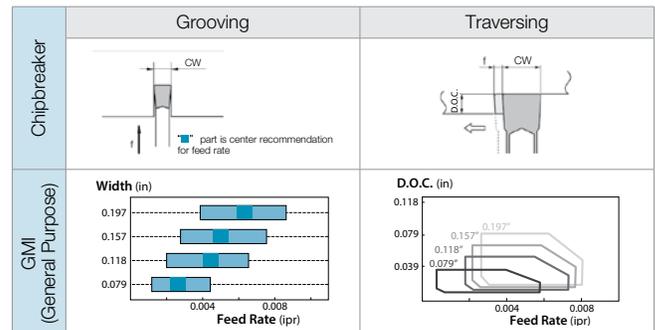
Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert	Part Number	Dimensions (in)					Cermet	MEGACOAT NANO	MEGACOAT			Applicable Toolholders	
		CW		RE	INSL	S			TN620	PR1535	PR1225		PR1215
		in	mm										
	GDM 2013N-020GMI	0.079	2.0	0.008	0.531	0.169	●	●	●	●	KGDI%...-2		
	3015N-040GMI	0.118	3.0	0.016	0.610	0.181	●	●	●	●	KGDI%...-3		
	4020N-040GMI	0.157	4.0	0.016	0.787	0.169	●	●	●	●	KGDI%...-4		
	5020N-040GMI	0.197	5.0	0.016	0.787	0.169	●	●	●	●	KGDI%...-4 KGDI%...-5		
	5020N-080GMI	0.197	5.0	0.031	0.787	0.169	●	●	●	●	KGDI%...-4 KGDI%...-5		
	GDM 3015N-150R-CM	0.118	3.0	0.059	0.642	0.181	●	●	●	●	KGDI%...-3		
	4020N-200R-CM	0.157	4.0	0.079	0.787	0.169	●	●	●	●	KGDI%...-4		
	5020N-250R-CM	0.197	5.0	0.098	0.827	0.169	●	●	●	●	KGDI%...-4 KGDI%...-5		

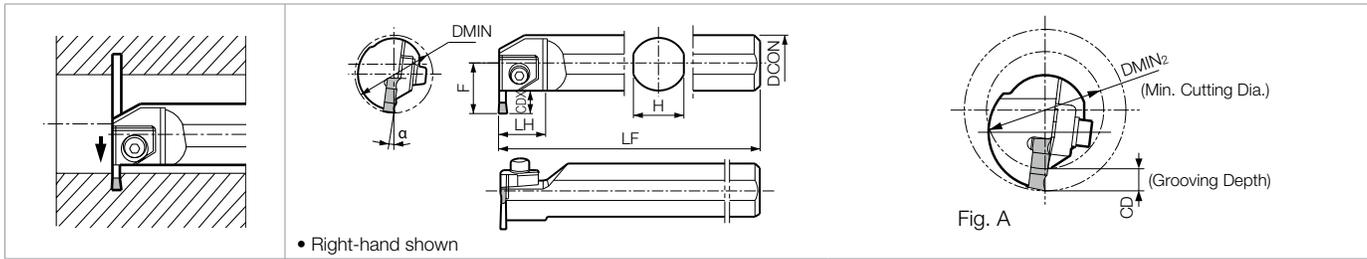
* Tolerance: ±0.03mm for CW = 2.0mm and 3.0mm and 4.0mm, ±0.04mm for CW = 5.0mm

Recommended Cutting Conditions

Workpiece Material	Chipbreaker	Recommended Insert Grade (Vc sfm)				Notes
		Cermet	MEGACOAT NANO	MEGACOAT		
				TN620	PR1535		PR1225	PR1215
Carbon Steel	GMI CM	☆	☆	★	☆	Wet
Alloy Steel		☆	☆	★	☆	
Stainless Steel		☆	★	☆	☆	
Cast Iron		-	-	-	★	
					330-660	



KIGH



Toolholder Dimensions

Part Number	Stock	Min. Bore Dia.	Dimensions (mm)						Spare Parts				
			DMIN	DCON	H	LF	LH	WF	CDX	Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGHR 4532B-4	●	45	32	30	200	27	28.2	12	CGH-1L	HH6X25	W-6	SP-6	LW-5
5540B-4	●	55	40	38	250	27	32.3	12					
6550B-4	●	65	50	48	300	27	37.3	12					
4532B-5	●	45	32	30	200	27	28.2	12	CGH-1L	HH6X25	W-6	SP-6	LW-5
5540B-5	●	55	40	38	250	27	32.3	12					
6550B-5	●	65	50	48	300	27	37.3	12					
5540B-7	●	55	40	38	250	27	32.3	12	CGH-2L	HH6X25	W-6	SP-6	LW-5
6550B-7	△	65	50	48	300	27	37.3	12					

- Dimension CDX shows the distance from the Toolholder to the cutting edge. For the actual Grooving Depth (CD), ref. to "List of Min. Available Cutting Diameter and Groove Depth".
- Dimension LH depends on the width of the installed Insert.

Rake Angle (α) after Installment of GH / GHU

GH○○○○-○○		GHU○○-○○	
α (°)	Insert Grade	α (°)	Insert Grade
-5°	A65, A66N, PT600M	+5°	TN60 CR9025
+5°	TC40		
+15°	TN90, TC60 PR930 KW10		

List of the Min. Cutting Diameter and Grooving Depth (Refer to Fig.A)

Part Number	DMIN ₂ Min. Cutting Dia. (mm)					
KIGHR 4532B-○	Ø110	Ø70	Ø65	Ø60	Ø55	Ø45
5540B-○	Ø70	Ø60	Ø55			
6550B-○	Ø65					
Available Grooving Depth CD (mm)	12.0	11.5	11.0	10.0	9.0	under 8.0

Applicable Inserts

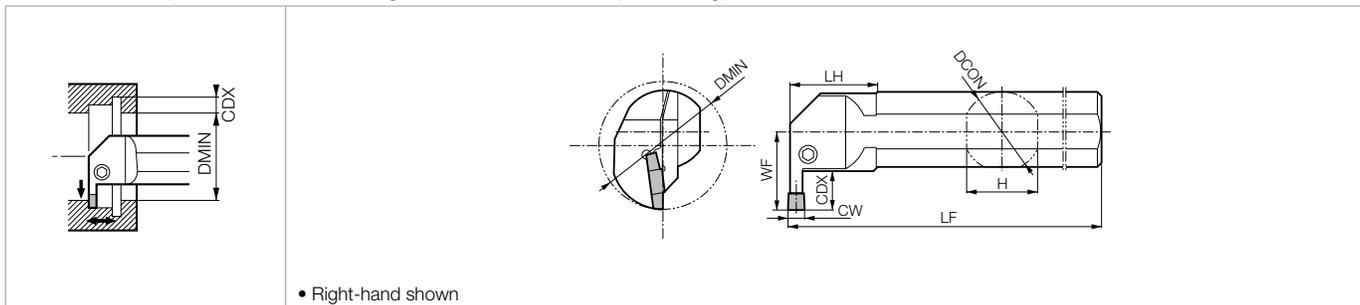
Part Number	INSL	S	Material	Applicable Toolholders																								
				GH 4020-02	GH 4020-05	GH 4520-02	GH 4520-05	GH 5020-02	GH 5020-05	GH 5520-02	GH 5520-05	GH 6020-02	GH 6020-05	GH 6520-02	GH 6520-05	GH 7020-02	GH 7020-05	GH 7520-02	GH 7520-05	GH 8020-02	GH 8020-05	GHU 40-20	GHU 50-20	GHU 60-20				
GH4020-○○-GH8020-○○	20	7.5	P Carbon Steel / Alloy Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
GHU○○-○○	20		M Stainless Steel	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
			K Cast Iron	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
			N Non-ferrous Metals	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			S Titanium Alloy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			H Hard materials (≤40HRC)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
			H Hard materials (≥40HRC)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Recommended Cutting Conditions **G141**

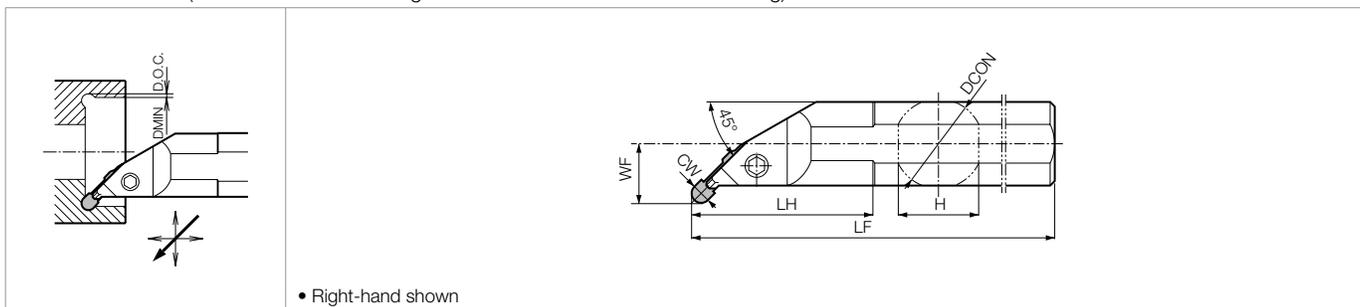
Inserts are sold in 10 piece boxes.

INTERNAL GROOVING / UNDERCUTTING TOOLHOLDER

KIGM-8 (8mm-Width Insert / Large Internal Diameter Deep Grooving)



KIGMU-8 (8mm-Width Insert / Large Internal Diameter Undercut Grooving)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							Insert Width CW (mm)		Spare Parts	
	R	L		DMIN	DCON	H	LF	LH	WF	CDX	D.O.C.	MIN	MAX	Clamp Bolt	Wrench
KIGM [®] /L 6540B-8	●	●	65	40	36	300	41	41	20	-	8	8	HH6X20	LW-5
KIGMUR 6540B-8	●	●	65	40	36	300	83	26	-	2.2	8	8	HH6X20	LW-5

- Dimension CDX shows available grooving depth.
- Dimension D.O.C. shows the distance from the internal face of the workpiece.

Applicable Inserts

Part Number	INSL	S	P	M	K	N	S	H	Classification of Usage						
									●	○	●	○	●	○	○
GMM8030-080MW	30.0	5.5	●	○	○	○	○	○	○	○	○	○	○	○	○
GMG8030-050MG	30.0	5.5	○	○	○	○	○	○	○	○	○	○	○	○	○
GMGA8030-400R	30.0	5.5	○	○	○	○	○	○	○	○	○	○	○	○	○

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Dimensions (mm)		Cermets	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders
			CW	RE			TN90	CR9025	PR915			PR930	PR905	KW10
	GMM 8030-080MW	GMM 8030-08	8.0	0.8	●	●	●	●	●	●	GIGM [®] /L...-8 GIGMUR...-8
	GMG 8030-050MG	GMG 8030-05MG	8.0	0.5	●	●	●	●	●	●	GIGM [®] /L...-8 GIGMUR...-8
	GMGA 8030-400R	GMGA 8030-40R	8.0	4.0	○	○	○	○	○	○	GIGM [®] /L...-8 GIGMUR...-8

● If using a full-R insert with KIGM-8 type toolholder, you need to modify the corner of insert adapter of toolholder.

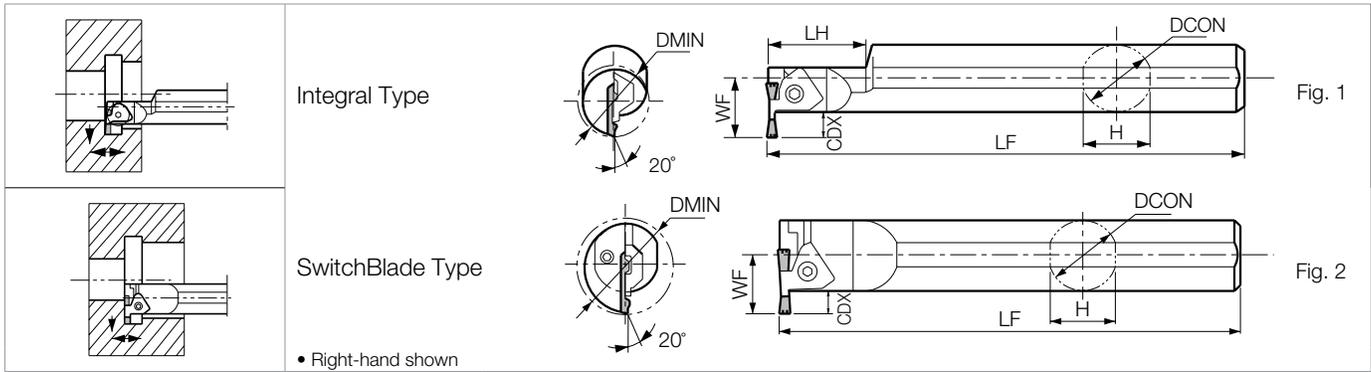
Recommended Cutting Conditions **G147**

Inserts are sold in 10 piece boxes.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

INTERNAL LARGE DIA. DEEP GROOVING TOOLHOLDERS [GIA INSERT]

KGIA



Toolholder Dimensions

Part Number	Stock	Min. Bore Dia.	Dimensions (mm)							Drawing	Spare Parts			
			DMIN	DCON	H	LF	LH	WF	CDX		Clamp	Clamp Bolt	Spring	Wrench
KGIA 3232B-3	●	32	32	30.4	200	45	26.5	10	Fig.1	CGIA-3R	HH5X15	SP-5	LW-4	
4332B-3	●	43	32	30.0	200	-	26.3	10	Fig.2	CGIA-3R	HH5X15	SP-5	LW-4	
5140B-3	●	51	40	38.0	250	-	30.3	10	Fig.1	CGIA-4R	HH5X15	SP-5	LW-4	
3232B-4	●	32	32	30.4	200	45	26.5	10	Fig.1	CGIA-4R	HH5X15	SP-5	LW-4	
4332B-4	●	43	32	30.0	200	-	26.3	10	Fig.2	CGIA-4R	HH5X15	SP-5	LW-4	
5140B-4	●	51	40	38.0	250	-	30.3	10	Fig.2	CGIA-4R	HH5X15	SP-5	LW-4	
5640B-5	●	56	40	38.0	250	-	35.3	15	Fig.2	CGIA-5R	HH5X15	SP-5	LW-4	
6650B-5	●	66	50	48.0	250	-	40.3	15	Fig.2	CGIA-5R	HH5X15	SP-5	LW-4	

● Dimension CDX shows available grooving depth.

Composition

Type	Toolholder Part Number	Spare Parts			
		Toolholder	Blade	Clamp Screw	Wrench
Integral Type	KGIA 3232B-3	-	-	-	-
Separate Type	4332B-3	KGIAR32H	BGIAR43-3	SB-40140TR	FT-15
	5140B-3	KGIAR40H	BGIAR51-3	SB-40140TR	FT-15
Integral Type	3232B-4	-	-	-	-
SwitchBlade Type	4332B-4	KGIAR32H	BGIAR43-4	SB-40140TR	FT-15
	5140B-4	KGIAR40H	BGIAR51-4	SB-40140TR	FT-15
SwitchBlade Type	5640B-5	KGIAR40H	BGIAR56-5	SB-40140TR	FT-15
	6650B-5	KGIAR50H	BGIAR66-5	SB-40140TR	FT-15

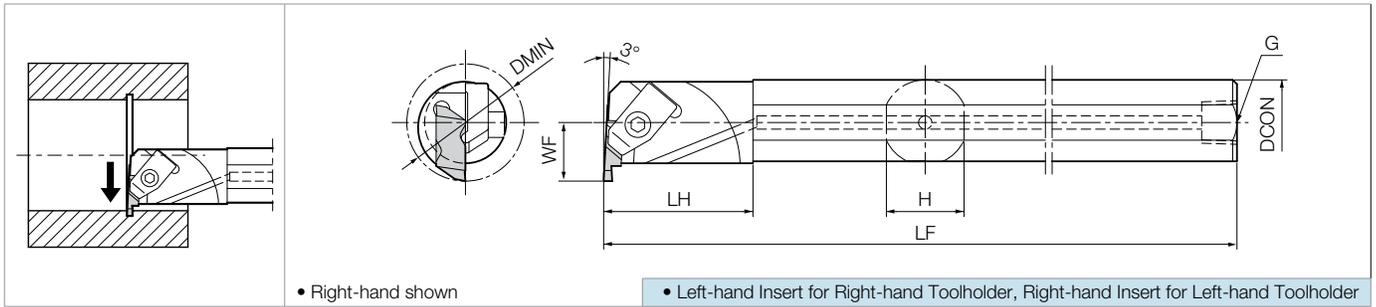
Applicable Inserts

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)				Cermet CVD Coated Carbide CR9025	Applicable Toolholders
		CW	RE	INSL	S		
		TN60	CR9025				
	GIA 30	3.0	0.20	25	5.0	● ●	KGIAR...3
	40	4.0	0.25	25	5.0	● ●	KGIAR...4
	50	5.0	0.30	30	5.0	● ●	KGIAR...5

Recommended Cutting Conditions **G144**

Inserts are sold in 10 piece boxes.

A-KKC



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions (in)						Spare Parts		
	R	L			DMIN	DCON	H	LF	LH	WF	G	Clamp	Clamp Screw	Wrench
A10M-KKCR-2	●		inch	1.000	0.625	0.596	6.00	1.153	0.500	1/8-27 NPT	CKC-2L	SKC-2	(7/64 Hex)
A10S-KKCR-2	●			1.000	0.625	0.596	10.00	1.153	0.500	1/8-27 NPT			
A12R-KKCR-2	●			1.125	0.750	0.728	8.00	1.171	0.562	1/8-27 NPT			
A12S-KKCR-2	●			1.125	0.750	0.728	10.00	1.171	0.562	1/8-27 NPT			
A16T-KKC% ₂ -2	●	●		1.375	1.000	0.910	12.00	1.100	0.688	1/8-27 NPT	CKC-3% ₂	SKC-3	(LW-156)
A16X-KKC% ₃ -3	●			1.375	1.000	0.910	9.00	1.750	0.688	1/8-27 NPT			
A16T-KKC% ₃ -3	●	●		1.375	1.000	0.910	12.00	1.750	0.688	1/4-18 NPT			
A20U-KKC% ₃ -3	●	●		1.750	1.250	1.138	14.00	1.750	0.875	1/4-18 NPT			
A24U-KKC% ₃ -3	●	●		2.000	1.500	1.366	14.00	1.750	1.000	1/4-18 NPT			
A28U-KKC% ₃ -3	●			2.250	1.750	1.593	14.00	1.750	1.125	1/4-18 NPT			
A32V-KKC% ₃ -3	●	●		2.500	2.000	1.820	16.00	1.750	1.250	1/4-18 NPT			
A28U-KKC% ₄ -4	●	●		2.500	1.750	1.593	14.00	1.750	1.250	1/4-18 NPT			
A32V-KKC% ₄ -4	●	●		2.750	2.000	1.820	16.00	1.750	1.375	1/4-18 NPT			

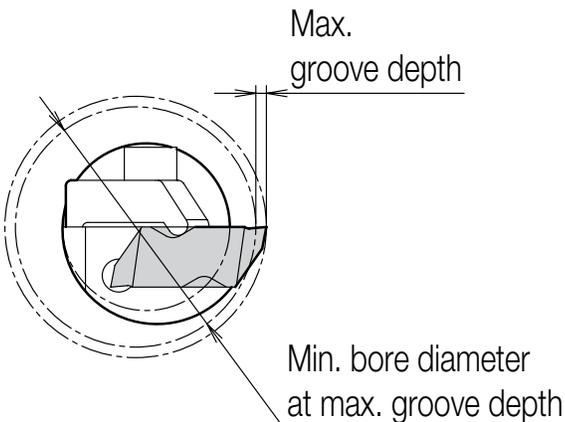
• Note: Right hand bars require left hand inserts and clamps. Left hand bars require right hand inserts and clamps

Also Available for Internal Threading. See Page [J25](#)

Applicable Insert

Toolholder	Insert G84
A-KKC% ₂ ...-2	KCGP-2, KCG-2, KCRP-2
A-KKC% ₃ ...-3	KCGP-3, KCG-3, KCRP-3
A-KKC% ₄ ...-4	KCGP-4, KCRP-4

Cutting Diameter Table



• "CDX" dimension is same as the "CDX dimension" of the available insert.

Insert Size	CDX Dimension	Max Groove Depth	Min Bore Dia.
KCG-2 KCGP-2 KCRP-2	0.050	0.040	1.000
		0.110	2.500
		0.102	1.750
KCG-3 KCGP-3 KCRP-3	0.075	0.098	1.500
		0.080	1.000
		0.050	1.325
	0.094	0.080	1.250
		0.070	1.625
		0.065	1.325
KCGP-4 KCRP-4	0.150	0.140	2.375
		0.135	2.125
		0.128	1.875
	0.250	0.115	1.625
		0.100	1.375
		0.140	2.750
KCGP-4 KCRP-4	0.250	0.240	5.750
		0.235	5.000
		0.230	4.500
		0.208	3.250
		0.190	2.500

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

Face Grooving Dia. (DAXN / DAXX)

Face grooving diameter DAXN (min) ~ DAXX (max) is the suitable range for the initial grooving plunge on the unprocessed workpiece (See Fig.1). Then, you can widen it towards the inside or the outside within the tool's diameter range.

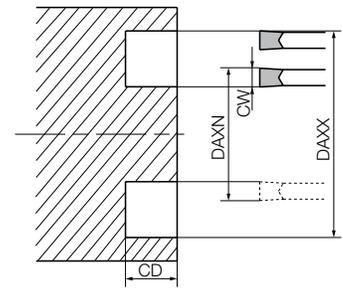
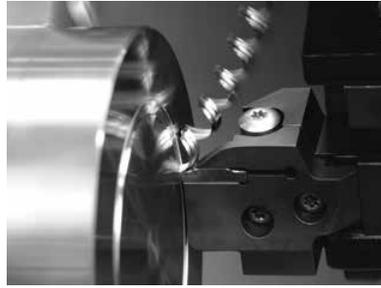
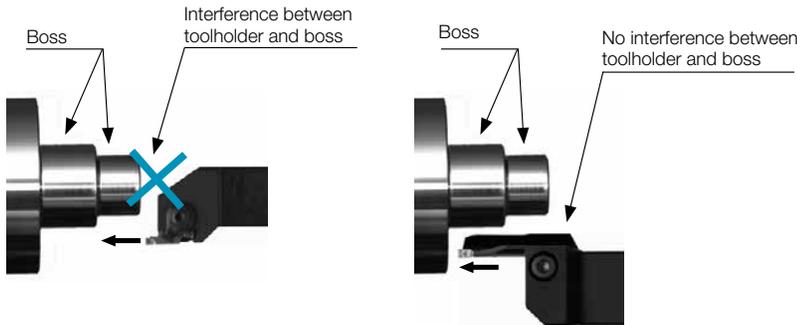


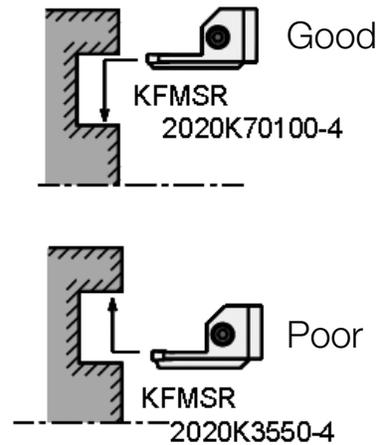
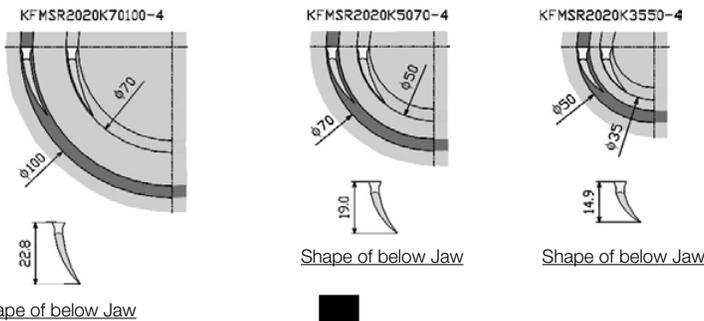
Fig.1

Caution for Face Grooving

1) When face grooving, the suitable toolholder depends on the length of the boss



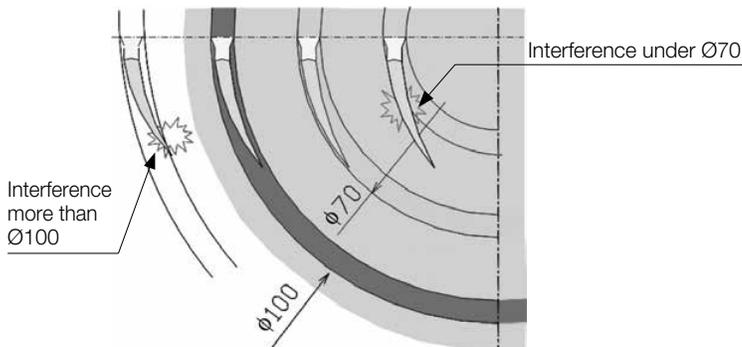
2) Selection of Face Grooving Toolholder



Wider grooving (turning) should be performed from the outside inwards.

3) Interference of Face Grooving Toolholder

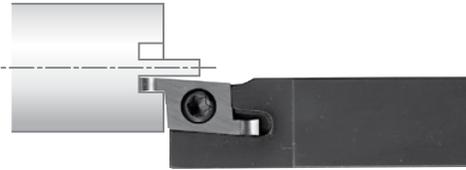
e.g.) KFMSR2525M70100-4



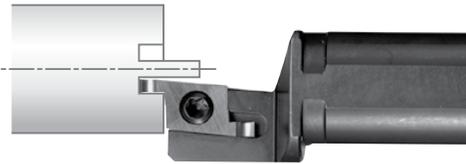
- Example of usage for the face grooving toolholder. When face grooving, KFMSR2525M70100-4 should be plunged between $\varnothing 70\text{mm}$ ~ $\varnothing 100\text{mm}$ starting at the outer diameter and moving towards center. The jaw of toolholder interferes with the workpiece at diameters above $\varnothing 100\text{mm}$ or below $\varnothing 70\text{mm}$.

FACE GROOVING SUMMARY

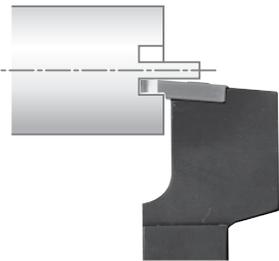
Small Diameter Face Grooving $\varnothing 0.236''$ ($\varnothing 6\text{mm}$)~



Type	STW
Min. Face Groove Dia.	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G94



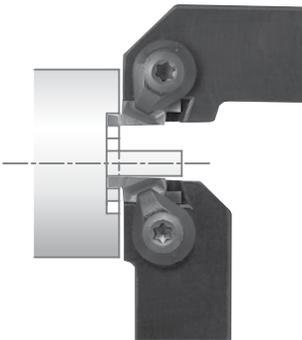
Type	S...-STW
Min. Face Groove Dia.	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G94



Type	STWS
Min. Face Groove Dia.	0.236" (6.0mm)
Edge Width	0.020"~0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"~0.118" (1.0mm ~ 3.0mm)
Ref. Page	G95



Small Diameter Face Grooving $\varnothing 0.315''$ ($\varnothing 8\text{mm}$)~

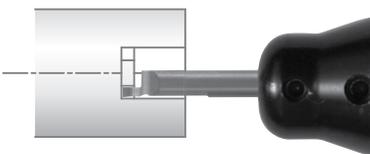


Type	GFVS-AA
Min. Face Groove Dia.	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G124

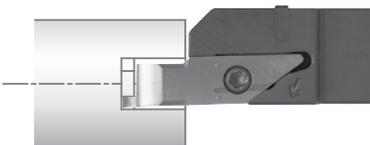
Type	GFVT-AA
Min. Face Groove Dia.	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.0866" (2.2mm)
Ref. Page	G124



Small Diameter Face Grooving $\varnothing 0.197''$ ~, $\varnothing 0.315''$ ~ ($\varnothing 5\text{mm}$ ~, $\varnothing 8\text{mm}$ ~)



Type	EZFG
Min. Face Groove Dia.	0.197", 0.236", 0.315" (5.0mm, 6.0mm, 8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (1.5mm ~ 3.0mm)
Ref. Page	G90



Type	VNFG
Min. Face Groove Dia.	0.315" (8.0mm)
Edge Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"~0.118" (2.0mm ~ 3.0mm)
Ref. Page	G92



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

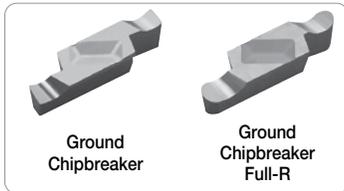
FACE GROOVING SUMMARY

■ Face Grooving $\varnothing 0.787"$ ($\varnothing 20\text{mm}$)~

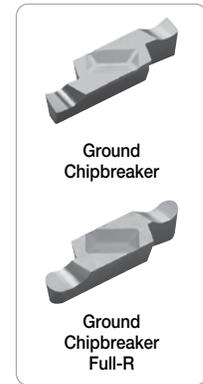


Type	KFTB
Min. Face Groove Dia.	2.559"~9.843" (65.0mm ~ 250.0mm)
Edge Width	0.158"~0.197" (4.0mm ~ 5.0mm)
Grooving Depth	0.984"~1.496" (25.0mm ~ 38.0mm)
Ref. Page	G137

Type	GFVS
Min. Face Groove Dia.	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G128



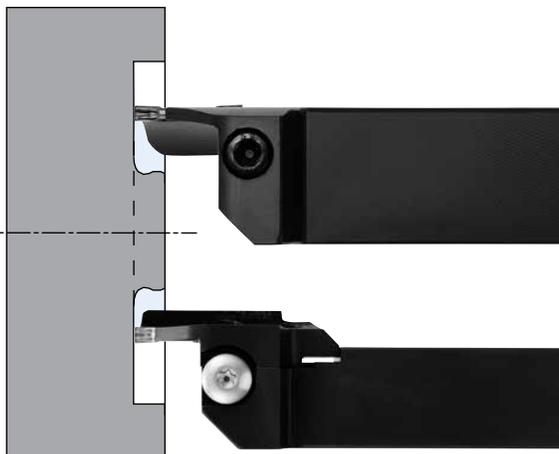
Type	GFV
Min. Face Groove Dia.	0.787"~5.906" (20.0mm ~ 150.0mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm ~ 8.1mm)
Ref. Page	G126



Type	GFVT
Min. Face Groove Dia.	1.378"~5.906" (35.0mm ~ 150.0mm)
Edge Width	0.098"~0.236" (2.5mm ~ 6.0mm)
Grooving Depth	0.181"~0.319" (4.6mm ~ 8.1mm)
Ref. Page	G128

G
GROOVING
EXTERNAL
INTERNAL
FACE

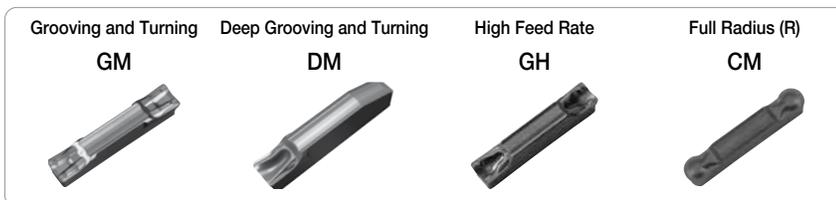
■ KGDF Face Grooving $\varnothing 0.984"$ ($\varnothing 25\text{mm}$)~ (G86~G113)



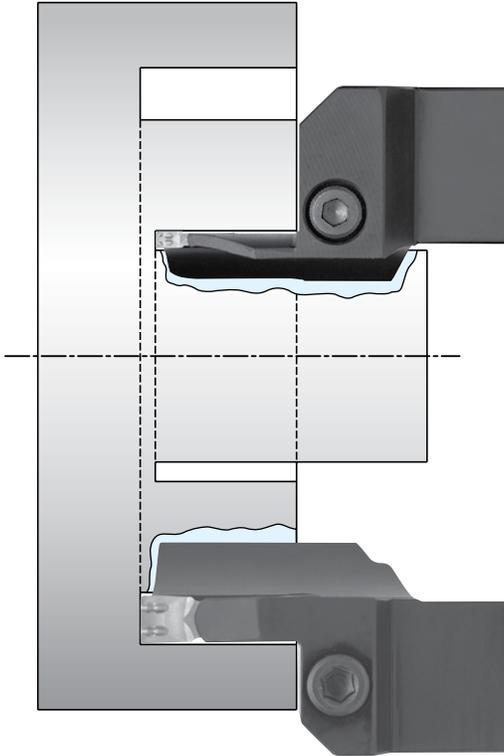
Type	KGDF-Z
Min. Face Groove Dia.	1.969" (50.0mm)
Edge Width	0.118"~0.197" (3.0mm ~ 5.0mm)
Grooving Depth	0.591" (15.0mm)
Ref. Page	G110

Type	*KGDF
Min. Face Groove Dia.	0.984" (25.0mm)
Edge Width	0.079"~0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.236"~1.260" (6.0mm ~ 32.0mm)
Ref. Page	G100

*The SwitchBlade type toolholders can accept all blades if their hand is matching.



■ Face Grooving & Turning Ø0.984" (Ø25mm)~



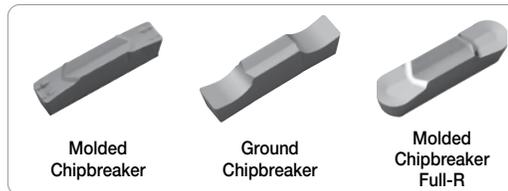
Type	KFMS
Min. Face Groove Dia.	0.984"~9.252" (25.0mm~235.0mm)
Edge Width	0.118"~0.236" (3.0mm ~ 6.0mm)
Grooving Depth	0.512"~1.260" (13.0mm ~ 32.0mm)
Ref. Page	G134



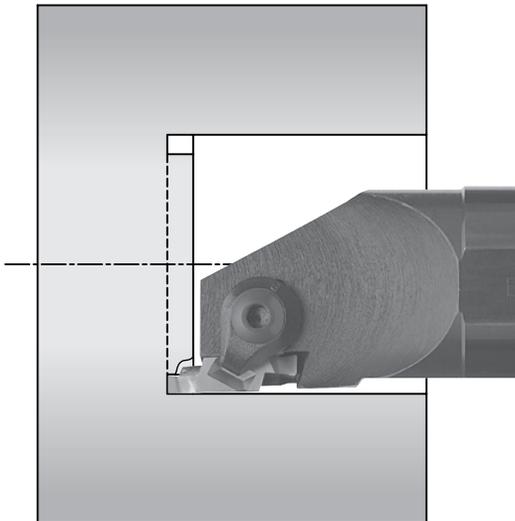
Type	KKCE
Min. Face Groove Dia.	0.940"~1.630"
Edge Width	0.125"~0.189" (3.15mm~4.80mm)
Grooving Depth	0.060"~0.150" (1.52mm~3.81mm)
Ref. Page	G133



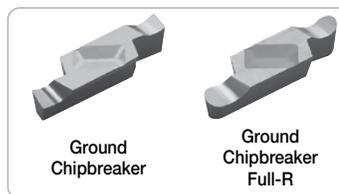
Type	KFMS-8
Min. Face Groove Dia.	2.126"~6.102" (54.0mm~155.0mm)
Edge Width	0.315" (8.0mm)
Grooving Depth	0.984" (25.0mm)
Ref. Page	G136



■ Face Grooving Ø1.378" (Ø35mm)~

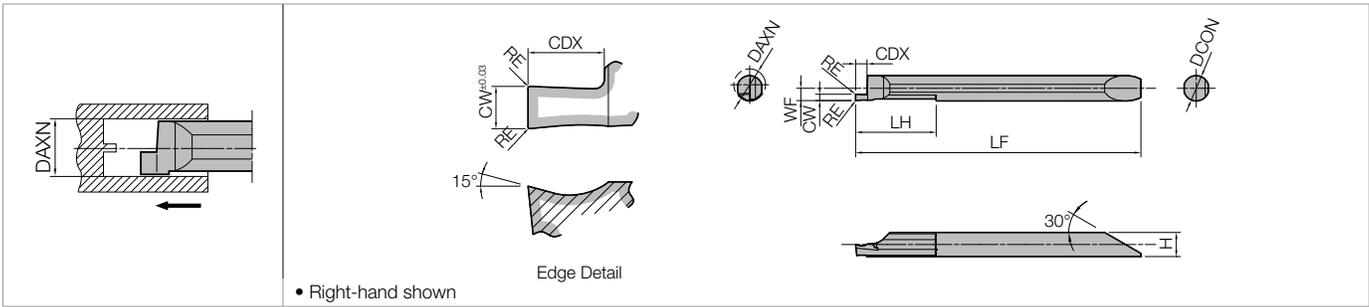


Type	GIFV
Min. Face Groove Dia.	1.378"~1.969" (35.0mm~50.0mm)
Edge Width	0.079"~0.236" (2.0mm~6.0mm)
Grooving Depth	0.087"~0.319" (2.2mm~8.1mm)
Ref. Page	G138



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZFG



• Right-hand shown

Dimensions

Part Number	Min. Face Groove Dia. DAXN	Dimensions (mm)								MEGACOAT		Carbide	Applicable Sleeve G91
		CW ^{±0.03}	RE	DCON	H	LF	LU	WF	CDX	PR1225		GW05	
										R	L	R	
EZFG% 050040-100 050040-150	5	1.0	±0.013 0.05	4	3.8	45.0	12	1.9	1.5	●	●	●	EZH040..
		1.5								●	●	●	
EZFG% 060050-100 060050-150 060050-200	6	1.0	±0.013 0.05	5	4.8	53.2	15	2.4	1.5	●	●	●	EZH050..
		1.5								●	●	●	
		2.0								●	●	●	
EZFG% 080070-100 080070-150 080070-200 080070-300	8	1.0	±0.013 0.05	7	6.8	64.2	25	3.4	2.0	●	●	●	EZH070..
		1.5								●	●	●	
		2.0								●	●	●	
		3.0								●	●	●	

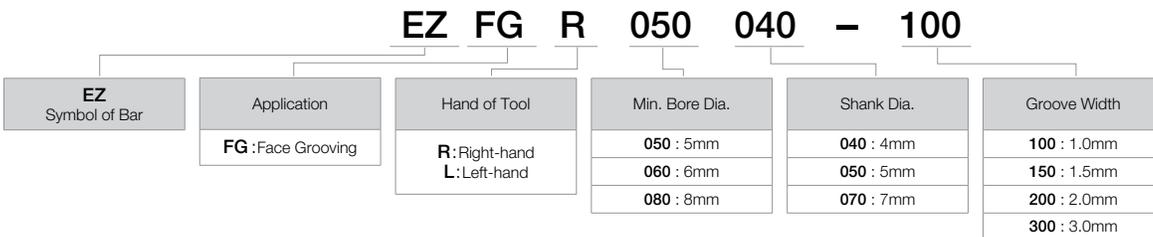
• Dimension CDX shows the available grooving depth.

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc:sfm)		EZFG% 050040-100 EZFG% 060050-100 EZFG% 080070-100	EZFG% 050040-150 EZFG% 060050-150 EZFG% 080070-150	EZFG% 060050-200 EZFG% 080070-200	EZFG% 080070-300	Notes
	MEGACOAT	Carbide					
	PR1225	GW05					
Carbon Steel / Alloy Steel	★ 100~330	-	~0.0008	~0.0012	~0.0016	~0.0020	Wet
Stainless Steel	★ 100~260	-	~0.0004	~0.0008	~0.0008	~0.0012	
Non-Ferrous	-	★ ~980	~0.0012	~0.0020	~0.0024	~0.0031	

★ : 1st Recommendation

EZ-Bar Sleeve Identification System (Face Grooving)



EZ Bars are sold in 1 piece boxes.

FACE GROOVING EZ-BAR SLEEVES

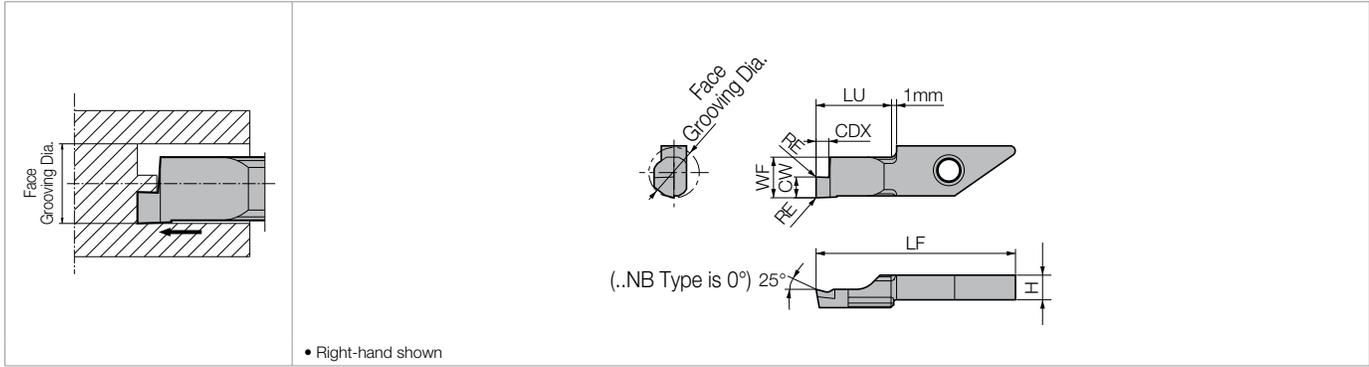
● Applicable Sleeves

Sleeve Part Number			Applicable Bar for Internal Face Grooving		Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) ➔ F30~F31	EZH-HP (Adjustable Overhang Length) ➔ F32~F33	EZH-ST ➔ F34	Sleeve Shank Dia. DCON (mm)	EZFG EZ Bar Shank Dia. DCON (mm)	
-	-	EZH 04012ST-80 05012ST-80 07012ST-80	12.00	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	(General Purpose)
-	EZH 04016HP-100 05016HP-100 07016HP-100	EZH 04016ST-100 05016ST-100 07016ST-100	16.00	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	(General Purpose)
EZH 04019CT-120 05019CT-120 07019CT-120	EZH 04019HP-120 05019HP-120 07019HP-120	EZH 04019ST-120 05019ST-120 07019ST-120	0.750"	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	Citizen Machinery
EZH 04020CT-120 05020CT-120 07020CT-120	EZH 04020HP-120 05020HP-120 07020HP-120	EZH 04020ST-120 05020ST-120 07020ST-120	20.00	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	Amada Machine Tools / Eguro / Tsugami / Citizen Machinery / (General purpose)
EZH 04022CT-135 05022CT-135 07022CT-135	EZH 04022HP-135 05022HP-135 07022HP-135	EZH 04022ST-135 05022ST-135 07022ST-135	22.00	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	Star Micronics / Nomura DS / Tsugami
EZH 04025.0CT-135 05025.0CT-135 07025.0CT-135	EZH 04025.0HP-135 05025.0HP-135 07025.0HP-135	EZH 04025.0ST-135 05025.0ST-135 07025.0ST-135	25.00	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	Amada Machine Tools / Eguro / Tsugami / Citizen Machinery / (General purpose)
EZH 04025.4CT-120 05025.4CT-120 07025.4CT-120	EZH 04025.4HP-120 05025.4HP-120 07025.4HP-120	EZH 04025.4ST-120 05025.4ST-120 07025.4ST-120	1.000"	EZFG [℥] 050040-... 4 EZFG [℥] 060050-... 5 EZFG [℥] 080070-... 7	Citizen Machinery

- Choose sleeves with a **DCON** dimension that matches the **DCB** dimension of the EZ Bar.
- **EZH-ST** sleeves are not adjustable. To adjust overhang of the **EZFG** bars, please use **EZH-CT/HP** sleeves.
- Machine manufacturers in random order.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

VNFG (Swiss IQ Bar)



• Right-hand shown

Dimensions

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	●	○			
M	Stainless Steel	●	○			
K	Cast Iron			●		
N	Non-ferrous Metals			○	●	
S	Titanium Alloy			○	●	
H	Hard materials (≤40HRC)	○	○			
	Hard materials (≥40HRC)					

Ref. Page for Toolholder

Part Number	Face Grooving Dia.		Dimensions (mm)							MEGA COAT	PVD Coated Carbide	Carbide	PCD			
	DAXN (MIN)	DAXX (MAX)	CW ^{+0.001} inch	CW ^{+0.03} mm	RE	H	LF	LU	WF	CDX	PR1225	PR930	KW10	KPD001	KPD010	
VNFGR 0810-10	8 (0)	∞ (∞)	0.039	1.0	0.05	3.9	29.6	10	7.3	2.0	●	●	●			
0820-10			0.079	2.0	0.05	3.9	29.6	10	7.3	2.0		●	●			
0830-10			0.118	3.0	0.05	3.9	29.6	10	7.3	3.0			●	●		
VNFGR 0820-10NB			0.079	2.0	0.05	3.9	29.6	10	7.3	2.0					□	□
0830-10NB			0.118	3.0	0.05	3.9	29.6	10	7.3	3.0					□	□

● F38
 ● F39

- Dimension **CDX** shows the available grooving depth
- Face grooving diameter **DAXN (0)** means that you can make the initial groove within **DAXN** (min) - **DAXX** (max) and then widen it to the center.

Swiss IQ Bars are sold in 5 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)			VNFG0810	VNFG0820	VNFG0830	Notes
	MEGACOAT	PVD Coated Carbide	Carbide				
	PR1225	PR930	KW10	Feed Rate (ipr)			
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330	-	~0.0008	~0.0016	~0.0020	Wet
Stainless Steel	★ 100~260	☆ 100~260	-	~0.0004	~0.0008	~0.0012	
Non-ferrous Metals	-	-	★ ~980	~0.0016	~0.0024	~0.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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MICRO DIA. FACE GROOVING (TWIN BARS)

TWFG (Horizontal Type)

Part Number	Face Grooving Dia.		Dimensions (mm)					Angle (°)	Insert Grade		
	DAXN (MIN)	DAXX (MAX)	CW		RE	CDX	RA		MEGA COAT NANO	PVD Coated Carbide	Carbide
			inch	mm				PR1535	PR1025	KW10	
TWFG 050	6 (0)	8 (8)	0.020	0.50	0.05	1.0	1.5°	●	△	●	
080			0.031	0.80	0.05	1.5	1.5°	●	△	●	
100			0.039	1.00	0.05	2.2	2.0°	●	△	●	
125			0.049	1.25	0.05	2.2	2.0°	●	△	●	
150			0.059	1.50	0.05	2.2	2.0°	●	△	●	
180			0.071	1.80	0.05	3.0	2.0°	●	△	●	
200			0.079	2.00	0.05	3.0	2.0°	●	△	●	

● Left-hand Shown

- Dimension CDX shows the available grooving depth
- Face grooving diameter DAXN (0) means that you can make the initial groove within DAXN (min) - DAXX (max) and then widen it to the center.

STW (Square Shank for Horizontal Type)

Right-hand toolholder for boring, see Page [F42](#)

Fig.1 Fig.2

● Left-hand Shown

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Drawing	Spare Parts		Applicable Inserts Above
		H	HF	B	LF	LH	WF	CDX	Clamp Screw		Wrench		
STWL 1616K-15	●	16	16	16	125	-	16	3	Fig.1	SB-3080TR	LTW-10S	TWFG 000	
INTERNAL 2020K-15	●	20	20	20	125	25	25	3	Fig.2	SB-3080TR	LTW-10S	TWFG 000	
FACE 2525M-15	●	25	25	25	150	25	32	3					

- Dimension CDX shows the distance from the Toolholder to the cutting edge. See dimension CDX of insert table for available Groove Depth.

S...-STW (Round Shank for Horizontal Type)

Right-hand toolholder for boring, see Page [F42](#)

Fig.1 Fig.2

● Left-hand Shown

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Drawing	Spare Parts		Applicable Inserts Above
		DCON	WF	H	LF	LU	LH	CDX	Clamp Screw		Wrench		
S12F- STWL15	●	12.000	20.0	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWFG 000	
S16F- STWL15	●	16.000	20.0	15	85	18	22	3					
S19G- STWL15	●	0.750"	18.5	17	90	18	-	3	Fig.2	SB-3080TR	LTW-10S	TWFG 000	
S19K- STWL15	●	0.750"	18.5	17	120	18	-	3					
S20K- STWL15	●	20.000	19.5	18	120	18	-	3					
S22K- STWL15	●	22.000	21.5	20	125	22	-	3					
S25.0J- STWL15	●	25.000	24.5	23	110	22	-	3					
S25K- STWL15	●	1.000"	25.0	23	120	22	-	3					

- Dimension CDX shows the distance from the Toolholder to the cutting edge. See dimension CDX of insert table for available Groove Depth.

Twin Bars are sold in 5 piece boxes

MICRO DIA. FACE GROOVING (TWIN BARS)

TWFGT (Vertical Type)

Part Number	Face Grooving Dia.		Dimensions (mm)					Angle (°)	Insert Grade		
	DAXN (MIN)	DAXX (MAX)	CW		RE	CDX	RA		MEGA COAT NANO	PVD Coated Carbide	Carbide
			inch	mm				PR1535	PR1025	KW10	
TWFGTR 050			0.020	0.50	0.05	1.0	1.5°	●	△	●	
080			0.031	0.80	0.05	1.5	1.5°	●	△	●	
100			0.039	1.00	0.05	2.2	2.0°	●	△	●	
125			0.049	1.25	0.05	2.2	2.0°	●	△	●	
150			0.059	1.50	0.05	2.2	2.0°	●	△	●	
180			0.071	1.80	0.05	3.0	2.0°	●	△	●	
200			0.079	2.00	0.05	3.0	2.0°	●	△	●	

• Right-hand shown

- Dimension **CDX** shows the available grooving depth
- Face grooving diameter **DAXN (0)** means that you can make the initial groove within **DAXN (min)** - **DAXX (max)** and then widen it to the center.

STWS (Square Shank for Vertical Type : L-Shape)

• Right-hand shown

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Spare Parts		Applicable Inserts
		H	HF	B	LF	LU	WF	HBKW	CDX	Clamp Screw	Wrench	
STWSR 1010JX-15T	●	10	10	10	120	16	10	9	3	SB-3080TR	LTW-10S	TWFGTR ○○○
1212JX-15T	●	12	12	12	120	16	12	7				
1616JX-15T	●	16	16	16	120	20	16	3				
STWSR 1010F-15T	●	10	10	10	85	16	10	9				
1212F-15T	●	12	12	12	85	16	12	7				

- Dimension **CDX** shows the distance from the Toolholder to the cutting edge. See dimension **CDX** of insert table for available Groove Depth.

Recommended Cutting Conditions (TWFG / TWFGT)

Workpiece Material	Recommended Insert Grade (Vc sfm)			TWFGL050 TWFGL080 TWFGL100 TWFGTR050 TWFGTR080 TWFGTR100	TWFGL125 TWFGL150 TWFGTR125 TWFGTR150	TWFGL180 TWFGL200 TWFGTR180 TWFGTR200	Notes
	MEGACOAT NANO	PVD Coated Carbide	Carbide				
	PR1535	PR1025	KW10				
Carbon Steel / Alloy Steel	★ 100~330	☆ 100~330	-	~0.0008	~0.0012	~0.0016	Wet
Stainless Steel	★ 100~260	☆ 100~260	-	~0.0004	~0.0008	~0.0008	
Non-ferrous Metals	-	-	★ ~980	~0.0012	~0.0016	~0.0024	

★ : 1st Recommendation

Twin Bars are sold in 5 piece boxes

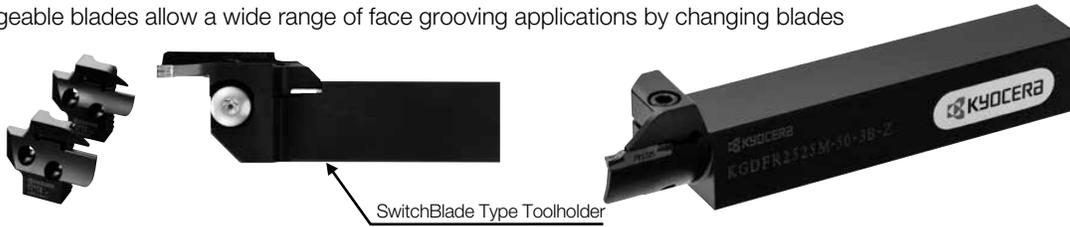
INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
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Features

SwitchBlade type toolholder (toolholder + blade) and Integral type toolholder are available.

Interchangeable blades allow a wide range of face grooving applications by changing blades

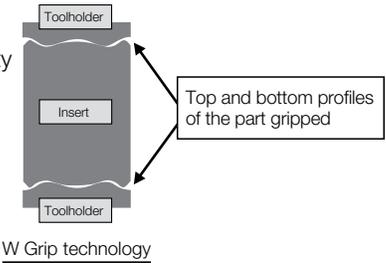


New insert clamping system "W Grip"

Unique "W Grip" (insert anti-slip structure) provides rigid clamping for stable machining quality

- 1) Prevents abnormal machining surface and / or insert breakage resulting from insert slippage.
- 2) Improves repeat accuracy of insert installation

GDFM and GDFMS inserts are not applicable to KGD external grooving and cut-off toolholders.



Smooth chip control

GM chipbreaker for general purpose, GH chipbreaker for high speed grooving, and DM chipbreaker for deep grooving

Advantages of Chipbreaker

For General Purpose GM Chipbreaker

- Smooth surface from cutting edge to the far side
Enhances breaking of chips and maintains a constant evacuation direction.
- Gradually raised surface.
Keeps curling of chips in constant shape.
- Flat cutting edge line
Improves chip control.
- Steep surface near the cutting edge
Good chip control during shoulder grooving.

For High Feed Grooving GH Chipbreaker

- Concave part in middle
Control chips upward.
- Dots juttred out center side
Changes chip shape smoothly.
Good chip control during shoulder grooving.
- Slope portion
Constantly curled chips.
- Negative cutting edge line
Improvement of strong edge.
- Curved lead edge
Keeps chips in constant shape.

For Deep Grooving DM Chipbreaker

- Concave part in middle
Enhances breaking of chips.
- Inflated inner surface
Enhances breaking of chips and maintains a constant evacuation direction.
- Smooth surface up to the far side standing wall
Reduces cutting force, enhances breaking of chips and maintains their evacuation in constant direction.

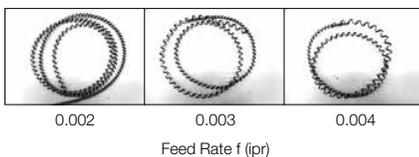
G
GROOVING
EXTERNAL
INTERNAL
FACE

Chip Control of GM Chipbreaker

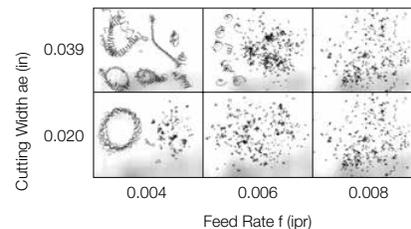
<Cutting Conditions>

Vc=490sfm f=0.002~0.008ipr GDFM5020N-040GM 4118 Wet

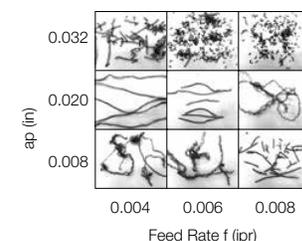
Face Grooving(Ø2.440" / Ø62)



Side Grooving



Turning



High precision edge preparation

- ➔ High precision molding technology with tolerance $\pm 0.03\text{mm}$ (Edge width 2, 3, 4mm types)

Highly-reputed MEGACOAT technology

- ➔ Long tool life and high efficiency machining achieved by superior oxidation resistance and wear resistance.

GDFM / GDFMS

Usage Classification

- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- : Continuous / 1st Choice
- : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	●	●	○
M	Stainless Steel		●	○
K	Cast Iron			●
N	Non-ferrous Metals			
S	Titanium Alloy			
H	Hard materials (≤40HRC)			
	Hard materials (≥40HRC)			

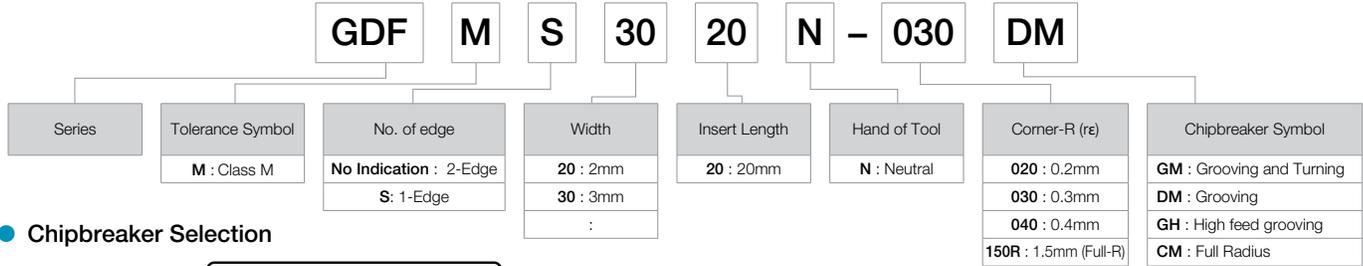
Insert	Part Number	Dimensions (in)						Cermet		MEGA COAT	Ref. Page for Toolholder	
		CW			RE	INSL	S	TN620	TN90	PR1225		PR1215
		in	mm	Tolerance								
Grooving and Turning	GDFM 2020N-020GM	0.079	2.0		0.008	0.827	0.154			●		
	3020N-030GM	0.118	3.0	±0.0012	0.012		0.169		●	●		
	4020N-040GM	0.157	4.0		0.016				●	●		
	5020N-040GM	0.197	5.0		0.016	0.787	0.177		●	●		
	5020N-080GM	0.197	5.0		0.031				●	●	●	
	6020N-040GM	0.236	6.0	±0.0016	0.016				●	●	●	
6020N-080GM	0.236	6.0		0.031				●	●	●		
Grooving and Turning (High Feed)	GDFM 4020N-040GH	0.157	4.0	±0.0012	0.016					●	●	
	5020N-040GH	0.197	5.0		0.016	0.787	0.177			●	●	
	5020N-080GH	0.197	5.0		0.031				●	●	●	
	6020N-040GH	0.236	6.0	±0.0016	0.016				●	●	●	
	6020N-080GH	0.236	6.0		0.031				●	●	●	
	Deep Grooving and Turning	GDFM 3020N-030DM	0.118	3.0	±0.0012	0.012	0.787	0.169		●	●	●
4020N-040DM		0.157	4.0		0.016				●	●	●	
5020N-040DM		0.197	5.0	±0.0016	0.016				●	●	●	
6020N-040DM		0.236	6.0		0.016				●	●	●	
Deep Grooving and Turning (1-Edge)	GDFMS 3020N-030DM	0.118	3.0	±0.0012	0.012	0.787	0.177		●	●	●	
	4020N-040DM	0.157	4.0		0.016				●	●	●	
	5020N-040DM	0.197	5.0	±0.0016	0.016				●	●	●	
	6020N-040DM	0.236	6.0		0.016				●	●	●	
Full Radius (R) Grooving	GDFM 3020N-150R-CM	0.118	3.0	±0.0012	0.059	0.787	0.169	●		●	●	
	4020N-200R-CM	0.157	4.0		0.079	*0.827		●		●	●	
	5020N-250R-CM	0.197	5.0	±0.0016	0.098	*0.827	0.177	●		●	●	
	6020N-300R-CM	0.236	6.0		0.118	*0.866		●		●	●	

*GDFM 40/50/60-CM (Full R) have different INSL dimensions than other models to prevent interference between the holder and the workpiece.

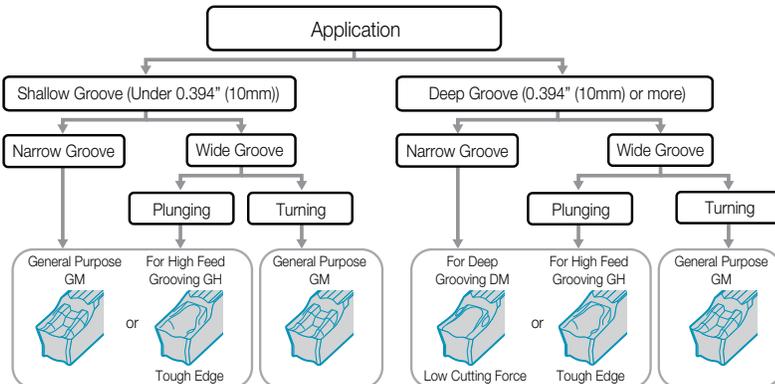
Recommended Cutting Conditions **G122**

Inserts are sold in 10 piece boxes.

Inserts Identification System



Chipbreaker Selection

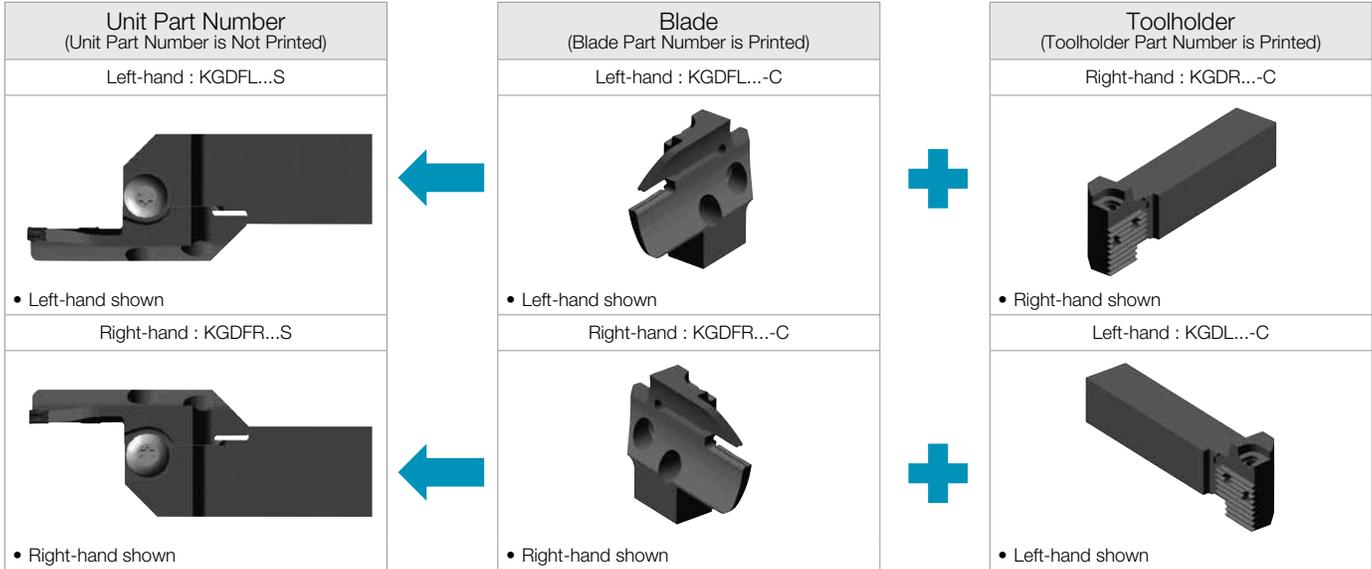


* If chip control is not stable when grooving with the general purpose GM chipbreaker, change the chipbreaker to the DM chipbreaker for deep grooving or GH chipbreaker for high feed grooving.

FACE GROOVING TOOLHOLDERS (SWITCHBLADE TYPE)

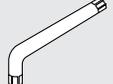
KGDF

Toolholder Assembly Identification



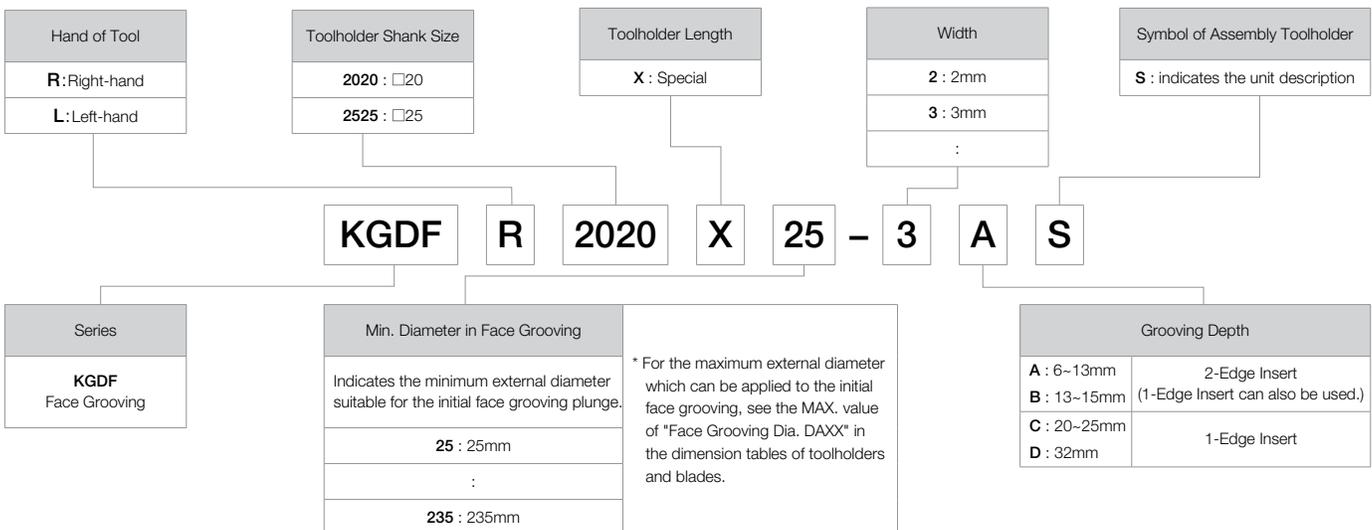
- **Right-hand** Blade for **Left-hand** Toolholder, **Left-hand** Blade for **Right-hand** Toolholder.
- The Unit Part Number is not printed on the product. It is printed on the box label.
- Combination of the toolholder and blade (both sold separately) can make up the corresponding assembly.
- The insert clamping screw (BH6X10TR), blade fixing screw (SB-60120TR) and wrench (LTW-25) are included with the toolholder.

Spare Parts (Common with SwitchBlade Holders)

Unit Part Number	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGDF ^{R/L} ...S			
	BH6X10TR	SB-60120TR	LTW-25

* The spare parts above are included with the toolholder and unit.

Face Grooving Toolholder Assembly Identification System (Face Grooving - SwitchBlade)



FACE GROOVING TOOLHOLDERS (SWITCHBLADE TYPE)

◆ Face Grooving Dia. (DAXN / DAXX)

Face grooving diameter DAXN (min) ~ DAXX (max) is the suitable range for the initial grooving plunge on the unprocessed workpiece (See Fig. 1).
Then, you can widen it towards the inside or the outside within the tool's diameter range.

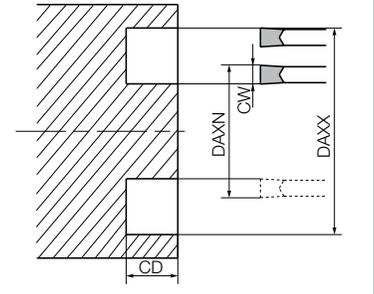
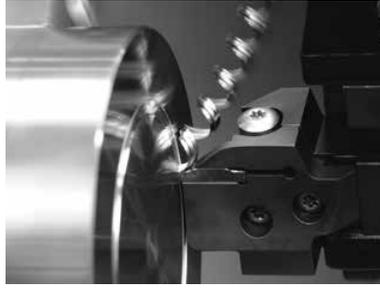


Fig.1

◆ Limit of Turning toward Center

Turning towards the Center causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

	Part Number	DMIN ₂ (mm)			
		25	26	27	28 and over
		Ød (mm)			
Remaining Boss Dia. Ød	KGDF [®] /L 2020X25-3AS	4	2	0	(No Remaining Boss)
	2525X25-3AS				
	KGDF [®] /L 2020X25-4AS	6	3	0	
	2525X25-4AS				
	KGDF [®] /L 2020X25-5AS	7	4	1	
	2525X25-5AS				
	KGDF [®] /L 2020X25-6AS	9	4	1	
	2525X25-6AS				

e.g.)

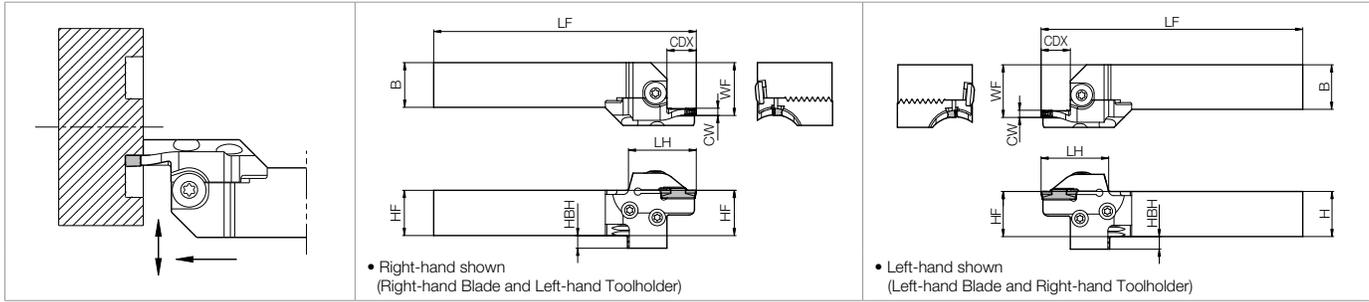
If a groove of external diameter Ø25mm is created using KGDFR2020X25-3AS and turning is made toward the inside, a Ø4mm portion will be left in the middle due to interference from toolholder.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Inch-Size)

0.079" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)														
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*							
0°	0.079 (2mm)	□0.75	0.236 (6mm)	0.984	1.181	No Unit Part Number ➔	KGDL12-C	●		KGDFR -25-2A-C	●	0.750	0.750	0.510	0.750	4.528	1.299	0.927	0.236 (6mm)								
				-30-2A-C	●																						
				-35-2A-C	●																						
				-45-2A-C	●																						
				-60-2A-C	●																						
				-80-2A-C	●																						
			-100-2A-C	●																							
			0.512 (13mm)	0.984	1.181					KGDFR -25-2B-C	●									0.750	0.750	0.510	0.750	4.646	1.417	0.927	0.512 (13mm)
				1.181	1.378					KGDFR -30-2B-C	●																
				1.378	1.772					-35-2B-C	●																
				1.772	2.362					-45-2B-C	●									0.750	0.750	0.510	0.750	4.724	1.496	0.927	0.591 (15mm)
				2.362	3.150					-60-2B-C	●																
		3.150		3.937	-80-2B-C	●																					
		3.937	5.118	-100-2B-C	●																						
		□1.00	0.236 (6mm)	0.984	1.181	No Unit Part Number ➔	KGDL16-C	●		KGDFR -25-2A-C	●	1.000	1.000	0.260	1.000	5.512	1.299	1.177	0.236 (6mm)								
				1.181	1.378					-30-2A-C	●																
				1.378	1.772					-35-2A-C	●																
				1.772	2.362					-45-2A-C	●																
				2.362	3.150					-60-2A-C	●																
				3.150	3.937					-80-2A-C	●																
			3.937	5.118	-100-2A-C					●																	
			0.512 (13mm)	0.984	1.181					KGDFR -25-2B-C	●									1.000	1.000	0.260	1.000	5.630	1.417	1.177	0.512 (13mm)
				1.181	1.378					KGDFR -30-2B-C	●																
				1.378	1.772					-35-2B-C	●																
1.772	2.362			-45-2B-C	●					1.000	1.000									0.260	1.000	5.709	1.496	1.177	0.591 (15mm)		
2.362	3.150			-60-2B-C	●																						
3.150	3.937	-80-2B-C		●																							
3.937	5.118	-100-2B-C	●																								

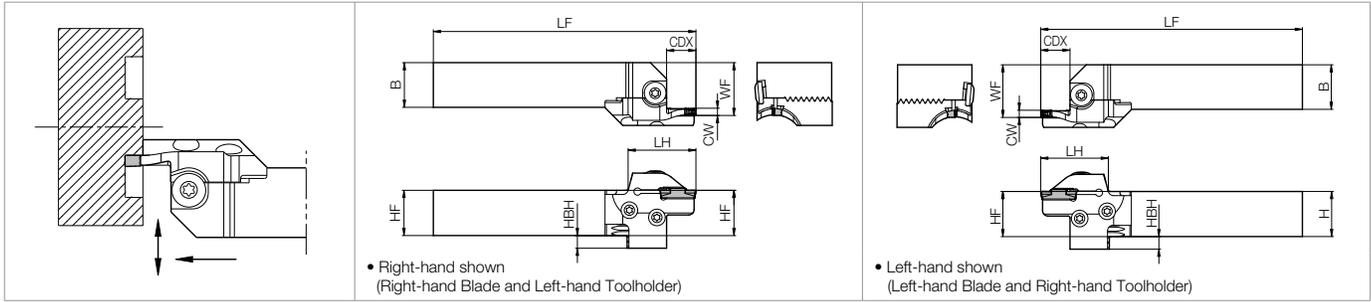
Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see G98

Applicable Inserts G97

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Inch-Size)

0.118" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)															
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*								
0°	0.118 (3mm)	□0.75	0.512 (13mm)	0.984	1.181	No Unit Part Number ➔	KGDL12-C	●			KGDFR -25-3A-C	●	0.750	0.750	0.510	0.750	4.650	1.420	0.927	0.512 (13mm)								
				-30-3A-C	●																							
				-40-3A-C	●																							
			-50-3B-C	●																								
			-65-3B-C	●																								
			-85-3B-C	●																								
		-110-3B-C	●																									
		KGDFR -50-3C-C	●	0.750	0.750						0.510	0.750									5.000	1.770	0.927	0.866 (22mm)				
		-65-3C-C	●																									
		-85-3C-C	●																									
		-110-3C-C	●																									
		□1.00	0.512 (13mm)																						0.984	1.181	No Unit Part Number ➔	KGDL16-C
	-30-3A-C					●																						
	-40-3A-C					●																						
	-50-3B-C		●																									
	-65-3B-C		●																									
	-85-3B-C		●																									
	-110-3B-C	●																										
	KGDFR -50-3C-C	●	1.000			1.000	0.260	1.000	5.980	1.770			1.177	0.866 (22mm)														
	-65-3C-C	●																										
	-85-3C-C	●																										
	-110-3C-C	●																										
	□1.00	0.512 (13mm)		0.984	1.181						No Unit Part Number ➔	KGDR12-C			●				KGDFL -25-3A-C	●	0.750	0.750	0.510	0.750	4.720	1.500							0.927	0.591 (15mm)
				-30-3A-C	●																							
-40-3A-C				●																								
-50-3B-C		●																										
-65-3B-C		●																										
-85-3B-C		●																										
-110-3B-C	●																											
KGDFL -50-3C-C	●	0.750		0.750	0.510														0.750	5.000							1.770	0.927	0.866 (22mm)
-65-3C-C	●																											
-85-3C-C	●																											
-110-3C-C	●																											
□1.00	0.512 (13mm)		0.984			1.181	No Unit Part Number ➔	KGDR16-C	●																			
			-30-3A-C			●																						
			-40-3A-C			●																						
	-50-3B-C		●																									
	-65-3B-C		●																									
	-85-3B-C		●																									
-110-3B-C	●																											
KGDFL -50-3C-C	●		1.000			1.000					0.260	1.000			5.980	1.770	1.177	0.866 (22mm)										
-65-3C-C	●																											
-85-3C-C	●																											
-110-3C-C	●																											
□1.00	0.512 (13mm)	0.984		1.181	No Unit Part Number ➔														KGDFL -25-3A-C	●				KGDFL -25-3A-C	●	1.000	1.000	0.260	1.000	6.100	1.890		1.177	0.984 (25mm)
		-30-3A-C		●																								
		-40-3A-C		●																								
	-50-3B-C	●																										
	-65-3B-C	●																										
	-85-3B-C	●																										
-110-3B-C	●																											
KGDFL -50-3C-C	●	1.000		1.000			0.260	1.000	6.100	1.890			1.177	0.984 (25mm)														
-65-3C-C	●																											
-85-3C-C	●																											
-110-3C-C	●																											

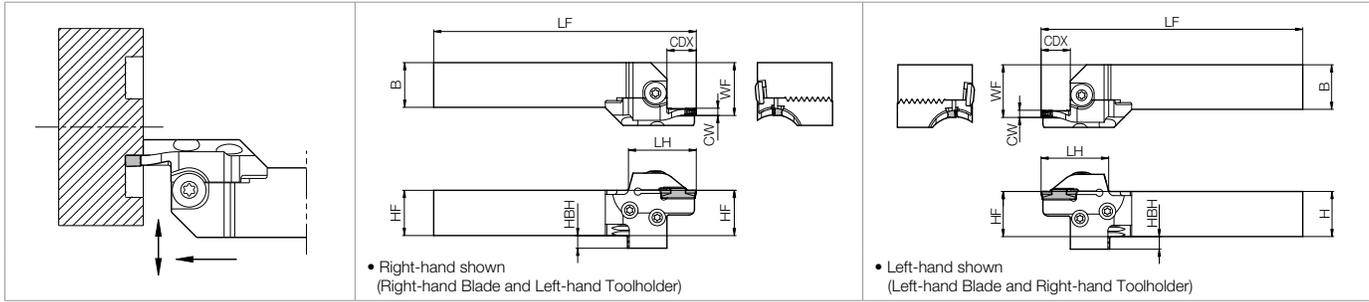
Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see **G98**

Applicable Inserts **G97**

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Inch-Size)

0.157" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number ● G37	Stock		Blade Part Number ● G121	Stock		Dimensions (in)														
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*							
0°	0.157 (4mm)	□0.75	0.512 (13mm)	0.984	1.378	No Unit Part Number ➔	KGDL12-C	●			KGDFR -25-4A-C	●	0.750	0.750	0.510	0.750	4.650	1.420	0.927	0.512 (13mm)							
				-35-4B-C	●																						
				-50-4B-C	●																						
			-70-4B-C	●	0.750						0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)										
			-100-4B-C	●																							
			-150-4B-C	●																							
		-220-4B-C	●																								
		KGDFR -35-4C-C	●																								
		-50-4C-C	●																								
		-70-4C-C	●	0.750	0.750						0.510	0.750	5.120	1.890	0.927	0.984 (25mm)											
		-100-4C-C	●																								
		-150-4C-C	●																								
	-220-4C-C	●																									
	0.157 (4mm)	□1.00	0.512 (13mm)	0.984	1.378	No Unit Part Number ➔	KGDL16-C	●			KGDFR -25-4A-C	●	1.000	1.000	0.260	1.000	5.630	1.420	1.177	0.512 (13mm)							
				-35-4B-C	●																						
				-50-4B-C	●																						
			-70-4B-C	●	1.000						1.000	0.260	1.000	5.710	1.500	1.177	0.591 (15mm)										
			-100-4B-C	●																							
			-150-4B-C	●																							
		-220-4B-C	●																								
		KGDFR -35-4C-C	●																								
		-50-4C-C	●																								
		-70-4C-C	●	1.000	1.000						0.260	1.000	6.100	1.890	1.177	0.984 (25mm)											
		-100-4C-C	●																								
-150-4C-C		●																									
-220-4C-C	●																										
0°	0.157 (4mm)	□0.75	0.512 (13mm)	0.984	1.378	No Unit Part Number ➔	KGDR12-C	●			KGDFL -25-4A-C	●	0.750	0.750	0.510	0.750	4.650	1.420	0.927	0.512 (13mm)							
				-35-4B-C	●																						
				-50-4B-C	●																						
			-70-4B-C	●	0.750						0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)										
			-100-4B-C	●																							
			-150-4B-C	●																							
		-220-4B-C	●																								
		KGDFL -35-4C-C	●																								
		-50-4C-C	●																								
		-70-4C-C	●	0.750	0.750						0.510	0.750	5.120	1.890	0.927	0.984 (25mm)											
		-100-4C-C	●																								
		-150-4C-C	●																								
	-220-4C-C	●																									
	0.157 (4mm)	□1.00	0.512 (13mm)	0.984	1.378	No Unit Part Number ➔	KGDR16-C	●			KGDFL -25-4A-C	●	1.000	1.000	0.260	1.000	5.630	1.420	1.177	0.512 (13mm)							
				-35-4B-C	●																						
				-50-4B-C	●																						
			-70-4B-C	●	1.000						1.000	0.260	1.000	5.710	1.500	1.177	0.591 (15mm)										
			-100-4B-C	●																							
			-150-4B-C	●																							
		-220-4B-C	●																								
		KGDFL -35-4C-C	●																								
		-50-4C-C	●																								
		-70-4C-C	●	1.000	1.000						0.260	1.000	6.100	1.890	1.177	0.984 (25mm)											
		-100-4C-C	●																								
-150-4C-C		●																									
-220-4C-C	●																										

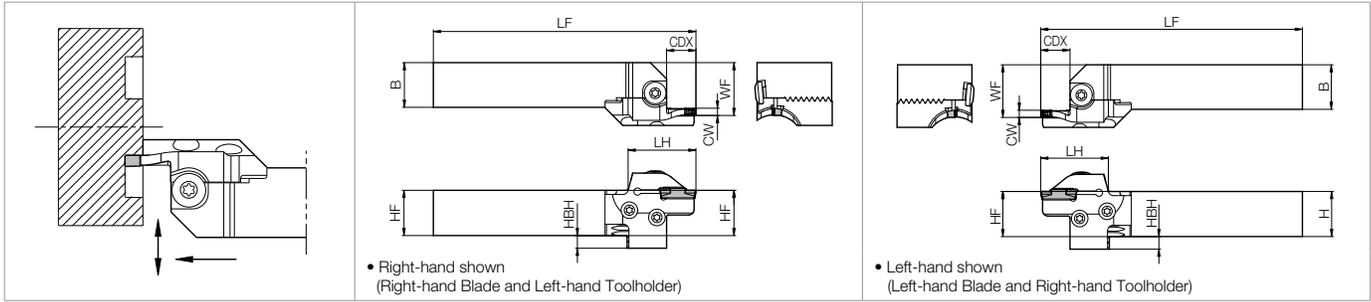
Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see ● **G98**

Applicable Inserts ● **G97**

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Inch-Size)

0.197" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)											
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*				
0°	0.197 (5mm)	□0.75	0.591 (15mm)	0.984	1.378	No Unit Part Number →	KGDL12-C	●			KGDFR -25-5B-C	●	0.750	0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)				
				-35-5B-C	●																			
				-50-5B-C	●																			
				-75-5B-C	●																			
				-115-5B-C	●																			
				-180-5B-C	●																			
		-235-5B-C	●																					
		KGDFR -25-5C-C	●	0.750	0.750						0.510	0.750									4.920	1.690	0.927	0.787 (20mm)
		-35-5C-C	●																					
		-50-5C-C	●																					
		-75-5C-C	●																					
		-115-5C-C	●																					
	-180-5C-C	●																						
	-235-5C-C	●																						
	KGDFR -25-5B-C	●	1.000	1.000	0.260	1.000	5.700	1.500	1.177	0.591 (15mm)														
	-35-5B-C	●																						
	-50-5B-C	●																						
	-75-5B-C	●																						
	-115-5B-C	●																						
	-180-5B-C	●																						
	-235-5B-C	●																						
	KGDFR -25-5C-C	●	1.000	1.000	0.260	1.000	5.900	1.690	1.177	0.787 (20mm)														
	-35-5C-C	●																						
	-50-5C-C	●																						
-75-5C-C	●																							
-115-5C-C	●																							
-180-5C-C	●																							
-235-5C-C	●																							
0.197 (5mm)	□1.00	0.591 (15mm)	0.984	1.378	No Unit Part Number →	KGDL16-C	●			KGDFR -25-5B-C	●	1.000	1.000	0.260	1.000	6.100	1.890	1.177	0.984 (25mm)					
			-35-5B-C	●																				
			-50-5B-C	●																				
			-75-5B-C	●																				
			-115-5B-C	●																				
			-180-5B-C	●																				
	-235-5B-C	●																						
	KGDFR -25-5C-C	●	1.000	1.000						0.260	1.000	6.100	1.890	1.177	0.984 (25mm)									
	-35-5C-C	●																						
	-50-5C-C	●																						
	-75-5C-C	●																						
	-115-5C-C	●																						
-180-5C-C	●																							
-235-5C-C	●																							
0°	0.197 (5mm)	□0.75	0.591 (15mm)	0.984	1.378	No Unit Part Number →	KGDR12-C	●			KGDFL -25-5B-C	●	0.750	0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)				
				-35-5B-C	●																			
				-50-5B-C	●																			
				-75-5B-C	●																			
				-115-5B-C	●																			
				-180-5B-C	●																			
		-235-5B-C	●																					
		KGDFL -25-5C-C	●	0.750	0.750						0.510	0.750									5.120	1.890	0.927	0.984 (25mm)
		-35-5C-C	●																					
		-50-5C-C	●																					
		-75-5C-C	●																					
		-115-5C-C	●																					
	-180-5C-C	●																						
	-235-5C-C	●																						
	KGDFL -25-5B-C	●	1.000	1.000	0.260	1.000	5.700	1.500	1.177	0.591 (15mm)														
	-35-5B-C	●																						
	-50-5B-C	●																						
	-75-5B-C	●																						
	-115-5B-C	●																						
	-180-5B-C	●																						
	-235-5B-C	●																						
	KGDFL -25-5C-C	●	1.000	1.000	0.260	1.000	5.900	1.690	1.177	0.787 (20mm)														
	-35-5C-C	●																						
	-50-5C-C	●																						
-75-5C-C	●																							
-115-5C-C	●																							
-180-5C-C	●																							
-235-5C-C	●																							
0.197 (5mm)	□1.00	0.591 (15mm)	0.984	1.378	No Unit Part Number →	KGDR16-C	●			KGDFL -25-5B-C	●	1.000	1.000	0.260	1.000	6.100	1.890	1.177	0.984 (25mm)					
			-35-5B-C	●																				
			-50-5B-C	●																				
			-75-5B-C	●																				
			-115-5B-C	●																				
			-180-5B-C	●																				
	-235-5B-C	●																						
	KGDFL -25-5C-C	●	1.000	1.000						0.260	1.000	6.100	1.890	1.177	0.984 (25mm)									
	-35-5C-C	●																						
	-50-5C-C	●																						
	-75-5C-C	●																						
	-115-5C-C	●																						
-180-5C-C	●																							
-235-5C-C	●																							

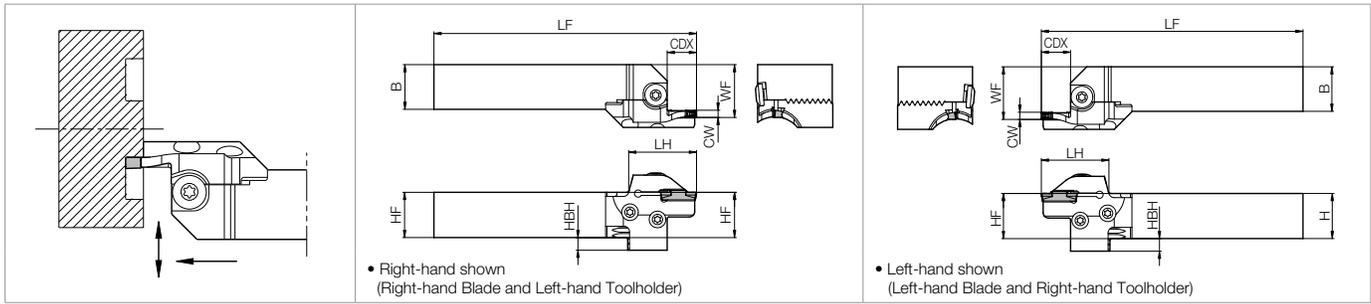
Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see G98

Applicable Inserts G97

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Inch-Size)

0.236" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number ● G37	Stock		Blade Part Number ● G121	Stock		Dimensions (in)															
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*								
0°	0.236 (6mm)	□0.75	0.591 (15mm)	0.984	1.378	No Unit Part Number ➔	KGDL12-C	●			KGDFR -25-6B-C	●	0.750	0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)								
				-35-6B-C	●																							
				-50-6B-C	●																							
				-75-6B-C	●																							
				-115-6B-C	●																							
				-180-6B-C	●																							
		-235-6B-C	●																									
		KGDFR -25-6C-C	●	0.750	0.750						0.510	0.750									4.920	1.690	0.927	0.787 (20mm)				
		-35-6C-C	●																									
		-50-6C-C	●																									
		-75-6C-C	●																									
		-115-6C-C	●																									
	-180-6C-C	●																										
	-235-6C-C	●																										
	□1.00	0.591 (15mm)	0.984			1.378	No Unit Part Number ➔	KGDL16-C	●						KGDFR -25-6B-C	●	1.000	1.000	0.260	1.000					5.700	1.500	1.177	0.591 (15mm)
			-35-6B-C			●																						
			-50-6B-C			●																						
			-75-6B-C			●																						
			-115-6B-C			●																						
			-180-6B-C	●																								
	-235-6B-C	●																										
	KGDFR -25-6C-C	●	1.000	1.000	0.260	1.000					5.900	1.690			1.177	0.787 (20mm)												
	-35-6C-C	●																										
	-50-6C-C	●																										
-75-6C-C	●																											
-115-6C-C	●																											
-180-6C-C	●																											
-235-6C-C	●																											
0.236 (6mm)	□0.75	0.591 (15mm)					0.984	1.378	No Unit Part Number ➔	KGDR12-C			●						KGDFL -25-6B-C	●	0.750	0.750	0.510	0.750	4.720	1.500	0.927	0.591 (15mm)
							-35-6B-C	●																				
							-50-6B-C	●																				
							-75-6B-C	●																				
							-115-6B-C	●																				
			-180-6B-C	●																								
	-235-6B-C	●																										
	KGDFL -25-6C-C	●	0.750	0.750	0.510	0.750	4.920	1.690			0.927	0.787 (20mm)																
	-35-6C-C	●																										
	-50-6C-C	●																										
	-75-6C-C	●																										
	-115-6C-C	●																										
-180-6C-C	●																											
-235-6C-C	●																											
□1.00	0.591 (15mm)	0.984							1.378	No Unit Part Number ➔			KGDR16-C	●				KGDFL -25-6B-C	●	1.000	1.000	0.260	1.000	5.700	1.500	1.177	0.591 (15mm)	
		-35-6B-C							●																			
		-50-6B-C							●																			
		-75-6B-C							●																			
		-115-6B-C							●																			
		-180-6B-C	●																									
-235-6B-C	●																											
KGDFL -25-6C-C	●	1.000	1.000	0.260	1.000	6.100	1.890	1.177	0.984 (25mm)																			
-35-6C-C	●																											
-50-6C-C	●																											
-75-6C-C	●																											
-115-6C-C	●																											
-180-6C-C	●																											
-235-6C-C	●																											

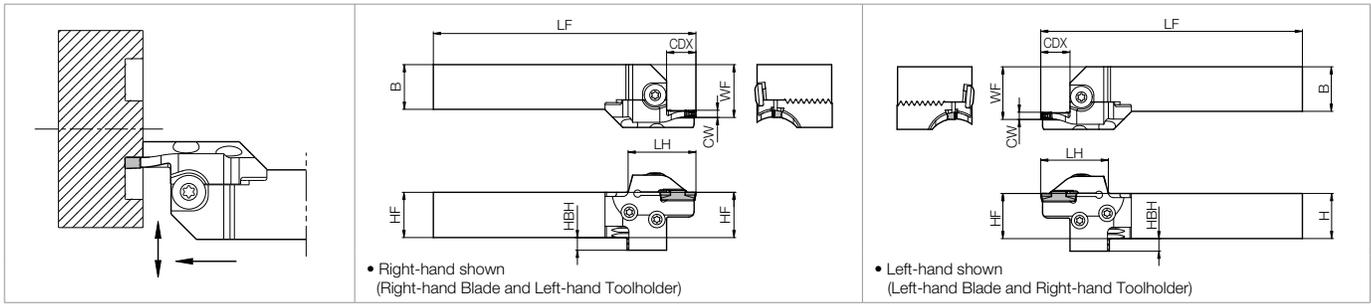
- Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see ● **G98**

Applicable Inserts ● **G97**

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

KGDF Face Grooving 0° SwitchBlade Toolholders (Metric-Size)

2mm Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)									
				DAXN (min)	DAXX (max)		R	L		R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*		
0°	2	□20	6	25	30	KGDFR 2020X25-2AS	●		KGDL2020-C	●	KGDFR -25-2A-C	●	20	20	12	20	115	33	24.5	6				
				30	35		△					KGDFR -30-2A-C									●			
				35	45		△					KGDFR -35-2A-C									●			
				45	60		△					KGDFR -45-2A-C									●			
				60	80		△					KGDFR -60-2A-C									●			
				80	100		△					KGDFR -80-2A-C									●			
			100	130	△		KGDFR -100-2A-C	●																
			13	25	30	No Unit Part Number →				KGDFR -25-2B-C	●	20	20	12	20	118	36	24.5	13					
				30	35		KGDFR -30-2B-C	●																
				35	45		KGDFR -35-2B-C	●																
				45	60		KGDFR -45-2B-C	●																
				60	80		KGDFR -60-2B-C	●																
		80		100	KGDFR -80-2B-C		●																	
		15	25	30	No Unit Part Number →			KGDFR -100-2B-C	●															
			30	35																				
			35	45																				
			45	60						20	20	12	20	120	38	24.5	15							
			60	80																				
			80	100																				
		100	130																					
		0°	2	□25	6	25	30	KGDFR 2525X25-2AS	△		KGDL2525-C	●	KGDFR -25-2A-C	●	25	25	7	25	140	33	29.5	6		
						30	35		△					KGDFR -30-2A-C									●	
35	45					△			KGDFR -35-2A-C	●														
45	60					△			KGDFR -45-2A-C	●														
60	80					△			KGDFR -60-2A-C	●														
80	100					△			KGDFR -80-2A-C	●														
100	130				△		KGDFR -100-2A-C	●																
13	25				30	No Unit Part Number →			KGDFR -25-2B-C	●		25	25	7	25	143	36	29.5	13					
	30				35		KGDFR -30-2B-C	●																
	35				45		KGDFR -35-2B-C	●																
	45				60		KGDFR -45-2B-C	●																
	60				80		KGDFR -60-2B-C	●																
	80			100	KGDFR -80-2B-C		●																	
15	25			30	No Unit Part Number →			KGDFR -100-2B-C	●															
	30			35																				
	35			45																				
	45			60						25	25	7	25	145	38	29.5	15							
	60			80																				
	80			100																				
100	130																							
□32	6			25	30	No Unit Part Number →				KGDL3232-C	●	KGDFR -25-2A-C	●	32	32	-	32	160	33	36.5	6			
				30	35		△		KGDFR -30-2A-C				●											
		35	45	△			KGDFR -35-2A-C	●																
		45	60	△			KGDFR -45-2A-C	●																
		60	80	△			KGDFR -60-2A-C	●																
		80	100	△			KGDFR -80-2A-C	●																
	100	130	△		KGDFR -100-2A-C	●																		
	13	25	30	No Unit Part Number →			KGDFR -25-2B-C	●	32		32	-	32	163	36	36.5	13							
		30	35		KGDFR -30-2B-C	●																		
		35	45		KGDFR -35-2B-C	●																		
		45	60		KGDFR -45-2B-C	●																		
		60	80		KGDFR -60-2B-C	●																		
80		100	KGDFR -80-2B-C		●																			
15	25	30	No Unit Part Number →			KGDFR -100-2B-C	●																	
	30	35																						
	35	45																						
	45	60						32	32	-	32	165	38	36.5	15									
	60	80																						
	80	100																						
100	130																							

- Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see **G98**

Applicable Inserts **G97**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

● Toolholder + Blade Dimensions

3mm Insert Width

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number ● G37	Stock		Blade Part Number ● G121	Stock		Dimensions (mm) Diagram on Page ● G105																		
				DAXN (min)	DAXX (max)		R	L		R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*											
0°	3	□20	13	25	30	KGDF% 2020X25-3AS	△	△	KGD% 2020-C	●	●	KGDF% -25-3A-C	●	●	20		12	20	118	36	24.5	13											
				30	40	2020X30-3AS	△	△				KGDF% -30-3A-C	●	●																			
				40	50	2020X40-3AS	△					KGDF% -40-3A-C	●	●																			
			15	50	65	2020X50-3BS	△					KGDF% -50-3B-C	●	●	20	12	20	120	38	24.5	15												
				65	85	2020X65-3BS	△					KGDF% -65-3B-C	●	●																			
				85	110	2020X85-3BS	△					KGDF% -85-3B-C	●	●																			
			22	50	65	KGDF% 2020X50-3CS	△					KGDF% -50-3C-C	●	●	20	12	20	127	45	24.5	22												
				65	85	2020X65-3CS	△					KGDF% -65-3C-C	●	●																			
				85	110	2020X85-3CS	△					KGDF% -85-3C-C	●	●																			
			25	110	145	2020X110-3CS	△					KGDF% -110-3C-C	●	●	20	12	20	130	48	24.5	25												
				□25	13	25	30	KGDF% 2525X25-3AS				△	△	KGD% 2525-C								●	●	KGDF% -25-3A-C	●	●	25	7	25	143	36	29.5	13
						30	40	2525X30-3AS				△	△											KGDF% -30-3A-C	●	●							
		40	50			2525X40-3AS	△	△	KGDF% -40-3A-C	●	●																						
		15	50		65	2525X50-3BS	△	△	KGDF% -50-3B-C	●	●	25	7		25	145	38	29.5	15														
			65		85	2525X65-3BS	△	△	KGDF% -65-3B-C	●	●																						
			85		110	2525X85-3BS	△	△	KGDF% -85-3B-C	●	●																						
		22	110	145	2525X110-3BS	△	△	KGDF% -110-3B-C	●	●	25	7	25	152	45	29.5	22																
			25	50	65	KGDF% 2525X50-3CS	△		KGDF% -50-3C-C	●								●	25	7	25	155	48	29.5	25								
				65	85	2525X65-3CS	△		KGDF% -65-3C-C	●								●															
		85		110	2525X85-3CS	△	△	KGDF% -85-3C-C	●	●																							
		110	145	2525X110-3CS	△		KGDF% -110-3C-C	●	●	25	7	25	155	48	29.5	25																	
			□32	13	25	30	No Unit Part Number →	KGD% 3232-C	●								●	KGDF% -25-3A-C	●	●	32	-	32	163	36	36.5	13						
					30	40												KGDF% -30-3A-C	●	●													
		40			50	KGDF% -40-3A-C				●	●																						
15	50	65		KGDF% -50-3B-C	●	●				32	-	32	165	38	36.5	15																	
	65	85		KGDF% -65-3B-C	●	●																											
	85	110		KGDF% -85-3B-C	●	●																											
22	110	145	KGDF% -110-3B-C	●	●	32	-	32	172	45	36.5	22																					
	25	50	65	KGDF% -50-3C-C	●								●	32	-	32	175	48	36.5	25													
		65	85	KGDF% -65-3C-C	●								●																				
85		110	KGDF% -85-3C-C	●	●																												
110	145	KGDF% -110-3C-C	●	●	32	-	32	175	48	36.5	25																						

- Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see ● G98

Applicable Inserts ● G97

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

● Toolholder + Blade Dimensions

4mm Insert Width

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number ● G37	Stock		Blade Part Number ● G121	Stock		Dimensions (mm) Diagram on Page ● G105																					
				DAXN (min)	DAXX (max)		R	L		R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*														
0°	4	□20	13	25	35	KGDF% 2020X25-4AS	△	△	KGD% 2020-C	●	●	KGDF% -25-4A-C	●	●	20	20	12	20	118	36	24.5	13														
				35	50	2020X35-4BS	△	△				-35-4B-C	●	●																						
				50	70	2020X50-4BS	△					-50-4B-C	●	●																						
				70	100	2020X70-4BS	△					-70-4B-C	●	●																						
				100	150	2020X100-4BS	△					-100-4B-C	●	●					20	20	12	20	120	38	24.5	15										
				150	220	2020X150-4BS	△					-150-4B-C	●	●					●	●																
			220	∞	2020X220-4BS	△		-220-4B-C				△						●	●																	
			25	35	50	KGDF% 2020X35-4CS	△					KGD% 2020-C	●	●	KGDF% -35-4C-C	●	●																			
				50	70	2020X50-4CS	△	△							-50-4C-C	●	●																			
				70	100	2020X70-4CS	△								-70-4C-C	●	●																			
				100	150	2020X100-4CS	△								-100-4C-C	●	●					20	20	12	20	130	48	24.5	25							
				150	220	2020X150-4CS	△								-150-4C-C	●	●					●	●													
				220	∞	2020X220-4CS	△								-220-4C-C	△						●	●													
			□25	13	25	35	KGDF% 2525X25-4AS	△				△	KGD% 2525-C	●	●	KGDF% -25-4A-C	●	●	25	25	7	25	143	36	29.5	13										
					35	50	2525X35-4BS	△				△				-35-4B-C	●	●																		
					50	70	2525X50-4BS	△				△				-50-4B-C	●	●																		
					70	100	2525X70-4BS	△				△				-70-4B-C	●	●																		
					100	150	2525X100-4BS	△				△				-100-4B-C	●	●					25	25	7	25	145	38	29.5	15						
					150	220	2525X150-4BS	△				△				-150-4B-C	●	●					●	●												
				220	∞	2525X220-4BS	△	△				-220-4B-C				△						●	●													
				25	35	50	KGDF% 2525X35-4CS	△								KGD% 2525-C	●	●	KGDF% -35-4C-C	●	●															
					50	70	2525X50-4CS	△				△							-50-4C-C	●	●															
					70	100	2525X70-4CS	△				△							-70-4C-C	●	●															
					100	150	2525X100-4CS	△				△							-100-4C-C	●	●					25	25	7	25	155	48	29.5	25			
		150			220	2525X150-4CS	△	△	-150-4C-C	●	●											●	●													
		220			∞	2525X220-4CS	△	△	-220-4C-C	△												●	●													
		□32		13	25	35	No Unit Part Number →	KGD% 3232-C	●	●	KGDF% -25-4A-C	●				●	32	32	-	32	163	36	36.5	13												
					35	50					-35-4B-C	●				●																				
					50	70					-50-4B-C	●				●																				
					70	100					-70-4B-C	●				●																				
					100	150					-100-4B-C	●				●						32	32	-	32	165	38	36.5	15							
					150	220					-150-4B-C	●				●						●	●													
				220	∞	-220-4B-C					●	●									●	●														
				25	35	50					KGDF% -35-4C-C	●				●																				
					50	70					-50-4C-C	●				●																				
					70	100					-70-4C-C	●				●																				
					100	150					-100-4C-C	●				●								32	32	-	32	175	48	36.5	25					
			150		220	-150-4C-C					●	●								●	●															
			220		∞	-220-4C-C					●	●								●	●															

- Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see ● G98

Applicable Inserts ● G97

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (0° SWITCHBLADE TYPE)

● Toolholder + Blade Dimensions

5mm Insert Width

(Choose **Right-hand** Blade for **Left-hand** Toolholder and **Left-hand** Blade for **Right-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number ● G37	Stock		Blade Part Number ● G121	Stock		Dimensions (mm) Diagram on Page ● G105								
				DAXN (min)	DAXX (max)		R	L		R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX*	
0°	5	□20	15	25	35	No Unit Part Number →			KGD% 2020-C	●	●	KGDF% -25-5B-C	●	●	20	20	12	20	120	38	24.5	15	
				-35-5B-C	●								●										
				-50-5B-C	●								●										
				-75-5B-C	●								●										
				-115-5B-C	●								●										
				-180-5B-C	●								●										
			-235-5B-C	●	●																		
			20	25	35							KGDF% -25-5C-C	●	●	20	20	12	20	125	43	24.5	20	
				35	50								-35-5C-C	●									●
				50	75								-50-5C-C	●									●
				75	115								-75-5C-C	●									●
				115	180								-115-5C-C	●									●
				180	235								-180-5C-C	●									●
			235	∞	-235-5C-C							●	●										
			25	75	115							KGDF% -75-5D-C	●	●	20	20	12	20	137	55	24.5	32	
				115	180								-115-5D-C	●									●
				180	235								-180-5D-C	●									●
				235	∞								-235-5D-C	●									●

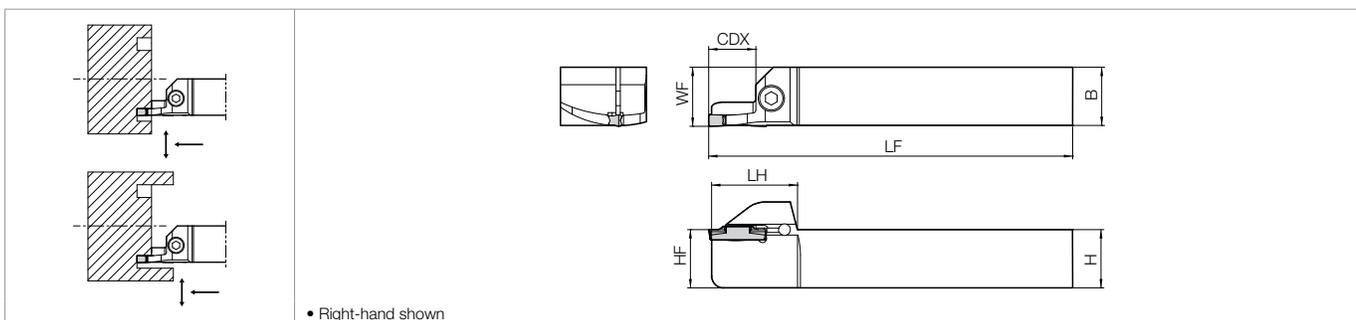
Note 1) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 2) Dimension **CDX***: Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 3) Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) come with toolholder. For Spare Parts, see ● G98

Applicable Inserts ● G97

FACE GROOVING TOOLHOLDERS (INTEGRAL TYPE)

3mm / 4mm / 5mm Insert Width

KGDF-Z



Toolholder Dimensions

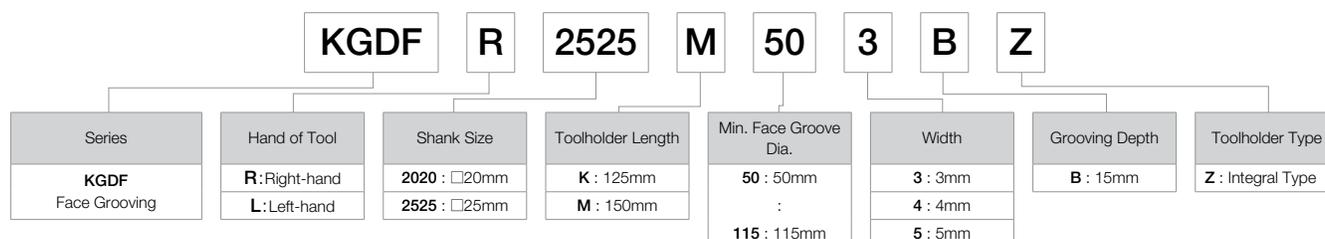
Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Part Number	Stock		Dimensions (mm)							
			DAXN (min)	DAXX (max)		R	L	H	HF	B	LF	LH	WF	CDX	
3	□20	15	50	65	KGDF%	2020K50-3B-Z	●	●	20	20	20	125	30.5	20.3	15
			65	85		2020K65-3B-Z	●	●							
			85	110		2020K85-3B-Z	●	●							
			110	145		2020K110-3B-Z	●	●							
	□25	15	50	65	KGDF%	2525M50-3B-Z	●	●	25	25	25	150	30.5	25.3	15
			65	85		2525M65-3B-Z	●	●							
			85	110		2525M85-3B-Z	●	●							
			110	145		2525M110-3B-Z	●	●							
4	□20	15	50	70	KGDF%	2020K50-4B-Z	●	●	20	20	20	125	30.5	20.3	15
			70	100		2020K70-4B-Z	●	●							
			100	150		2020K100-4B-Z	●	●							
			50	70		KGDF%	2525M50-4B-Z	●							
	70	100	2525M70-4B-Z	●	●										
	100	150	2525M100-4B-Z	●	●										
	50	75	KGDF%	2020K50-5B-Z	●		●	20	20	20	125	30.5	20.3	15	
	75	115		2020K75-5B-Z	●	●									
115	180	2020K115-5B-Z		●	●										
50	75	KGDF%		2525M50-5B-Z	●	●	25								25	25	150	30.5	25.3	15
75	115		2525M75-5B-Z	●	●										
115	180		2525M115-5B-Z	●	●										

Spare Parts

Applicable Inserts G97

Part Number	Spare Parts	
	Clamp Bolt	Wrench
KGDF%...-Z	HH5X16	LW-4

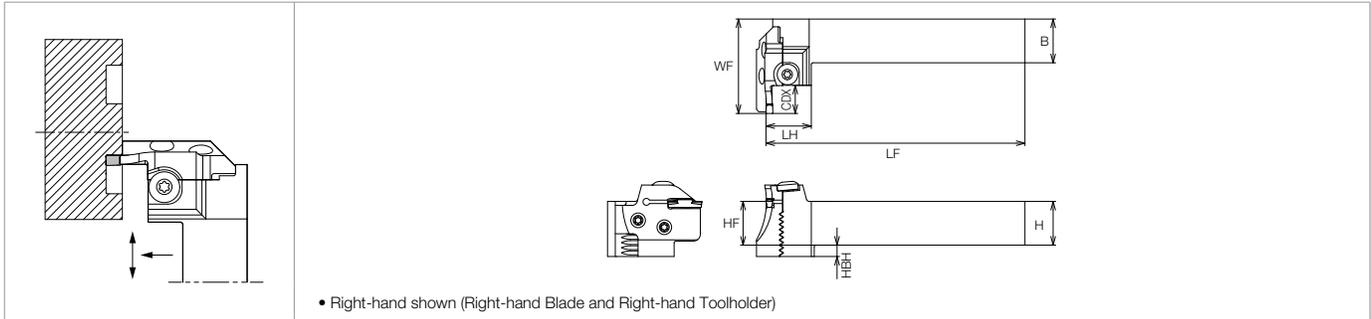
Toolholder Identification System (Integral Type)



FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Inch-Size)

0.079" Insert Width

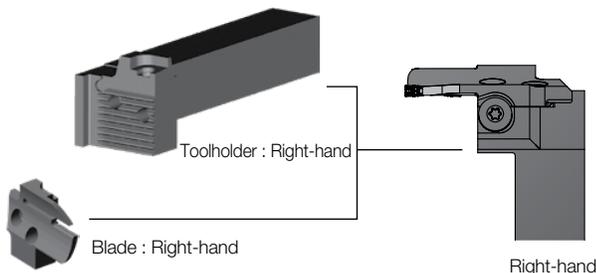


Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)														
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX							
90°	0.079 (2mm)	□0.75	0.236 (6mm)	0.984	1.181	No Unit Part Number ➔	KGDSR12-C	●			KGDFR -25-2A-C	●	0.750	0.750	0.510	0.750	4.921	0.988	1.957	0.236 (6mm)							
				1.181	1.378						KGDFR -30-2A-C	●															
				1.378	1.772						KGDFR -35-2A-C	●															
				1.772	2.362						KGDFR -45-2A-C	●															
				2.362	3.150						KGDFR -60-2A-C	●															
				3.150	3.937						KGDFR -80-2A-C	●															
		3.937	5.118	KGDFR -100-2A-C	●																						
		0.512 (13mm)	0.984	1.181	KGDFR -25-2B-C						●	0.750									0.750	0.510	0.750	4.921	0.988	2.075	0.512 (13mm)
		1.181	1.378	KGDFR -30-2B-C	●						0.750	0.750									0.510	0.750	4.921	0.988	2.154	0.591 (15mm)	
		1.378	1.772	KGDFR -35-2B-C	●																						
		1.772	2.362	KGDFR -45-2B-C	●																						
		2.362	3.150	KGDFR -60-2B-C	●																						
	3.150	3.937	KGDFR -80-2B-C	●																							
	3.937	5.118	KGDFR -100-2B-C	●																							
	0.079 (2mm)	□1.00	0.236 (6mm)	0.984	1.181	No Unit Part Number ➔	KGDSR16-C	●			KGDFR -25-2A-C	●	1.000	1.000	0.260	1.000	5.910	0.988	1.957	0.236 (6mm)							
				1.181	1.378						KGDFR -30-2A-C	●															
				1.378	1.772						KGDFR -35-2A-C	●															
				1.772	2.362						KGDFR -45-2A-C	●															
				2.362	3.150						KGDFR -60-2A-C	●															
				3.150	3.937						KGDFR -80-2A-C	●															
		3.937	5.118	KGDFR -100-2A-C	●																						
		0.512 (13mm)	0.984	1.181	KGDFR -25-2B-C						●	1.000									1.000	0.260	1.000	5.910	0.988	2.075	0.512 (13mm)
		1.181	1.378	KGDFR -30-2B-C	●						1.000	1.000									0.260	1.000	5.910	0.988	2.154	0.591 (15mm)	
		1.378	1.772	KGDFR -35-2B-C	●																						
1.772		2.362	KGDFR -45-2B-C	●																							
2.362		3.150	KGDFR -60-2B-C	●																							
3.150	3.937	KGDFR -80-2B-C	●																								
3.937	5.118	KGDFR -100-2B-C	●																								

Applicable Inserts **G97**



- KGDF 90° SwitchBlade type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.
- **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp screw (BH6X10TR), Blade fixing screw (SB-60120TR) and Wrench (LTW-25) come with toolholder.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

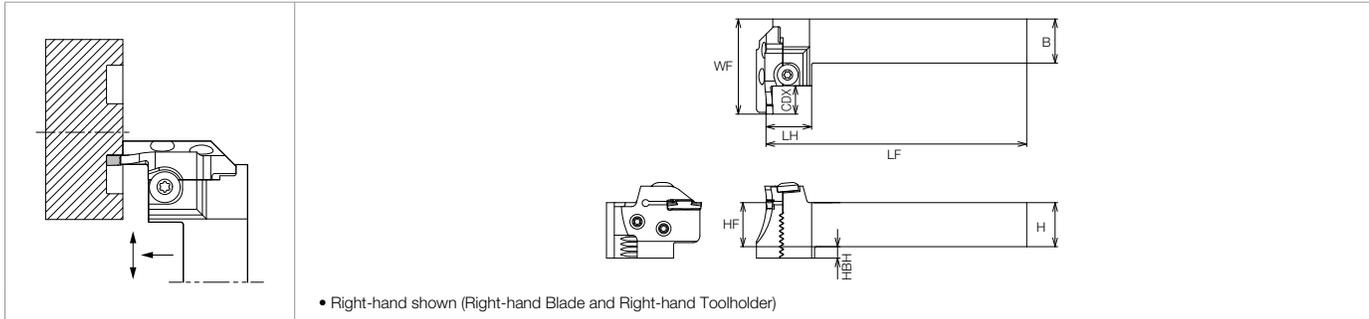
(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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TECHNICAL	R
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FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Inch-Size)

0.118" Insert Width



Toolholder + Blade Dimensions (0.118" Insert Width)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)														
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX							
90°	0.118 (3mm)	□0.75	0.512 (13mm)	0.984	1.181	No Unit Part Number ➔	KGDS% 12-C	●	●	KGDF% -25-3A-C	●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.075	0.512							
				-30-3A-C	●					●																	
				-40-3A-C	●					●																	
			-50-3B-C	●	●																						
			-65-3B-C	●	●																						
			-85-3B-C	●	●																						
		-110-3B-C	●	●																							
		KGDF% -50-3C-C	●	●	0.750					0.750	0.510	0.750									4.921	0.988	2.350	0.866			
		-65-3C-C	●	●																							
		-85-3C-C	●	●																							
		-110-3C-C	●	●																							
		□1.00	0.512 (13mm)	0.984																					1.181	No Unit Part Number ➔	KGDS% 16-C
	-30-3A-C			●		●																					
	-40-3A-C			●		●																					
	-50-3B-C		●	●																							
	-65-3B-C		●	●																							
	-85-3B-C		●	●																							
	-110-3B-C	●	●																								
	KGDF% -50-3C-C	●	●	1.000		1.000	0.260	1.000	5.906				0.988	2.350	0.866												
	-65-3C-C	●	●																								
	-85-3C-C	●	●																								
	-110-3C-C	●	●																								
	□1.00	0.512 (13mm)	0.984		1.181					No Unit Part Number ➔	KGDS% 16-C	●				●	KGDF% -25-3A-C	●	●	1.000	1.000	0.260	1.000	5.906	0.988					2.429	0.984
			-30-3A-C		●												●										
-40-3A-C			●		●																						
-50-3B-C		●	●																								
-65-3B-C		●	●																								
-85-3B-C		●	●																								
-110-3B-C	●	●																									
KGDF% -50-3C-C	●	●	1.000		1.000												0.260	1.000	5.906							0.988	2.429	0.984
-65-3C-C	●	●																									
-85-3C-C	●	●																									
-110-3C-C	●	●																									

- KGDF 90° SwitchBlade type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

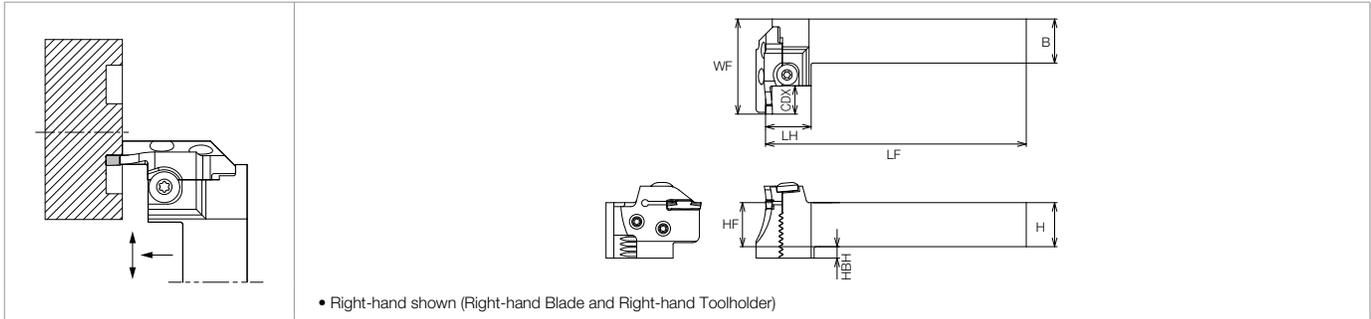
Applicable Inserts **G97**

- **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Inch-Size)

0.157" Insert Width



Toolholder + Blade Dimensions (0.157" Insert Width)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)									
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX		
90°	0.157 (4mm)	□0.75	0.512 (13mm)	0.984	1.378	No Unit Part Number →	KGDS%12-C	●	●	KGDF% -25-4A-C	●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.075	0.512		
			1.378	1.969	KGDF% -35-4B-C			●	●		0.750	0.750	0.510	0.750	4.921	0.988	2.154	0.591				
			1.969	2.756				KGDF% -50-4B-C	●										●			
			2.756	3.937					KGDF% -70-4B-C										●	●		
			3.937	5.906															KGDF% -100-4B-C	●	●	
			5.906	8.661																KGDF% -150-4B-C	●	●
		8.661	∞	KGDF% -220-4B-C						●											●	
		1.378	1.969		KGDF% -35-4C-C					●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.550			0.984	
		1.969	2.756					KGDF% -50-4C-C		●	●											
		2.756	3.937						KGDF% -70-4C-C	●	●											
		3.937	5.906							KGDF% -100-4C-C	●								●			
		5.906	8.661								KGDF% -150-4C-C								●	●		
	8.661	∞	KGDF% -220-4C-C	●		●																
	0.512 (13mm)	0.984		1.378	No Unit Part Number →	KGDS%16-C	●					●	KGDF% -25-4A-C	●	●	1.000	1.000	0.260	1.000	5.906	0.988	2.075	0.512
	1.378	1.969		KGDF% -35-4B-C			●	●				1.000		1.000	0.260	1.000	5.906	0.988	2.154	0.591		
	1.969	2.756					KGDF% -50-4B-C	●	●													
	2.756	3.937						KGDF% -70-4B-C	●	●												
	3.937	5.906							KGDF% -100-4B-C	●	●											
	5.906	8.661	KGDF% -150-4B-C							●	●											
	8.661	∞								KGDF% -220-4B-C	●		●									
	1.378	1.969		KGDF% -35-4C-C							●	●	1.000	1.000	0.260	1.000	5.906	0.988	2.550	0.984		
	1.969	2.756					KGDF% -50-4C-C				●	●										
	2.756	3.937						KGDF% -70-4C-C			●	●										
	3.937	5.906							KGDF% -100-4C-C		●	●										
5.906	8.661	KGDF% -150-4C-C	●								●											
8.661	∞		KGDF% -220-4C-C		●	●																

● : KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
 Blade and toolholder are available to assemble when purchasing individually.

Applicable Inserts **G97**

● **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

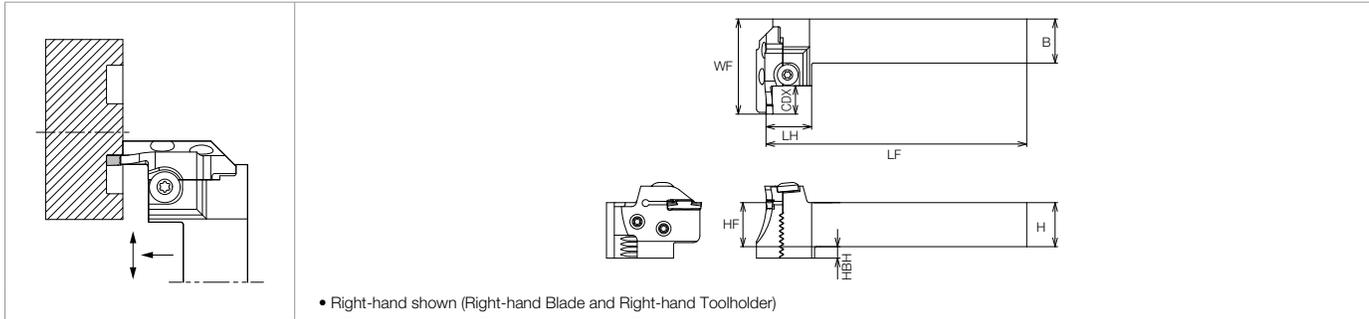
● Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Inch-Size)

0.197" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)														
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX							
90°	0.197 (5mm)	□ 0.75	0.591 (15mm)	0.984	1.378	No Unit Part Number ➔	KGDS% 12-C	●	●	KGDF% -25-5B-C	●	●	0.750	0.750	0.510	0.750	4.921	0.927	2.154	0.591							
				1.378	1.969			●	●		-35-5B-C	●									●						
				1.969	2.953			●	●		-50-5B-C	●									●						
				2.953	4.528			●	●		-75-5B-C	●									●						
				4.528	7.087			●	●		-115-5B-C	●									●						
				7.087	9.252			●	●		-180-5B-C	●									●						
			9.252	∞	●			●	-235-5B-C	●	●																
			0.787 (20mm)	0.984	1.378			KGDF% -25-5C-C	●	●	0.750	0.750	0.510	0.750	4.921	0.927	2.35	0.787									
			1.378	1.969	●				●	-35-5C-C									●	●							
			1.969	2.953	●				●	-50-5C-C									●	●							
			2.953	4.528	●				●	-75-5C-C									●	●							
			4.528	7.087	●				●	-115-5C-C									●	●							
		7.087	9.252	●	●	-180-5C-C	●		●																		
		9.252	∞	●	●	-235-5C-C	●	●																			
		2.953	4.528	KGDF% -75-5D-C	0.750	0.750	0.510	0.750	4.921	0.927	2.823	1.26															
		4.528	7.087										●	●	-115-5D-C	●	●										
		7.087	9.252										●	●	-180-5D-C	●	●										
		9.252	∞										●	●	-235-5D-C	●	●										
		0.984	1.378										No Unit Part Number ➔	KGDS% 16-C	●	●	KGDF% -25-5B-C	●	●	1.000	1.000	0.260	1.000	5.906	1.177	2.154	0.591
		1.378	1.969												●	●		-35-5B-C	●								
		1.969	2.953	●	●	-50-5B-C	●	●																			
		2.953	4.528	●	●	-75-5B-C	●	●																			
		4.528	7.087	●	●	-115-5B-C	●	●																			
		7.087	9.252	●	●	-180-5B-C	●	●																			
9.252	∞	●	●	-235-5B-C	●	●																					
0.787 (20mm)	0.984	1.378	KGDF% -25-5C-C	●	●	1.000	1.000	0.260	1.000	5.906	1.177	2.35			0.787												
1.378	1.969	●		●	-35-5C-C											●	●										
1.969	2.953	●		●	-50-5C-C											●	●										
2.953	4.528	●		●	-75-5C-C											●	●										
4.528	7.087	●		●	-115-5C-C											●	●										
7.087	9.252	●		●	-180-5C-C								●	●													
9.252	∞	●	●	-235-5C-C	●	●																					
2.953	4.528	KGDF% -75-5D-C	1.000	1.000	0.260	1.000	5.906	1.177	2.823	1.26																	
4.528	7.087										●	●	-115-5D-C	●	●												
7.087	9.252										●	●	-180-5D-C	●	●												
9.252	∞										●	●	-235-5D-C	●	●												

• KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
Blade and toolholder are available to assemble when purchasing individually.

Applicable Inserts **G97**

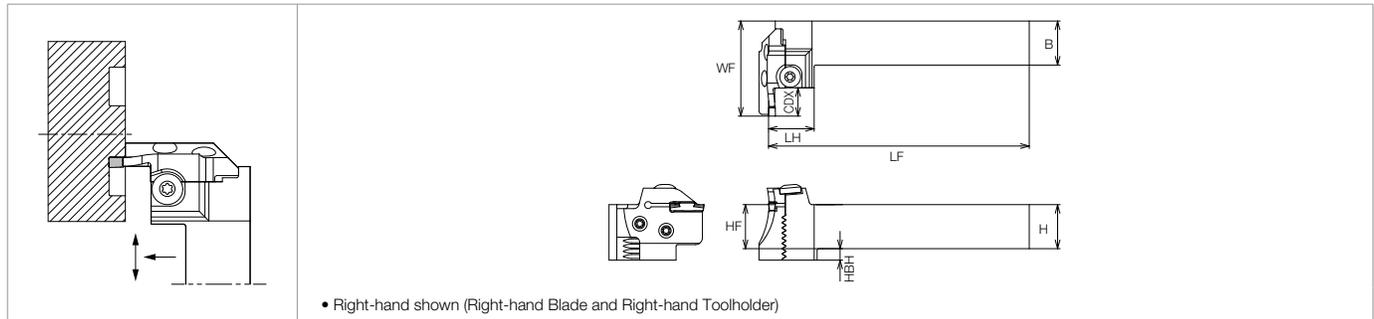
• **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

• Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Inch-Size)

0.236" Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (in)	Shank Size (in)	Max. Grooving Depth (in)	Face Grooving Dia. (in)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (in)													
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX						
90°	0.236 (6mm)	□0.75	0.591 (15mm)	0.984	1.378	No Unit Part Number →	KGDS% 12-C	●	●	KGDF% -25-6B-C	●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.154	0.591						
				1.378	1.969			●	●		-35-6B-C	●									●					
				1.969	2.953			●	●		-50-6B-C	●									●					
				2.953	4.528			●	●		-75-6B-C	●									●					
				4.528	7.087			●	●		-115-6B-C	●									●					
				7.087	9.252			●	●		-180-6B-C	●									●					
			9.252	∞	●			●	-235-6B-C	●	●															
			0.787 (20mm)	0.984	1.378			●	●	KGDF% -25-6C-C	●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.350	0.787						
			1.378	1.969	●			●	-35-6C-C	●	●															
			1.969	2.953	●			●	-50-6C-C	●	●															
			2.953	4.528	●			●	-75-6C-C	●	●															
			4.528	7.087	●			●	-115-6C-C	●	●															
		7.087	9.252	●	●	-180-6C-C	●	●																		
		9.252	∞	●	●	-235-6C-C	●	●																		
		1.260 (32mm)	2.953	4.528	●	●	KGDF% -75-6D-C	●	●	0.750	0.750	0.510	0.750	4.921	0.988	2.823	1.260									
		4.528	7.087	●	●	-115-6D-C	●	●																		
		7.087	9.252	●	●	-180-6D-C	●	●																		
		9.252	∞	●	●	-235-6D-C	●	●																		
		0.984	1.378	No Unit Part Number →	KGDS% 16-C	●	●	KGDF% -25-6B-C	●									●	1.000	1.000	0.260	1.000	5.906	0.988	2.154	0.591
		1.378	1.969			●	●		-35-6B-C									●								
		1.969	2.953			●	●		-50-6B-C	●	●															
		2.953	4.528			●	●		-75-6B-C	●	●															
		4.528	7.087			●	●		-115-6B-C	●	●															
		7.087	9.252			●	●		-180-6B-C	●	●															
9.252	∞	●	●			-235-6B-C	●	●																		
0.787 (20mm)	0.984	1.378	●			●	KGDF% -25-6C-C	●	●	1.000	1.000	0.260	1.000	5.906	0.988	2.350	0.787									
1.378	1.969	●	●			-35-6C-C	●	●																		
1.969	2.953	●	●			-50-6C-C	●	●																		
2.953	4.528	●	●			-75-6C-C	●	●																		
4.528	7.087	●	●			-115-6C-C	●	●																		
7.087	9.252	●	●	-180-6C-C	●	●																				
9.252	∞	●	●	-235-6C-C	●	●																				
1.260 (32mm)	2.953	4.528	●	●	KGDF% -75-6D-C	●	●	1.000	1.000	0.260	1.000	5.906	0.988	2.823	1.260											
4.528	7.087	●	●	-115-6D-C	●	●																				
7.087	9.252	●	●	-180-6D-C	●	●																				
9.252	∞	●	●	-235-6D-C	●	●																				

● KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
Blade and toolholder are available to assemble when purchasing individually.

● **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

● Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

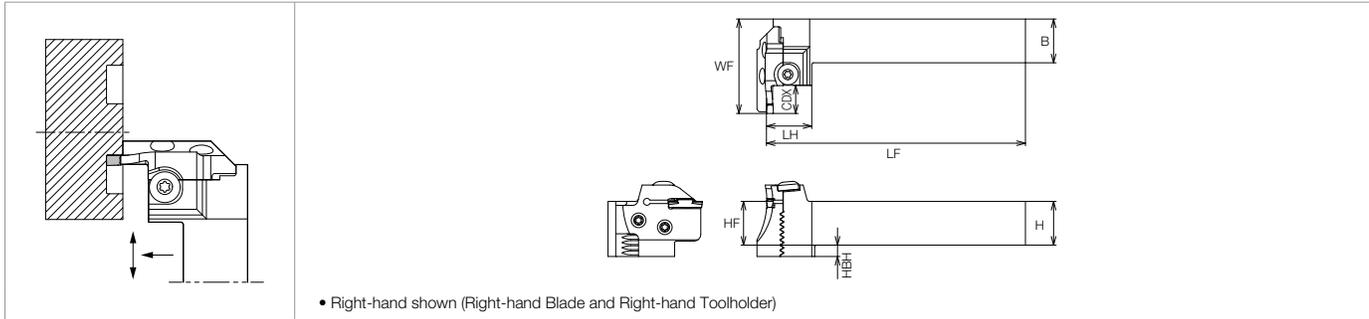
Applicable Inserts **G97**

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Metric-Size)

2mm Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)													
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX						
90°	2	□20	6	25	30	No Unit Part Number ➔	KGDSR2020-C	●			KGDFR -25-2A-C	●	20	20	12	20	125	27.7	49.7	6						
				KGDFR -30-2A-C	●																					
				KGDFR -35-2A-C	●																					
				KGDFR -45-2A-C	●																					
				KGDFR -60-2A-C	●																					
				KGDFR -80-2A-C	●																					
		KGDFR -100-2A-C	●																							
		KGDFR -25-2B-C	●	20	20						12	20											125	27.7	52.7	13
		KGDFR -30-2B-C	●	20	20						12	20											125	27.7	54.7	15
		KGDFR -35-2B-C	●																							
		KGDFR -45-2B-C	●																							
		KGDFR -60-2B-C	●																							
	KGDFR -80-2B-C	●																								
	KGDFR -100-2B-C	●																								
	KGDFR -25-2A-C	●	25	25	7	25	150	27.7	49.7	6																
	KGDFR -30-2A-C	●																								
	KGDFR -35-2A-C	●																								
	KGDFR -45-2A-C	●																								
	KGDFR -60-2A-C	●																								
	KGDFR -80-2A-C	●																								
	KGDFR -100-2A-C	●																								
	KGDFR -25-2B-C	●											25	25	7	25	150	27.7	52.7	13						
	KGDFR -30-2B-C	●											25	25	7	25	150	27.7	54.7	15						
	KGDFR -35-2B-C	●																								
KGDFR -45-2B-C	●																									
KGDFR -60-2B-C	●																									
KGDFR -80-2B-C	●																									
KGDFR -100-2B-C	●																									

• KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
Blade and toolholder are available to assemble when purchasing individually.

• **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

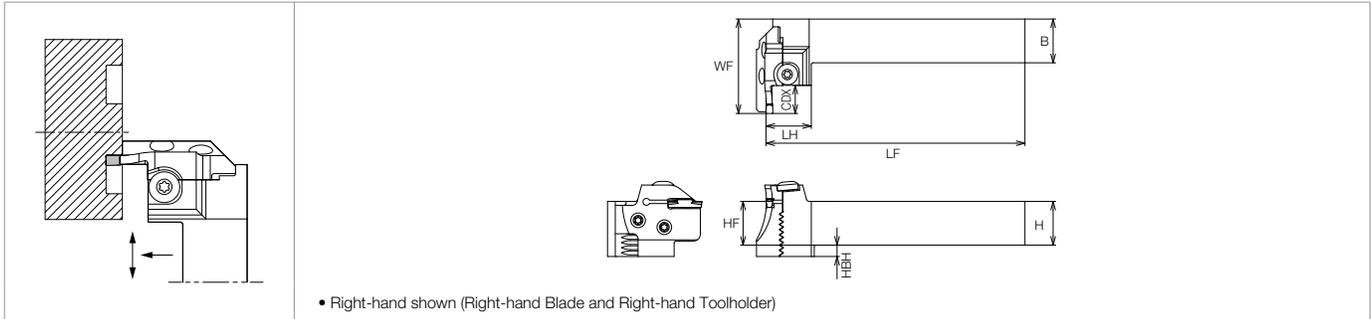
• Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

Applicable Inserts **G97**

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Metric-Size)

3mm Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)																			
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX												
90°	3	□20	13	25	30	No Unit Part Number ➔	KGDS%2020-C	●	●	KGDF% -25-3A-C	●	●	20	20	12	20	125	27.7	52.7	13												
				KGDF% -30-3A-C	●					●																						
				KGDF% -40-3A-C	●					●																						
			15	50	65					No Unit Part Number ➔	KGDS%2020-C	●	●	KGDF% -50-3B-C	●	●	20	20	12	20	125	27.7	54.7	15								
				KGDF% -65-3B-C	●									●																		
				KGDF% -85-3B-C	●									●																		
			22	50	65									No Unit Part Number ➔	KGDS%2020-C	●	●	KGDF% -50-3C-C	●	●	20	20	12	20	125	27.7	59.7	22				
				KGDF% -65-3C-C	●													●														
				KGDF% -85-3C-C	●													●														
			25	85	110													No Unit Part Number ➔	KGDS%2020-C	●	●	KGDF% -110-3C-C	●	●	20	20	12	20	125	27.7	61.7	25
				KGDF% -110-3C-C	●																	●										
				KGDF% -110-3C-C	●																	●										
		□25	13	25	30	No Unit Part Number ➔	KGDS%2525-C	●	●													KGDF% -25-3A-C	●	●	25	25	7	25	150	27.7	52.7	13
				KGDF% -30-3A-C	●																	●										
				KGDF% -40-3A-C	●																	●										
			15	50	65					No Unit Part Number ➔	KGDS%2525-C	●	●									KGDF% -50-3B-C	●	●	25	25	7	25	150	27.7	54.7	15
				KGDF% -65-3B-C	●																	●										
				KGDF% -85-3B-C	●																	●										
			22	50	65									No Unit Part Number ➔	KGDS%2525-C	●	●					KGDF% -50-3C-C	●	●	25	25	7	25	150	27.7	59.7	22
				KGDF% -65-3C-C	●																	●										
				KGDF% -85-3C-C	●																	●										
			25	85	110													No Unit Part Number ➔	KGDS%2525-C	●	●	KGDF% -110-3B-C	●	●	25	25	7	25	150	27.7	61.7	25
				KGDF% -110-3B-C	●																	●										
				KGDF% -110-3C-C	●																	●										

- KGDF 90° SwitchBlade type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually.

Applicable Inserts **G97**

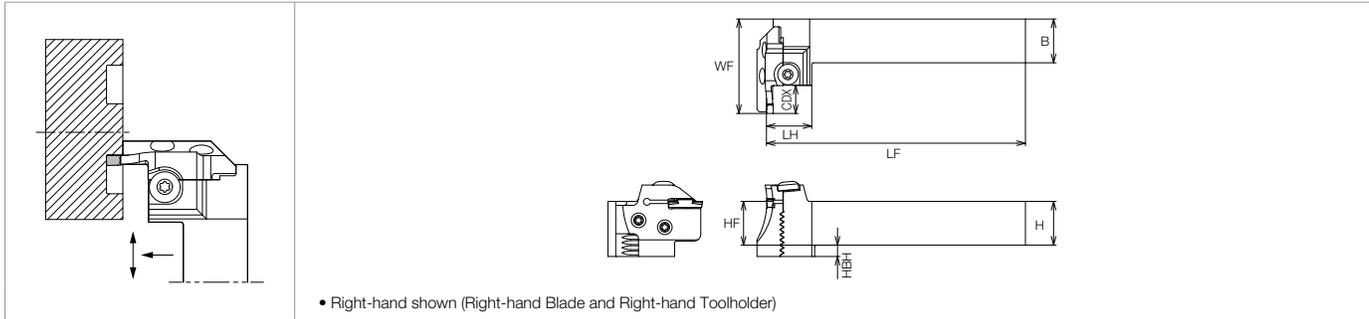
- **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

INSERT GRADES	A
TURNING INSERTS	B
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MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Metric-Size)

4mm Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)							
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX
90°	4	□20	13	25	35	No Unit Part Number ➔	KGDS%2020-C	●	●	KGDF% -25-4A-C	●	●	20	20	12	20	125	27.7	52.7	13
				-35-4B-C	●					●	20	20	12	20	125	27.7	54.7	15		
				-50-4B-C	●					●										
			70	100	-70-4B-C					●	●									
			100	150	-100-4B-C					●	●									
			150	220	-150-4B-C					●	●									
			220	∞	-220-4B-C					●	●									
			25	35	50					KGDF% -35-4C-C	●	●	20	20	12	20	125	27.7	64.7	25
				50	70					-50-4C-C	●	●								
				70	100					-70-4C-C	●	●								
				100	150					-100-4C-C	●	●								
				150	220					-150-4C-C	●	●								
		220		∞	-220-4C-C	●	●													
		□25	13	25	35	No Unit Part Number ➔	KGDS%2525-C	●	●	KGDF% -25-4A-C	●	●	25	25	7	25	150	27.7	52.7	13
				35	50					-35-4B-C	●	●	25	25	7	25	150	27.7	54.7	15
				50	70					-50-4B-C	●	●								
			70	100	-70-4B-C					●	●									
			100	150	-100-4B-C					●	●									
			150	220	-150-4B-C					●	●									
			220	∞	-220-4B-C					●	●									
			25	35	50					KGDF% -35-4C-C	●	●	25	25	7	25	150	27.7	64.7	25
				50	70					-50-4C-C	●	●								
				70	100					-70-4C-C	●	●								
				100	150					-100-4C-C	●	●								
150	220			-150-4C-C	●					●										
220	∞	-220-4C-C		●	●															

• KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
Blade and toolholder are available to assemble when purchasing individually.

Applicable Inserts **G97**

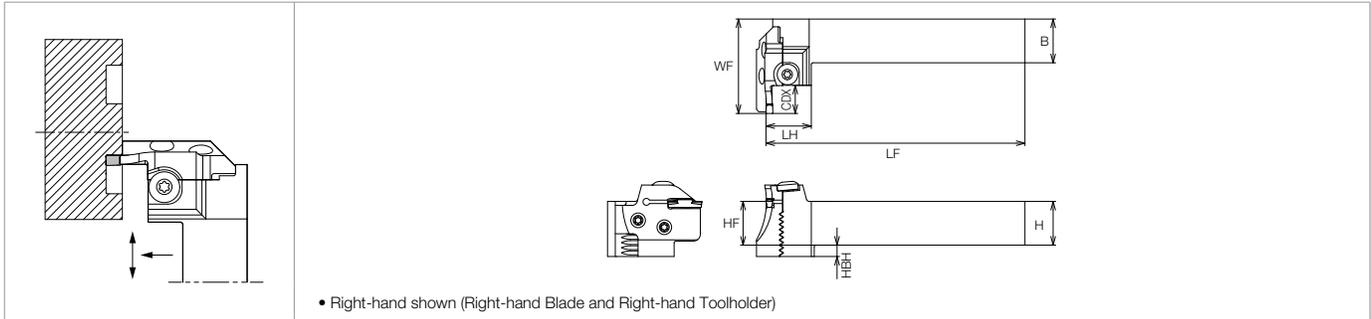
• **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

• Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Metric-Size)

5mm Insert Width



Toolholder + Blade Dimensions

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)																				
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX													
90°	5	□20	15	25	35	No Unit Part Number ➡	KGDS%2020-C	●	●	KGDF%	-25-5B-C	●	●	20	20	12	20	125	27.7	54.7	15	15											
					-35-5B-C					●	●																						
					-50-5B-C					●	●																						
					-75-5B-C					●	●																						
					-115-5B-C					●	●																						
					-180-5B-C					●	●																						
			-235-5B-C	●	●																												
			25	35	No Unit Part Number ➡					KGDS%2020-C	●	●	KGDF%	-25-5C-C	●	●	20	20	12	20	125	27.7	59.7	20	20								
			-35-5C-C	●									●																				
			-50-5C-C	●									●																				
			-75-5C-C	●									●																				
			-115-5C-C	●									●																				
		-180-5C-C	●	●																													
		25	35	No Unit Part Number ➡	KGDS%2020-C	●	●	KGDF%	-75-5D-C	●	●	20	20	12	20	125	27.7	71.7	32	32													
		-115-5D-C	●					●																									
		-180-5D-C	●					●																									
		-235-5D-C	●					●																									
		25	35					No Unit Part Number ➡	KGDS%2525-C	●	●										KGDF%	-25-5B-C	●	●	25	25	7	25	150	27.7	54.7	15	15
		-35-5B-C	●																		●												
		-50-5B-C	●	●																													
		-75-5B-C	●	●																													
		-115-5B-C	●	●																													
		-180-5B-C	●	●																													
		20	25	No Unit Part Number ➡	KGDS%2525-C	●	●	KGDF%	-25-5C-C	●	●	25	25	7	25	150	27.7	59.7	20	20													
	-35-5C-C	●	●																														
	-50-5C-C	●	●																														
	-75-5C-C	●	●																														
	-115-5C-C	●	●																														
	-180-5C-C	●	●																														
	25	35	No Unit Part Number ➡	KGDS%2525-C	●	●	KGDF%	-75-5D-C	●	●	25	25	7	25	150	27.7	71.7	32	32														
	-115-5D-C	●					●																										
	-180-5D-C	●					●																										
	-235-5D-C	●					●																										
	25	35					No Unit Part Number ➡	KGDS%2525-C	●	●										KGDF%	-25-5B-C	●	●	25	25	7	25	150	27.7	54.7	15	15	
	-35-5B-C	●																		●													
	-50-5B-C	●	●																														
	-75-5B-C	●	●																														
	-115-5B-C	●	●																														
	-180-5B-C	●	●																														
	20	25	No Unit Part Number ➡	KGDS%2525-C	●	●	KGDF%	-75-5D-C	●	●	25	25	7	25	150	27.7	71.7	32	32														
	-115-5D-C	●					●																										
	-180-5D-C	●					●																										
	-235-5D-C	●					●																										
	25	35					No Unit Part Number ➡	KGDS%2525-C	●	●										KGDF%	-25-5C-C	●	●	25	25	7	25	150	27.7	59.7	20	20	
	-35-5C-C	●																		●													
	-50-5C-C	●	●																														
	-75-5C-C	●	●																														
	-115-5C-C	●	●																														
	-180-5C-C	●	●																														
	25	35	No Unit Part Number ➡	KGDS%2525-C	●	●	KGDF%	-75-5D-C	●	●	25	25	7	25	150	27.7	71.7	32	32														
	-115-5D-C	●					●																										
	-180-5D-C	●					●																										
	-235-5D-C	●					●																										
	25	35					No Unit Part Number ➡	KGDS%2525-C	●	●										KGDF%	-25-5B-C	●	●	25	25	7	25	150	27.7	54.7	15	15	
	-35-5B-C	●																		●													
	-50-5B-C	●	●																														
	-75-5B-C	●	●																														
	-115-5B-C	●	●																														
	-180-5B-C	●	●																														
	20	25	No Unit Part Number ➡	KGDS%2525-C	●	●	KGDF%	-75-5D-C	●	●	25	25	7	25	150	27.7	71.7	32	32														
	-115-5D-C	●					●																										
	-180-5D-C	●					●																										
	-235-5D-C	●					●																										
	25	35					No Unit Part Number ➡	KGDS%2525-C	●	●										KGDF%	-25-5C-C	●	●	25	25	7	25	150	27.7	59.7	20	20	
	-35-5C-C	●																		●													
	-50-5C-C	●	●																														
	-75-5C-C	●	●																														
	-115-5C-C	●	●																														
	-180-5C-C	●	●																														

● KGDF 90° SwitchBlade type is not available as unit (toolholder + blade).
Blade and toolholder are available to assemble when purchasing individually.

● **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.

● Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

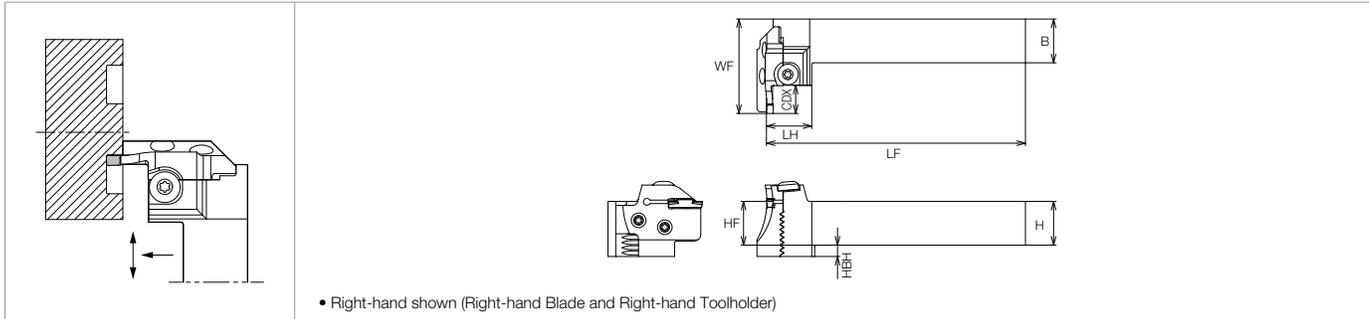
Applicable Inserts **G97**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS (90° SWITCHBLADE TYPE)

KGDF Face Grooving 90° SwitchBlade Toolholders (Metric-Size)

6mm Insert Width



Toolholder + Blade Dimensions

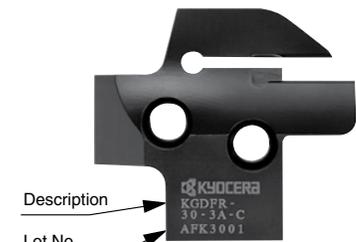
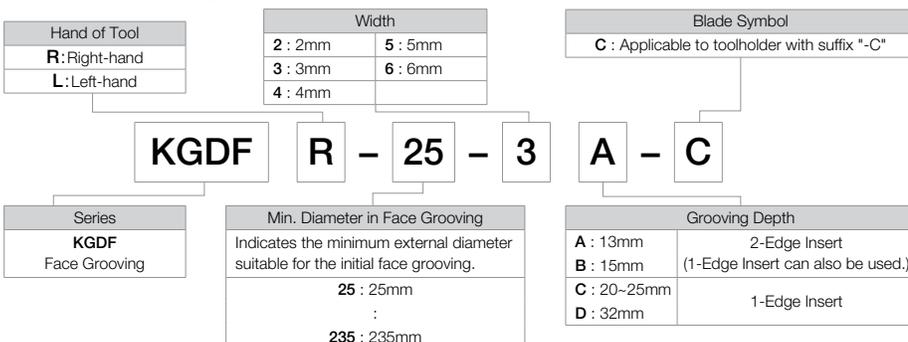
(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Insert Width CW (mm)	Shank Size (mm)	Max. Grooving Depth (mm)	Face Grooving Dia. (mm)		Unit Part Number (Toolholder + Blade)	Toolholder Part Number G37	Stock		Blade Part Number G121	Stock		Dimensions (mm)															
				DAXN (min)	DAXX (max)			R	L		R	L	H	HF	HBH	B	LF	LH	WF	CDX								
90°	6	□20	15	25	35	No Unit Part Number ➔	KGDS% 2020-C	●	●	KGDF% -25-6B-C	●	●	20	20	12	20	125	27.7	54.7	15								
				-35-6B-C	●					●																		
				-50-6B-C	●					●																		
				-75-6B-C	●					●																		
				-115-6B-C	●					●																		
				-180-6B-C	●					●																		
			-235-6B-C	●	●																							
			20	25	35					KGDF% -25-6C-C	●	●									20	20	12	20	125	27.7	59.7	20
				35	50					-35-6C-C	●	●																
				50	75					-50-6C-C	●	●																
				75	115					-75-6C-C	●	●																
				115	180					-115-6C-C	●	●																
		180		235	-180-6C-C	●	●																					
		25	235	∞	-235-6C-C	●	●																					
			25	35	KGDF% -75-6D-C	●	●	20	20	12	20	125	27.7	64.7	25													
			35	50	-115-6D-C	●	●																					
			50	75	-180-6D-C	●	●																					
			75	115	-235-6D-C	●	●																					
			115	180																								
		180	235																									
		□25	15	25	35	No Unit Part Number ➔	KGDS% 2525-C	●	●	KGDF% -25-6B-C	●	●	25	25	7	25	150	27.7	54.7	15								
				35	50					-35-6B-C	●	●																
				50	75					-50-6B-C	●	●																
				75	115					-75-6B-C	●	●																
115	180			-115-6B-C	●					●																		
180	235			-180-6B-C	●					●																		
20	25		35	KGDF% -25-6C-C	●					●	25	25									7	25	150	27.7	59.7	20		
	35		50	-35-6C-C	●					●																		
	50		75	-50-6C-C	●					●																		
	75		115	-75-6C-C	●					●																		
	115		180	-115-6C-C	●					●																		
	180		235	-180-6C-C	●					●																		
25	235	∞	-235-6C-C	●	●																							
	25	35	KGDF% -75-6D-C	●	●	25	25	7	25	150	27.7	64.7	25															
	35	50	-115-6D-C	●	●																							
	50	75	-180-6D-C	●	●																							
	75	115																										
	115	180																										
180	235																											
32	235	∞	-235-6D-C	●	●																							
	25	35	KGDF% -75-6D-C	●	●	25	25	7	25	150	27.7	71.7	32															
	35	50	-115-6D-C	●	●																							
	50	75	-180-6D-C	●	●																							
	75	115																										
	115	180																										
180	235																											
32	235	∞	-235-6D-C	●	●																							

• KGDF 90° SwitchBlade type is not available as unit (toolholder + blade). Blade and toolholder are available to assemble when purchasing individually. Applicable Inserts **G97**

- **Right-hand** Blade for **Right-hand** Toolholder, **Left-hand** Blade for **Left-hand** Toolholder.
- Insert clamp bolt (BH6x10TR) and Blade fixing bolt (SB-60120TR) and Wrench (LTW-25) come with toolholder. For Spare Parts, see **G98**

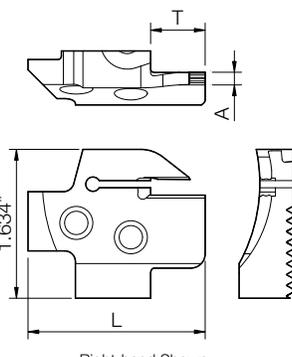
Face Grooving Toolholder Assembly Identification System



Example of printing of blade number

FACE GROOVING BLADE

Blade Dimensions

Shape	Blade Part Number	Stock		Dimensions (in)			Face Grooving Dia. (in)		Width (in) CW	Applicable Inserts G97	Toolholder Part Number G37	
		R	L	L	T	A	DAXN (min)	DAXX (max)				
 <p>Right-hand Shown</p>	KGDFR	-25-2A-C	●	1.746	0.236	0.059	0.984	1.181	0.079 (2mm)	GDFM 2020N-020GM		
		-30-2A-C	●				1.181	1.378				
		-35-2A-C	●				1.378	1.772				
		-45-2A-C	●				1.772	2.362				
		-60-2A-C	●				2.362	3.150				
		-80-2A-C	●	3.150	3.937							
		-100-2A-C	●	3.937	5.118							
		-25-2B-C	●	1.864	0.512		0.984	1.181				
		-30-2B-C	●	1.181	1.378							
		-35-2B-C	●	1.378	1.772							
	-45-2B-C	●	1.772	2.362								
	-60-2B-C	●	2.362	3.150								
	-80-2B-C	●	3.150	3.937								
	-100-2B-C	●	3.937	5.118								
	KGDF [△]	-25-3A-C	●	●	1.864	0.512	0.079	0.984	1.181	0.118 (3mm)		GDFM 3020N-030GM GDFM 3020N-030DM GDFMS 3020N-030DM GDFM 3020N-150R-CM
		-30-3A-C	●	●				1.181	1.575			
		-40-3A-C	●	●				1.575	1.969			
		-50-3B-C	●	●				1.969	2.559			
		-65-3B-C	●	●				1.943	0.591				2.559	3.346
		-85-3B-C	●	●	3.346	4.331						
		-110-3B-C	●	●	4.331	5.709						
		-50-3C-C	●	●	1.969	2.559						
		-65-3C-C	●	●	2.219	0.866		2.559	3.346			
		-85-3C-C	●	●	2.337	0.984		3.346	4.331			
	-110-3C-C	●	●	4.331	5.709							
	KGDF [△]	-25-4A-C	●	●	1.864	0.512	0.118	0.984	1.378	0.157 (4mm)		GDFM 4020N-040GM GDFM 4020N-040GH GDFM 4020N-040DM GDFMS 4020N-040DM GDFM 4020N-200R-CM
		-35-4B-C	●	●				1.378	1.969			
		-50-4B-C	●	●				1.969	2.756			
		-70-4B-C	●	●				2.756	3.937			
		-100-4B-C	●	●				3.937	5.906			
		-150-4B-C	●	●	5.906	8.661						
		-220-4B-C	●	●	8.661	∞						
		-35-4C-C	●	●	1.378	1.969						
		-50-4C-C	●	●	1.969	2.756						
		-70-4C-C	●	●	2.756	3.937						
	-100-4C-C	●	●	3.937	5.906							
	-150-4C-C	●	●	5.906	8.661							
	-220-4C-C	●	●	8.661	∞							
	KGDF [△]	-25-5B-C	●	●	1.943	0.591	0.157	0.984	1.378	0.197 (5mm)		GDFM 5020N-040GM GDFM 5020N-080GM GDFM 5020N-040GH GDFM 5020N-080GH GDFM 5020N-040DM GDFMS 5020N-040DM GDFM 5020N-250R-CM
		-35-5B-C	●	●				1.378	1.969			
		-50-5B-C	●	●				1.969	2.953			
		-75-5B-C	●	●				2.953	4.528			
		-115-5B-C	●	●				4.528	7.087			
		-180-5B-C	●	●	7.087	9.252						
		-235-5B-C	●	●	9.252	∞						
		-25-5C-C	●	●	2.140	0.787		0.984	1.378			
		-35-5C-C	●	●	1.378	1.969						
		-50-5C-C	●	●	1.969	2.953						
	-75-5C-C	●	●	2.953	4.528							
	-115-5C-C	●	●	4.528	7.087							
-180-5C-C	●	●	7.087	9.252								
-235-5C-C	●	●	9.252	∞								
-75-5D-C	●	●	2.953	4.528								
-115-5D-C	●	●	4.528	7.087								
-180-5D-C	●	●	7.087	9.252								
-235-5D-C	●	●	9.252	∞								
KGDF [△]	-25-6B-C	●	●	1.943	0.591	0.197	0.984	1.378	0.236 (6mm)	GDFM 6020N-040GM GDFM 6020N-080GM GDFM 6020N-040GH GDFM 6020N-080GH GDFM 6020N-040DM GDFMS 6020N-040DM GDFM 6020N-300R-CM		
	-35-6B-C	●	●				1.378	1.969				
	-50-6B-C	●	●				1.969	2.953				
	-75-6B-C	●	●				2.953	4.528				
	-115-6B-C	●	●				4.528	7.087				
	-180-6B-C	●	●	7.087	9.252							
	-235-6B-C	●	●	9.252	∞							
	-25-6C-C	●	●	2.140	0.787		0.984	1.378				
	-35-6C-C	●	●	1.378	1.969							
	-50-6C-C	●	●	1.969	2.953							
-75-6C-C	●	●	2.953	4.528								
-115-6C-C	●	●	4.528	7.087								
-180-6C-C	●	●	7.087	9.252								
-235-6C-C	●	●	9.252	∞								
-75-6D-C	●	●	2.953	4.528								
-115-6D-C	●	●	4.528	7.087								
-180-6D-C	●	●	7.087	9.252								
-235-6D-C	●	●	9.252	∞								

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

RECOMMENDED CUTTING CONDITIONS

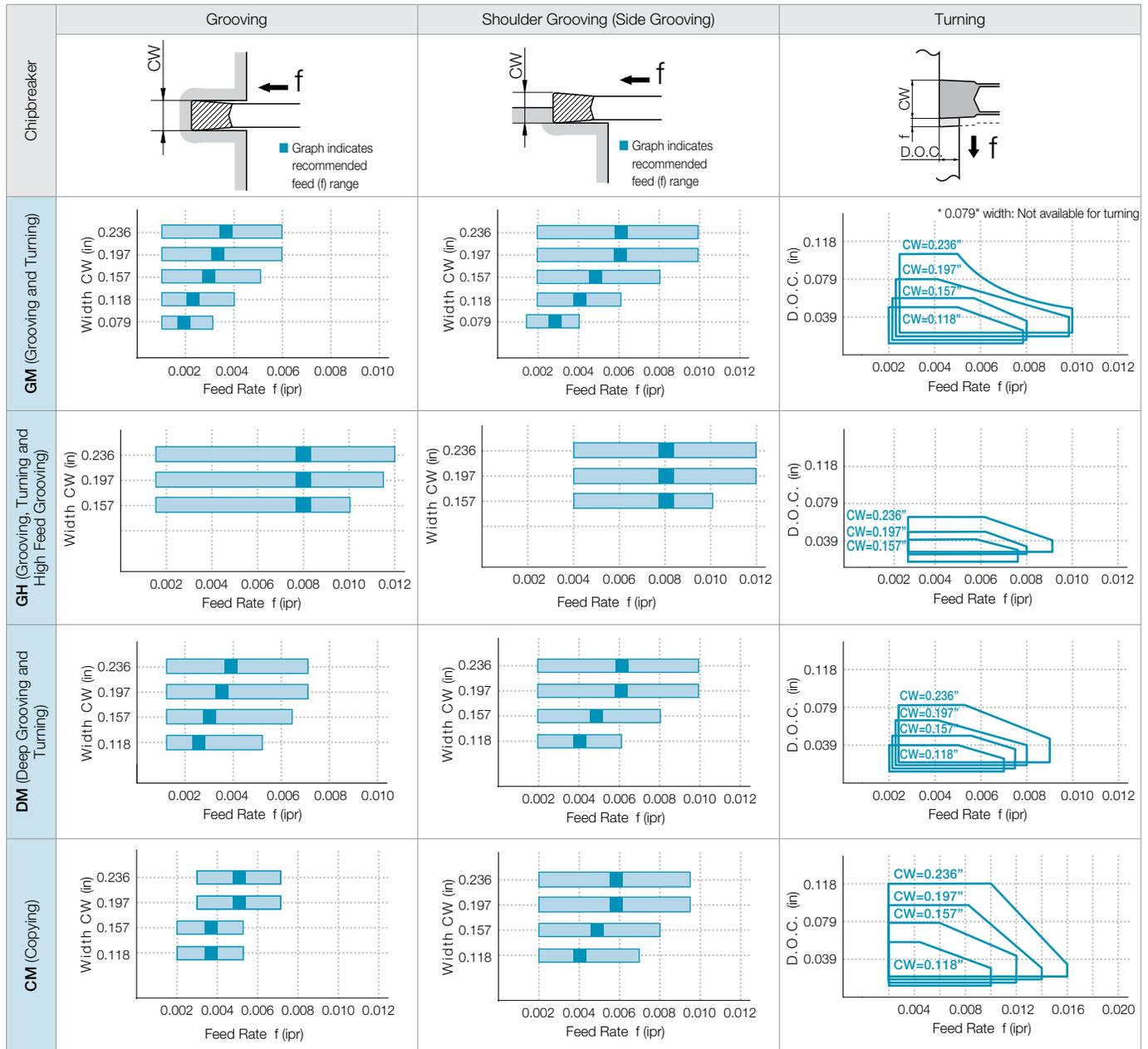
◆ Recommended Cutting Conditions (Vc)

Workpiece Material	Recommended Insert Grade (Vc : sfm)				Notes
	Cermet		MEGACOAT		
	TN620	TN90	PR1225	PR1215	
Carbon Steel	☆ 200-660	☆ 260-660	★ 200-520	☆ 260-520	Wet
Alloy Steel	☆ 200-520	☆ 230-520	★ 200-490	☆ 200-490	
Stainless Steel	-	-	★ 160-390	☆ 160-390	
Cast Iron	-	-	-	★ 260-520	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Feed Rate / D.O.C.)

(Workpiece Material : 1049)



When shouldering,

- If D.O.C. is set smaller, set feed higher.
- If D.O.C. is set larger, set feed lower.

1) The above values reflect a CDX dimension that is 0.591" (15mm) or less.

When CDX dimension is over 0.669" (17mm), set the values for turning to less than 90% of recommended cutting conditions above.

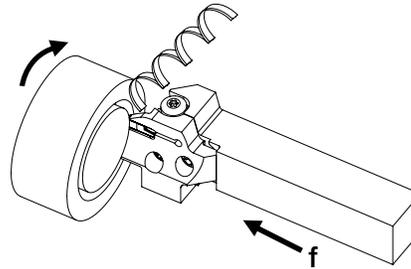
Face Grooving Guide

1 Toolholder Selection

Check the range of applicable "face grooving diameter" as well as the groove width and depth.

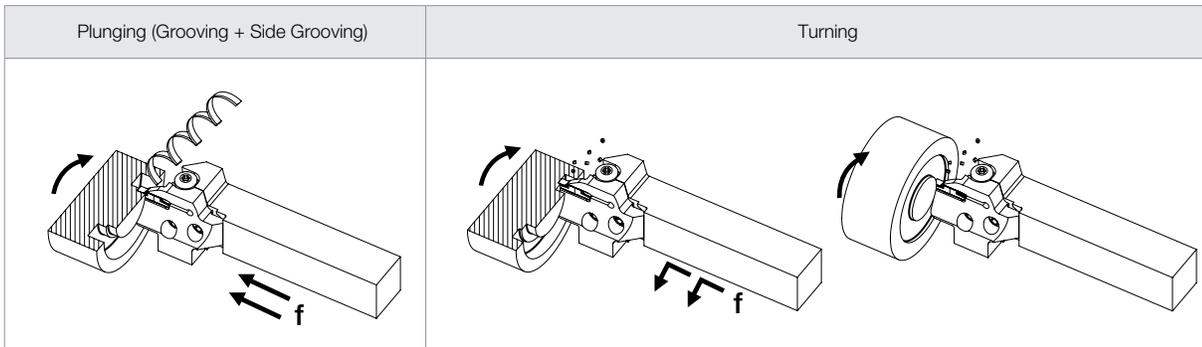
2 Cutting Conditions (Feed Rate : f)

When machining steel, set the feed rate (f) so that chips are created in a helical form when plunging.



3 Expanding Groove Width (Plunging and Turning)

Start machining from the outside and then proceed to the inside to improve chip control.



4 Guide for Turning

A. When the cutting amount (D.O.C.) is over 0.020" (0.5mm)

- ① Plunge
- ② Pull back tool by 0.004" (0.1mm)
(Failure to pull the tool back before turning will result in an unbalanced load applied on only one side of the cutting edge.)
- ③ Perform turning (see Fig.1)

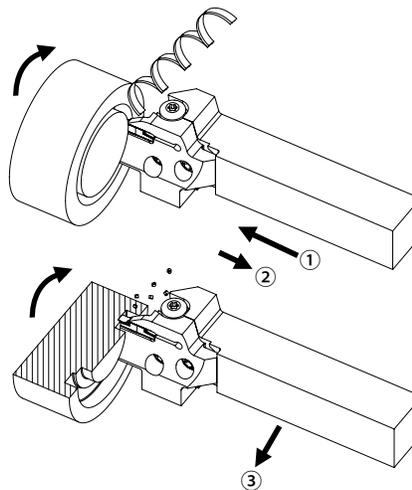
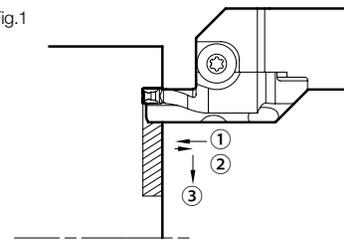


Fig.1

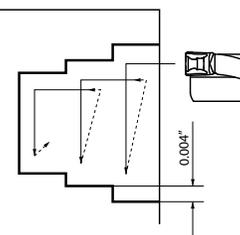


● When Widening the Face Groove Width (see Fig.2)

Use "Step Turning" as shown in Fig.2. This allows for the deflection that occurs during traversing. To ensure perpendicularity of the side walls, two final shoulder plunges should be made.

Then perform finishing.

Fig.2



B. When the cutting amount (D.O.C.) is under 0.020" (0.5mm)

- ① Use plunging
- ② Perform turning
Machining without interruption is possible. (see Fig.3)

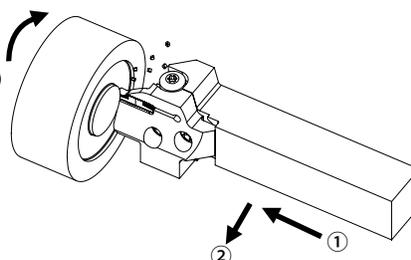
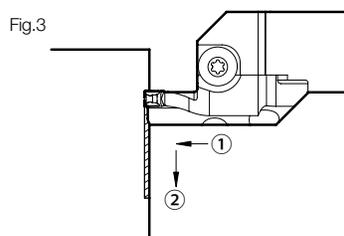


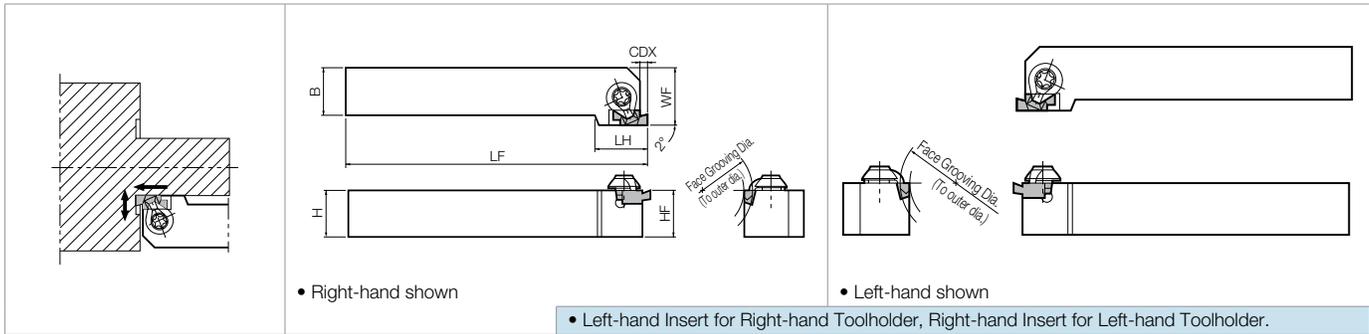
Fig.3



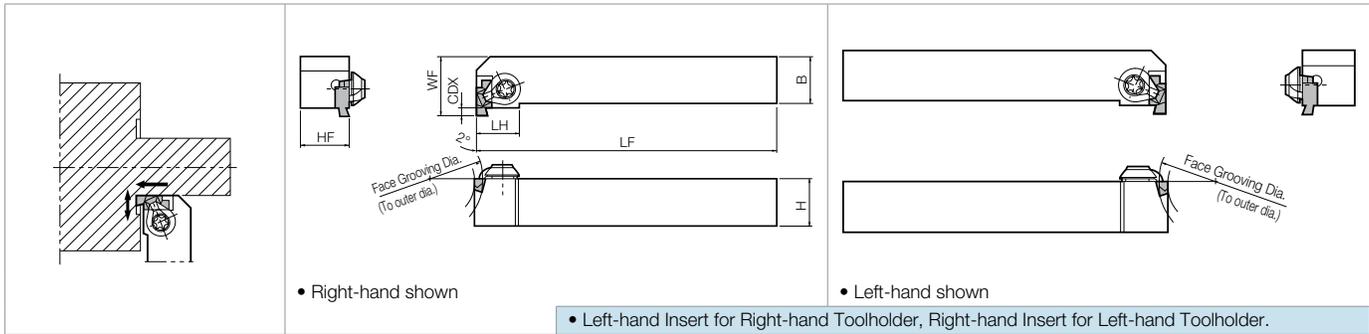
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SMALL DIAMETER FACE GROOVING TOOLHOLDERS [GVF-AA INSERT]

GFVS-AA



GFVT-AA



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)							Face Grooving Dia.		Spare Parts		Applicable Inserts ➔ G125
	R	L	H	HF	B	LF	LH	WF	CDX	DAXN (min)	DAXX (max)	Clamp Set	Wrench	
GFVS% 2020K-08AA	●	●	20	20	20	125	18	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVF% 100-005AA ~ GVF% 300-005AA
	●	●	25	25	25	150	18	32	2.2					
GFVT% 2020K-08AA	●	●	20	20	20	125	14	25	2.2	8 (0)	∞ (∞)	CPS-5V	FT-15	GVF% 100-005AA ~ GVF% 300-005AA
	●	●	25	25	25	150	14	32	2.2					

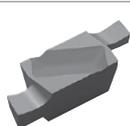
Note 1. Dimension CDX shows available grooving depth.

Note 2. The value () of Face Grooving Dia. DAXX (max) in () is the maximum outer diameter value after the initial groove between DAXN (min) ~ DAXX (max). It is possible to widen the groove to infinity ∞. The value () of Face Grooving Dia. DAXN (min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN (min) ~ DAXX (max).

GROOVING INSERTS

Applicable Inserts

Part Number	W1	(mm)			P	M	K	N	S	H	Classification of Usage			Applicable Toolholders	Ref. Page for Toolholder
		INSL	S	RE							●	○	●		
GVF%	100-...AA	4.3	12	4.5	Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)	Hard materials (≥40HRC)	●	○	●	○
	200-...AA	4.3	12	4.5								●	○	●	○
	300-...AA	4.3	12	4.5								●	○	●	○

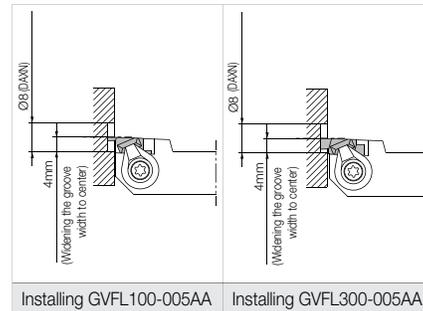
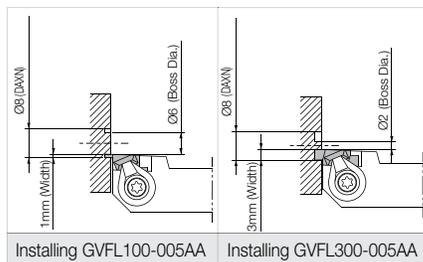
Insert	Part Number	Previous Part Number	Dimensions (mm)			MEGACOAT	PVD	Carbide	Applicable Toolholders	Ref. Page for Toolholder
			CW	CDX	RE					
	GVF% 100-005AA	GVF% 100AA	1.00	2.2	0.05	●	●	●	GFVS%...-08AA GFVT%...-08AA	
	200-005AA	200AA	2.00	2.2		●	●	●		
	300-005AA	300AA	3.00	2.2		●	●	●		

- Dimension **CDX** shows available grooving depth.
- GVF%...005AA inserts are not compatible with GVF%...000A (Ref. to Page ) inserts because their Side Relief Angle is 10°.

Face Grooving Diameter of GFVS-AA (also GFVT-AA)

Part Number	Face Grooving Dia.		Applicable Inserts
	DAXN (min)	DAXX (max)	
GFVS% 2020K-08AA 2525M-08AA	.8	∞	GVF% 100-005AA
GFVT% 2020K-08AA 2525M-08AA	(0)	(∞)	GVF% 300-005AA

- Maximum diameter of initial groove plunge.
- When machining towards the outer diameter, there is no maximum limit to the groove diameter.
- Minimum Dia. of Initial Groove Plunge
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
- When widening the groove to center, This is minimum diameter.



Recommended Cutting Conditions (GFVS-AA / GFVT-AA)

Workpiece Material	Recommended Insert Grade (Vc sfm)			Grooving	Turning		Notes	
	MEGACOAT	PVD	Carbide		Feed Rate (ipr)	D.O.C.		Feed Rate (ipr)
	PR1225	PR930	KW10					
Carbon Steel / Alloy Steel	★ 160-330	☆ 160-330	-	0.0004-0.0020	Max 0.0197	0.0004-0.0020	Wet	
Stainless Steel	★ 160-260	☆ 160-260	-	0.0004-0.0012	Max 0.0118	0.0004-0.0008		
Non-ferrous Metals	-	-	★ -660	0.0004-0.0031	Max 0.0197	0.0004-0.0031		

* D.O.C. has to be set for less than corner-R (RE) when turning with 0.039° edge (GVF% 100-005AA).

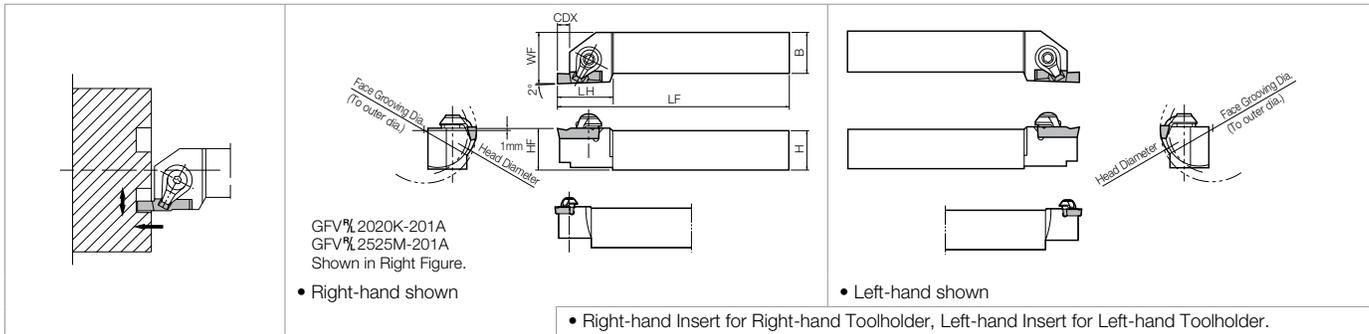
★ : 1st Recommendation ☆ : 2nd Recommendation

Inserts are sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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FACE GROOVING TOOLHOLDERS [GVF INSERT]

GVF



Toolholder Dimensions

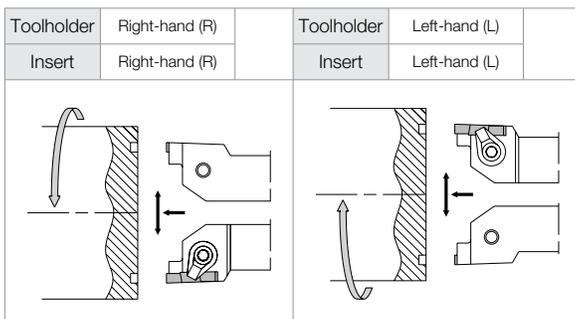
Part Number	Stock		Dimensions (mm)							Face Grooving Dia.		Spare Parts			Applicable Inserts ➔ G132
	R	L	H	HF	B	LF	LH	WF	CDX	DAXN (min)	DAXX (min)	Clamp Set		Wrench	
GVF% 2020K-201A	●	●	20	21	20	125	20	25	2.2	20 (12)	∞	CPS-5V	-	FT-15	GVF% 200~340-020A GVF% 200-...~300-...AR
2525M-201A	●	●	25	26	25	150	23	32	2.2						
GVF% 2020K-351B	●	●	20	21	20	125	28	25	4.6	35 (25)	50 (∞)	-	CPS-6V	LW-3	GVF% 250~350-020B GVF% 300-150BR GVF% 400~490-020B GVF% 400-200BR
2525M-351B	●	●	25	26	25	150	30	32	4.6						
2020K-352B	●	●	20	21	20	125	28	25	5.1	50 (25)	70 (∞)	-	CPS-6V	LW-3	GVF% 250~350-020B GVF% 300-150BR GVF% 400~490-020B GVF% 400-200BR
2525M-352B	●	●	25	26	25	150	30	32	5.1						
2020K-501B	●	●	20	21	20	125	28	25	4.6	70 (25)	100 (∞)	-	CPS-6V	LW-3	GVF% 250~350-020B GVF% 300-150BR GVF% 400~490-020B GVF% 400-200BR
2525M-501B	●	●	25	26	25	150	30	32	4.6						
2020K-502B	●	●	20	21	20	125	28	25	5.1	100 (25)	150 (∞)	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-502B	●	●	25	26	25	150	35	32	8.1						
2020K-701B	●	●	20	21	20	125	28	25	4.6	150 (25)	250 (∞)	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-701B	●	●	25	26	25	150	30	32	4.6						
2020K-702B	●	●	20	21	20	125	28	25	5.1	250 (25)	∞	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-702B	●	●	25	26	25	150	30	32	5.1						
GVF% 2525M-501C	●	●	25	26	25	150	35	32	6.6	250 (25)	∞	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-502C	●	●	25	26	25	150	35	32	8.1						
2525M-701C	●	●	25	26	25	150	35	32	6.6	∞	∞	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-702C	●	●	25	26	25	150	35	32	8.1						
2525M-1001C	●	●	25	26	25	150	35	32	6.6	∞	∞	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-1002C	●	●	25	26	25	150	35	32	8.1						
2525M-1501C	●	●	25	26	25	150	35	32	6.6	∞	∞	-	CPS-8V	LW-4	GVF% 350~450-040C GVF% 500~600-040C GVF% 350~450-040C GVF% 500~600-040C
2525M-1502C	●	●	25	26	25	150	35	32	8.1						

Note 1. Dimension CDX shows available grooving depth.

2. The value () of Face Grooving Dia. DAXX (max) in () is the maximum outer diameter value after the initial groove between DAXN (min) ~ DAXX (max). It is possible to widen the groove to infinity ∞.
The value () of Face Grooving Dia. DAXN (min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN (min) ~ DAXX (max).

3. Standard toolholders are designed with the edge position 1.0mm above the center. When using non-standard Toolholders, set the Edge position 1.0mm above the center.

Selection of Toolholder & Insert

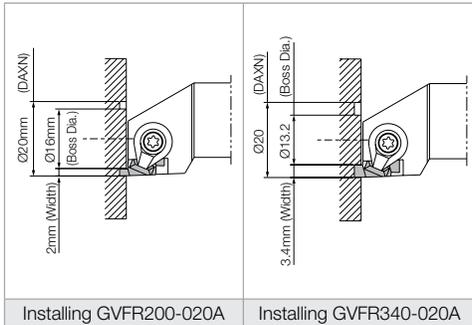


◆ Face Grooving Diameter of GVF

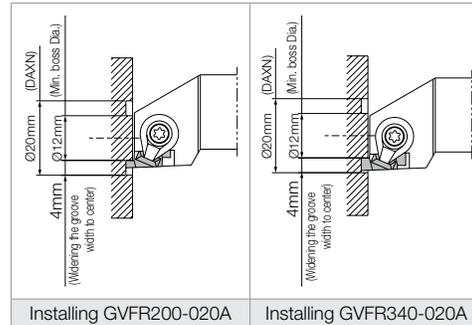
(1) e.g.) GVF%L...-201A

Part Number	Face Grooving Dia.		Applicable Inserts
	DAXN (min)	DAXX (min)	
GVF%L 2020K-201A	20	∞	GVF%L 200~340-020A GVF%L 200~...~300~...AR
2525M-201A	(12)	(∞)	

- Minimum Dia. (DAXN: Ø20mm) of Initial Groove-Plunge
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.



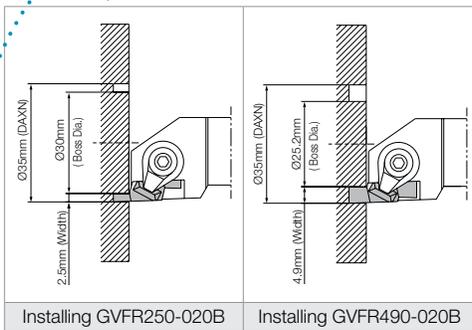
- Maximum diameter (DAXX) of initial groove plunge.
- When machining towards the outer diameter, there is no maximum limit to the grooving diameter.
- When widening the groove to center, this is no minimum diameter.



(2) e.g.) GVF%L...-351B/352B (same as GVF%L...-0000B or GVF%L...-0000C)

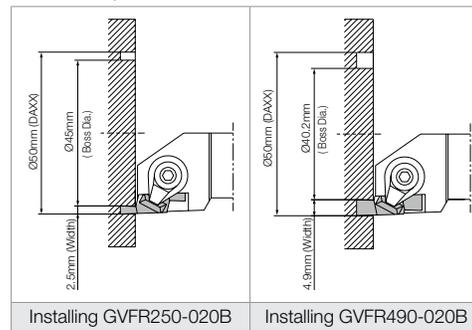
Part Number	Face Grooving Dia.		Applicable Inserts
	DAXN (min)	DAXX (min)	
GVF%L 2020K-351B	35 (25)	50 (∞)	GVF%L 200~340-020A GVF%L 200~...~300~...AR
2525M-351B			
2020K-352B			
2525M-352B			

- When machining the initial groove on the face at (DAXN: Ø35mm)
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.

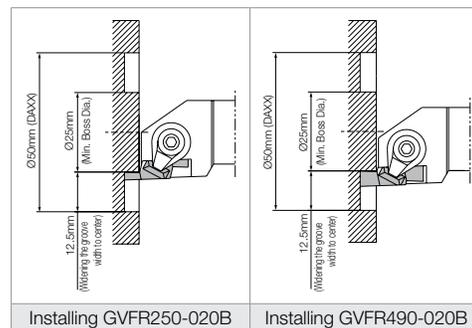
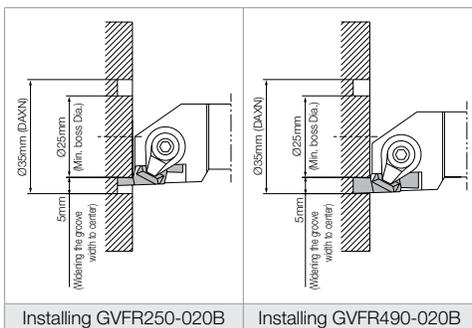


- It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

- When machining the initial groove on the face at (DAXX: Ø50mm)
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.



- When widening the groove width to inner diameter.
Face Grooving Dia. (Ø25mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: Ø35mm) or (DAXX: Ø50mm).
The toolholder interferes with the workpiece when closer to the center.

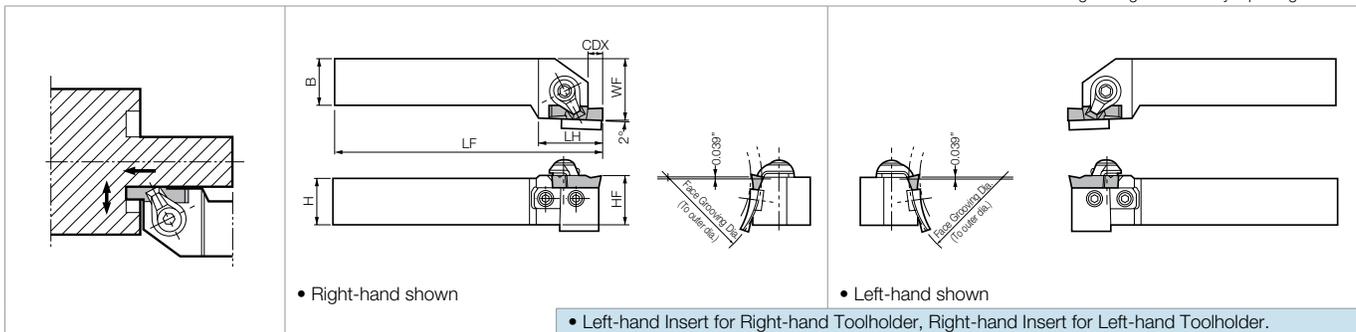


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
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MILLING	M
QUICK-CHANGE TOOLING	N
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TECHNICAL	R
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FACE GROOVING TOOLHOLDERS [GVF INSERT]

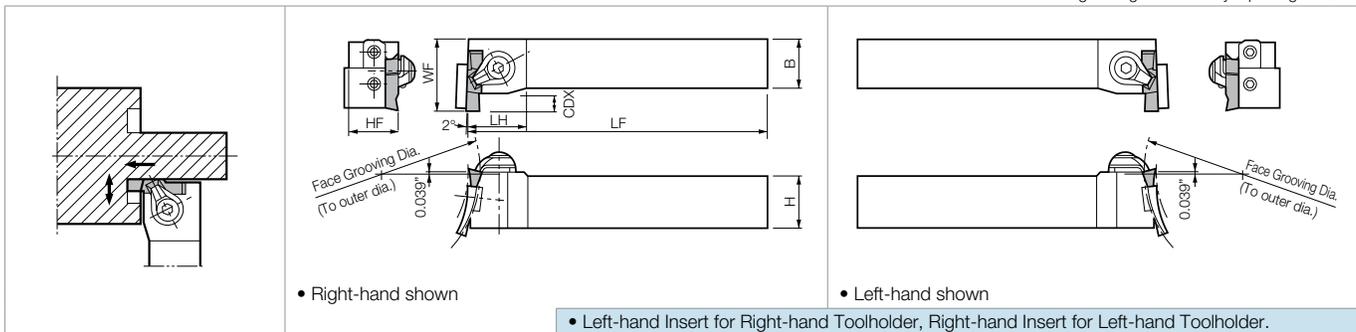
GFVS

This toolholder can machine various face grooving diameters by replacing the Blade.



GFVT

This toolholder can machine various face grooving diameters by replacing the Blade.



Selection of Toolholder & Insert

GFVS				GFVT			
Toolholder	Right-hand (R)	Toolholder	Left-hand (L)	Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	Left-hand (L)	Insert	Right-hand (R)	Insert	Left-hand (L)	Insert	Right-hand (R)

Combination of Base-Holder & Blade (Inch Size)

Part Number of Toolholder (Stamped Below)	Stock		Blade Part Number	Toolholder Part Number (Integrated Tool)	Example of Installation (GFVS)	How to refer to the face grooving toolholder and blade
	R	L				
GFVS $\frac{1}{2}$ 12-HB GFVT $\frac{1}{2}$ 12-HB	●	●	SF $\frac{1}{2}$ -351B	GFVS $\frac{1}{2}$ 12 -351B		Q: Though "GFVSR16-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How can it be found out? A: Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is installed with "GFVSR16-HC", the description of the toolholder is "GVFSR16-1001C"
			-352B	GFVT $\frac{1}{2}$ 12 -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS $\frac{1}{4}$ 16-HB GFVT $\frac{1}{4}$ 16-HB	●	●	SF $\frac{1}{4}$ -351B	GFVS $\frac{1}{4}$ 16 -351B		
			-352B	GFVT $\frac{1}{4}$ 16 -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS $\frac{1}{8}$ 16-HC GFVT $\frac{1}{8}$ 16-HC	●	●	SF $\frac{1}{8}$ -501C	GFVS $\frac{1}{8}$ 16 -501C		
			-502C	GFVT $\frac{1}{8}$ 16 -502C		
			-701C	-701C		
			-702C	-702C		
			-1001C	-1001C		
			-1002C	-1002C		
		-1501C	-1501C			
		-1502C	-1502C			

- Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
- Installation of GFVT type follows installation example of GFVS type.

● Toolholder Dimensions (Inch Size)

Part Number	Stock		Dimensions (in)							Face Grooving Dia.		Spare Parts				Applicable Inserts ● G132								
	R	L	H	HF	B	LF	LH	WF	CDX	DAXN (min)	DAXX (max)	Clamp Set	Wrench	Blade	Screw									
GFVS 12-351B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20	1.378 (0.984)	1.969 (∞)	CPS-6V	LW-3	SF 351B	HH4X12	GVF 250~350-020B GVF 300-150BR								
16-351B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.18)															
12-352B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20															
16-352B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.20)															
12-501B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20	1.969 (0.984)	2.756 (∞)			CPS-6V		LW-3	SF 501B	HH4X12	GVF 250~350-020B GVF 300-150BR					
16-501B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.18)															
12-502B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20															
16-502B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.20)															
12-701B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20	2.756 (0.984)	3.937 (∞)						CPS-6V		LW-3	SF 701B	HH4X12	GVF 250~350-020B GVF 300-150BR		
16-701B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.18)															
12-702B	●	●	0.75	0.79	0.75	5.00	1.18	1.00	0.20															
16-702B	●	●	1.00	1.04	1.00	6.00	1.26	1.25	(0.20)															
GFVS 16-501C	●	●	1.00	1.04	1.00	6.00	1.38	1.25	0.32 (0.26)	1.969 (0.984)	2.756 (∞)	CPS-8V	LW-4		SF 501C					HH4X12		GVF 350~450-040C		
16-502C	●	●							0.32 (0.32)						2.756 (0.984)							3.937 (∞)	SF 502C	GVF 500~600-040C
16-701C	●	●							0.32 (0.26)														SF 701C	GVF 350~450-040C
16-702C	●	●							0.32 (0.32)														SF 702C	GVF 500~600-040C
16-1001C	●	●							0.32 (0.26)	3.937 (0.984)	5.906 (∞)			SF 1001C		GVF 350~450-040C								
16-1002C	●	●							0.32 (0.32)					SF 1002C	GVF 500~600-040C									
16-1501C	●	●							0.32 (0.26)					5.906 (0.984)	9.843 (∞)	SF 1501C		GVF 350~450-040C						
16-1502C	●	●							0.32 (0.32)							SF 1502C		GVF 500~600-040C						
GFVT 12-351B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20	1.378 (0.984)	1.969 (∞)			CPS-6V	LW-3	SF 351B	HH4X12	GVF 250~350-020B GVF 300-150BR						
16-351B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.18)															
12-352B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20															
16-352B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.20)															
12-501B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20	1.969 (0.984)	2.756 (∞)	CPS-6V	LW-3			SF 501B		HH4X12	GVF 250~350-020B GVF 300-150BR					
16-501B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.18)															
12-502B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20															
16-502B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.20)															
12-701B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20	2.756 (0.984)	3.937 (∞)					CPS-6V			LW-3	SF 701B	HH4X12	GVF 250~350-020B GVF 300-150BR		
16-701B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.18)															
12-702B	●	●	0.75	0.79	0.75	5.00	0.87	1.18	0.20															
16-702B	●	●	1.00	1.04	1.00	6.00	0.98	1.38	(0.20)															
GFVT 16-501C	●	●	1.00	1.04	1.00	6.00	1.06	1.50	0.32(0.26)	1.969 (0.984)	2.756 (∞)			CPS-8V	LW-4		SF 501C			HH4X12		GVF 350~450-040C		
16-502C	●	●							0.32(0.32)								2.756 (0.984)					3.937 (∞)	SF 502C	GVF 500~600-040C
16-701C	●	●							0.32(0.26)														SF 701C	GVF 350~450-040C
16-702C	●	●							0.32(0.32)														SF 702C	GVF 500~600-040C
16-1001C	●	●							0.32(0.26)	3.937 (0.984)	5.906 (∞)	SF 1001C	GVF 350~450-040C											
16-1002C	●	●							0.32(0.32)			SF 1002C	GVF 500~600-040C											
16-1501C	●	●							0.32(0.26)			5.906 (0.984)	9.843 (∞)				SF 1501C	GVF 350~450-040C						
16-1502C	●	●							0.32(0.32)								SF 1502C	GVF 500~600-040C						

- Note 1. Dimension **CDX** shows the distance from the Toolholder to the cutting edge. The grooving depth is shown in ().
2. The value () of Face Grooving diameter. (DAXX) is the maximum outer diameter value after the initial groove between DAXN - DAXX (It is possible to widen the groove to infinity ∞).
The value () of Face Grooving diameter. (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN - DAXX.
3. Standard toolholders are designed with the edge position 0.039" above the center.
When using non-standard Toolholders, set the Edge position 0.039" above the center.
4. GFVS and GFVT are composed of a base body and a blade.
If the blade should be damaged, replace it with a new blade as listed in the left table.
(e.g) GFVSR12-HB+SFR-351B = GFVSR12-351B
(e.g) GFVTR12-HB+SFR-351B = GFVTR12-351B

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● Combination of Base-Holder & Blade (Metric Size)

Part Number of Toolholder (Stamped Below)	Stock		Blade Part Number	Toolholder Part Number (Integrated Tool)	Example of Installation (GFVS)	How to refer to the face grooving toolholder and blade
	R	L				
GFVS% 2020K-HB GFVT% 2020K-HB	● ●	● ●	SF% -351B	GFVS% 2020K -351B		<p>Q: Though "GFVSR2525M-HC" is marked on the face grooving toolholder, the size of cutting dia. is unknown. How can it be found out?</p> <p>A: Take off the blade. Description of the blade is listed on the back of the blade. Using the description, check the description of the toolholder in the catalog. If "SFR-1001C" is integrated to "GFVSR2525M-HC", the description of the toolholder is "GFVSR2525M-1001C"</p>
			-352B	GFVT% 2020K -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS% 2525M-HB GFVT% 2525M-HB	● ●	● ●	SF% -351B	GFVS% 2525M -351B		
			-352B	GFVT% 2525M -352B		
			-501B	-501B		
			-502B	-502B		
			-701B	-701B		
			-702B	-702B		
GFVS% 2525M-HC GFVT% 2525M-HC	● ●	● ●	SF% -501C	GFVS% 2525M -501C		
			-502C	GFVT% 2525M -502C		
			-701C	-701C		
			-702C	-702C		
			-1001C	-1001C		
			-1002C	-1002C		
			-1501C	-1501C		
			-1502C	-1502C		

- Right-hand Blade for Right-hand Toolholder, Left-hand Blade for Left-hand Toolholder.
- Installation of GFVT type follows example installation of GFVS type.

● Toolholder Dimensions (Metric Size)

Part Number	Stock		Dimensions (mm)							Face Grooving Dia.		Spare Parts				Applicable Inserts ● G132											
	R	L	H	HF	B	LF	LH	WF	CDX	DAXN (min)	DAXX (max)	Clamp Set	Wrench	Blade	Screw												
GFVS% 2020K-351B	●	●	20	21	20	125	30	25	5.1	35	50	CPS-6V	LW-3	SF% -351B	HH4X12	GFV% 250-350-020B GFV% 300-150BR											
2525M-351B	●	●	25	26	25	150	32	32	(4.6)								(∞)	SF% -352B	GFV% 400-490-020B GFV% 400-200BR								
2020K-352B	●	●	20	21	20	125	30	25	5.1	50	70			SF% -501B			GFV% 250-350-020B GFV% 300-150BR										
2525M-352B	●	●	25	26	25	150	32	32	(5.1)									(∞)		SF% -502B	GFV% 400-490-020B GFV% 400-200BR						
2020K-501B	●	●	20	21	20	125	30	25	5.1	70	100			SF% -701B				GFV% 250-350-020B GFV% 300-150BR									
2525M-501B	●	●	25	26	25	150	32	32	(4.6)											(∞)		SF% -702B	GFV% 400-490-020B GFV% 400-200BR				
2020K-502B	●	●	20	21	20	125	30	25	5.1	50	70			SF% -501C						GFV% 350-450-040C							
2525M-502B	●	●	25	26	25	150	32	32	(5.1)													(∞)		SF% -502C	GFV% 500-600-040C		
2020K-701B	●	●	20	21	20	125	30	25	5.1	70	100			SF% -701C								GFV% 350-450-040C					
2525M-701B	●	●	25	26	25	150	32	32	(4.6)															(∞)		SF% -702C	GFV% 500-600-040C
2020K-702B	●	●	20	21	20	125	30	25	5.1	100	150	SF% -1001C	GFV% 350-450-040C														
2525M-702B	●	●	25	26	25	150	32	32	(5.1)					(∞)	SF% -1002C	GFV% 500-600-040C											
2020K-702B	●	●	20	21	20	125	30	25	5.1	150	250	SF% -1501C		GFV% 350-450-040C													
2525M-702B	●	●	25	26	25	150	32	32	(5.1)						(∞)		SF% -1502C		GFV% 500-600-040C								
GFVS% 2525M-501C	●	●	25	26	25	150	32	32	8.1 (6.6)	(25)	(∞)	CPS-8V			LW-4			HH4X12			GFV% 350-450-040C						
2525M-502C	●	●	25	26	25	150	32	32	8.1 (8.1)	(25)	(∞)						SF% -502C						GFV% 500-600-040C				
2525M-701C	●	●	25	26	25	150	32	32	8.1 (6.6)	70	100									SF% -701C				GFV% 350-450-040C			
2525M-702C	●	●	25	26	25	150	32	32	8.1 (8.1)	(25)	(∞)						SF% -702C								GFV% 500-600-040C		
2525M-1001C	●	●	25	26	25	150	32	32	8.1 (6.6)	100	150									SF% -1001C		GFV% 350-450-040C					
2525M-1002C	●	●	25	26	25	150	32	32	8.1 (8.1)	(25)	(∞)						SF% -1002C									GFV% 500-600-040C	
2525M-1501C	●	●	25	26	25	150	32	32	8.1 (6.6)	150	250		SF% -1501C							GFV% 350-450-040C							
2525M-1502C	●	●	25	26	25	150	32	32	8.1 (8.1)	(25)	(∞)					SF% -1502C	GFV% 500-600-040C										
GFVT% 2020K-351B	●	●	20	21	20	125	22	30	5.1	35	50		CPS-6V	LW-3													SF% -351B	HH4X12	GFV% 250-350-020B GFV% 300-150BR
2525M-351B	●	●	25	26	25	150	25	35	(4.6)							(25)			(∞)											SF% -352B	GFV% 400-490-020B GFV% 400-200BR
2020K-352B	●	●	20	21	20	125	22	30	5.1	50	70	SF% -501B			GFV% 250-350-020B GFV% 300-150BR												
2525M-352B	●	●	25	26	25	150	25	35	(5.1)							(25)		(∞)	SF% -502B		GFV% 400-490-020B GFV% 400-200BR						
2020K-501B	●	●	20	21	20	125	22	30	5.1	70	100	SF% -701B				GFV% 250-350-020B GFV% 300-150BR											
2525M-501B	●	●	25	26	25	150	25	35	(4.6)									(25)	(∞)				SF% -702B	GFV% 400-490-020B GFV% 400-200BR			
2020K-502B	●	●	20	21	20	125	22	30	5.1	50	70	SF% -501B						GFV% 250-350-020B GFV% 300-150BR									
2525M-502B	●	●	25	26	25	150	25	35	(5.1)										(25)			(∞)	SF% -502B		GFV% 400-490-020B GFV% 400-200BR		
2020K-701B	●	●	20	21	20	125	22	30	5.1	70	100	SF% -701B							GFV% 250-350-020B GFV% 300-150BR								
2525M-701B	●	●	25	26	25	150	25	35	(4.6)								(25)			(∞)		SF% -702B	GFV% 400-490-020B GFV% 400-200BR				
2020K-702B	●	●	20	21	20	125	22	30	5.1	100	150	SF% -1001C	GFV% 350-450-040C														
2525M-702B	●	●	25	26	25	150	27	38	8.1 (6.6)					(25)			(∞)			SF% -1002C		GFV% 500-600-040C					
2525M-1001C	●	●	25	26	25	150	27	38	8.1 (6.6)	100	150	SF% -1001C		GFV% 350-450-040C													
2525M-1002C	●	●	25	26	25	150	27	38	8.1 (8.1)	(25)	(∞)				SF% -1002C		GFV% 500-600-040C										
2525M-1501C	●	●	25	26	25	150	27	38	8.1 (6.6)	150	250	SF% -1501C				GFV% 350-450-040C											
2525M-1502C	●	●	25	26	25	150	27	38	8.1 (8.1)	(25)	(∞)				SF% -1502C					GFV% 500-600-040C							

Note 1. Dimension CDX shows the distance from the Toolholder to the cutting edge. The grooving depth is shown in ().

2. The value () of Face Grooving diameter. (DAXX) is the maximum outer diameter value after the initial groove between DAXN - DAXX (It is possible to widen the groove to infinity ∞).

The value () of Face Grooving diameter. (DAXN) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN - DAXX.

3. Standard toolholders are designed with the edge position 1.0mm above the center.

When using non-standard Toolholders, set the Edge position 1.0mm above the center.

4. GFVS and GFVT are composed of a base body and a blade.

If the blade should be damaged, replace it with a new blade as listed in the left table.

(e.g.) GFVSR2020K-HB+SFR-351B = GFVSR2020K-351B

(e.g.) GFVTR2020K-HB+SFR-351B = GFVTR2020K-351B

(Customer Service) 800.823.7284 - Option 1

(Technical Support) 800.823.7284 - Option 2

Visit us online at KyoceraPrecisionTools.com

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

FACE GROOVING BLADE

Blade Dimensions

Shape	Blade Part Number	Stock		Dimensions (mm)				Face Grooving Dia.		Applicable Inserts	Applicable Toolholders
		R	L	L	H	T	W	DAXN (min)	DAXX (max)		
	SF $\frac{\%}{L}$ -351B	●	●	30.5	11	4.7	2.0	35	50	GVF $\frac{\%}{L}$ 250-350-020B GVF $\frac{\%}{L}$ 300-150BR	GVF(S/T) $\frac{\%}{L}$ ○○○○□ -○○○B (Toolholder Stamp (GVF(S/T) $\frac{\%}{L}$ ○○○○□-HB))
	-352B	●	●	30.5	11	4.7	3.4	35	50	GVF $\frac{\%}{L}$ 400-490-020B GVF $\frac{\%}{L}$ 400-200BR	
	SF $\frac{\%}{L}$ -501B	●	●	30.5	15	4.7	2.0	50	70	GVF $\frac{\%}{L}$ 250-350-020B GVF $\frac{\%}{L}$ 300-150BR	
	-502B	●	●	30.5	15	4.7	3.4	50	70	GVF $\frac{\%}{L}$ 400-490-020B GVF $\frac{\%}{L}$ 400-200BR	
	SF $\frac{\%}{L}$ -701B	●	●	30.5	17	4.7	2.0	70	100	GVF $\frac{\%}{L}$ 250-350-020B GVF $\frac{\%}{L}$ 300-150BR	GVF(S/T) $\frac{\%}{L}$ ○○○○□ -○○○C (Toolholder Stamp (GVF(S/T) $\frac{\%}{L}$ ○○○○□-HC))
	-702B	●	●	30.5	17	4.7	3.4	70	100	GVF $\frac{\%}{L}$ 400-490-020B GVF $\frac{\%}{L}$ 400-200BR	
	SF $\frac{\%}{L}$ -501C	●	●	35.0	15	7.5	2.8	50	70	GVF $\frac{\%}{L}$ 350-450-040C	GVF(S/T) $\frac{\%}{L}$ ○○○○□ -○○○C (Toolholder Stamp (GVF(S/T) $\frac{\%}{L}$ ○○○○□-HC))
	-502C	●	●	35.0	15	7.5	4.3	50	70	GVF $\frac{\%}{L}$ 500-600-040C	
	SF $\frac{\%}{L}$ -701C	●	●	35.0	20	7.5	2.8	70	100	GVF $\frac{\%}{L}$ 350-450-040C	
	-702C	●	●	35.0	20	7.5	4.3	70	100	GVF $\frac{\%}{L}$ 500-600-040C	
	SF $\frac{\%}{L}$ -1001C	●	●	35.0	23	7.5	2.8	100	150	GVF $\frac{\%}{L}$ 350-450-040C	
	-1002C	●	●	35.0	23	7.5	4.3	100	150	GVF $\frac{\%}{L}$ 500-600-040C	
	SF $\frac{\%}{L}$ -1501C	●	●	35.0	23	7.5	2.8	150	250	GVF $\frac{\%}{L}$ 350-450-040C	GVF(S/T) $\frac{\%}{L}$ ○○○○□ -○○○C (Toolholder Stamp (GVF(S/T) $\frac{\%}{L}$ ○○○○□-HC))
	-1502C	●	●	35.0	23	7.5	4.3	150	250	GVF $\frac{\%}{L}$ 500-600-040C	

Face Groove Diameter of GFVS / GFVT

e.g. GFVS $\frac{\%}{L}$...-351B/352B

(same as GFVS $\frac{\%}{L}$...-○○○B, ...-○○○C → G129-G130

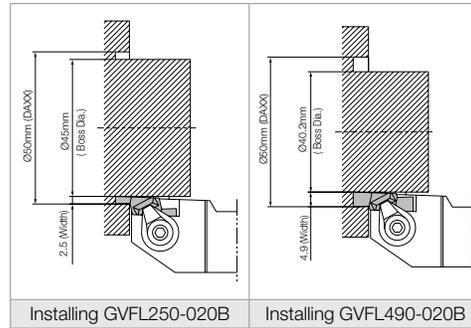
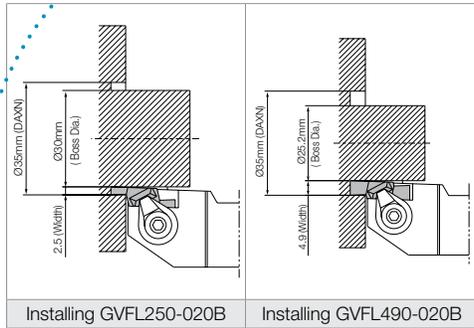
GFVT $\frac{\%}{L}$...-○○○B, ...-○○○C → G129-G130

Part Number	Face Grooving Dia.		Applicable Inserts
	DAXN (min)	DAXX (min)	
GFVS $\frac{\%}{L}$ 2020K-351B	35 (25)	50 (∞)	GVF $\frac{\%}{L}$ 250-350-020B
2525M-351B			GVF $\frac{\%}{L}$ 300-150BR
2020K-352B			GVF $\frac{\%}{L}$ 400-490-020B
2525M-352B			GVF $\frac{\%}{L}$ 400-200BR

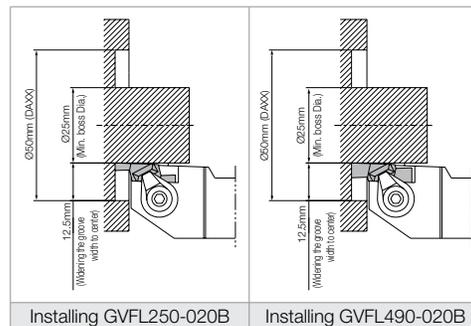
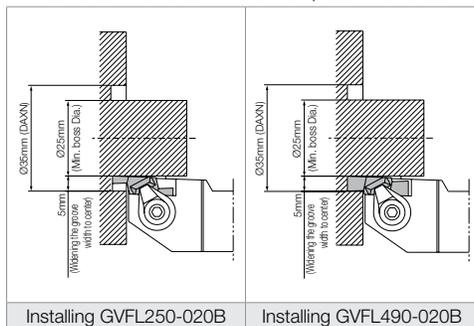
• It is possible to widen the groove to infinity ∞ when machining the initial groove within DAXN ~ DAXX and then widening to outer diameter.

• When machining the initial groove on the face at (DAXN: Ø35mm)
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.

• When machining the initial groove on the face at (DAXX: Ø50mm).
If the initial groove is made smaller than this, the toolholder interferes with the workpiece.
Boss Dia. depends on insert width.

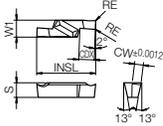
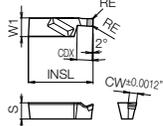
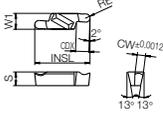


• When widening the groove width to inner diameter.
Face Grooving Dia. (Ø25mm Boss Dia.) is the limitation regardless of insert width, even widening the groove width to the center from the initial groove at (DAXN: Ø35mm) or (DAXX: Ø50mm).
The toolholder interferes with the workpiece when closer to the center.



GROOVING INSERTS

Applicable Inserts

(mm)				P	Carbon Steel / Alloy Steel													Classification of Usage		Ref. Page for Toolholder
Part Number	W1	INSL	S	M	Stainless Steel													● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice		
GVF% ...-OOOA	4.3	12	4.5	K	Cast Iron													● : Continuous / 1st Choice ○ : Continuous / 2nd Choice		
...-OOOB	5.8	20	5.0	N	Non-ferrous Metals															
...-OOOC	7.0	27	7.0	S	Titanium Alloy															
...-OOOAR	4.3	12	4.5	H	Hard materials (≤40HRC)															
...-OOOBR	5.8	20	5.0		Hard materials (≥40HRC)															
Insert Right-handed Insert Shown	Part Number	Previous Part Number	Dimensions (in)				Cermet			MEGA	PVD		Carbide		PCD	Applicable Toolholders				
			CW		CDX	RE	TN90	TC40	TC60	PR1225	PR930	KW10	KPD010							
			in	mm										R	L			R	L	R	L	R	L
 	GVF% 200-020A	GVF% 200A	0.079	2.00	0.091	0.008	△	△	●	●	●	●	●	●	●	●	●	GVF% ...-201A GIFV% ...-201A	● G126 ● G138	
	230-020A	230A	0.091	2.30	0.091		●	●	●	●	●	●	●	●	●	●	●			
	250-020A	250A	0.098	2.50	0.091		●	●	●	●	●	●	●	●	●	●	●			
	270-020A	270A	0.106	2.70	0.091		△	△	●	●	●	●	●	●	●	●	●			
	290-020A	290A	0.114	2.90	0.091		●	●	●	●	●	●	●	●	●	●	●			
	340-020A	340A	0.134	3.40	0.091		●	●	●	●	●	●	●	●	●	●	●			
	GVF% 250-020B	GVF% 250B	0.098	2.50	0.189	0.008	△	△	●	●	●	●	●	●	●	●	●	GVF% ...-OO1B GFVS% ...-OO1B GFVT% ...-OO1B GIFV% ...-OO1B		
	300-020B	300B	0.118	3.00	0.189		△	△	●	●	●	●	●	●	●	●	●			
	350-020B	350B	0.138	3.50	0.189		△	△	●	●	●	●	●	●	●	●	●			
	400-020B	400B	0.157	4.00	0.209		△	△	●	●	●	●	●	●	●	●	●			
	430-020B	430B	0.169	4.30	0.209		●	●	●	●	●	●	●	●	●	●	●			
	460-020B	460B	0.181	4.60	0.209		●	●	●	●	●	●	●	●	●	●	●			
	GVF% 350-040C	GVF% 350C	0.138	3.50	0.268	0.016	△	△	●	●	●	●	●	●	●	●	●	GVF% ...-OO1C GFVS% ...-OO1C GFVT% ...-OO1C GIFV% ...-OO1C		
	400-040C	400C	0.157	4.00	0.268		△	△	●	●	●	●	●	●	●	●	●			
450-040C	450C	0.177	4.50	0.268	●		●	●	●	●	●	●	●	●	●	●				
500-040C	500C	0.197	5.00	0.327	△		△	●	●	●	●	●	●	●	●	●				
550-040C	550C	0.217	5.50	0.327	●		●	●	●	●	●	●	●	●	●	●				
600-040C	600C	0.236	6.00	0.327	●		●	△	△	●	●	●	●	●	●	●				
 	GVF% 250-020B	GVF% 250B	0.098	2.50	0.189	0.008											GVF% ...-OO1B GFVS% ...-OO1B GFVT% ...-OO1B GIFV% ...-OO1B			
	300-020B	300B	0.118	3.00	0.189															
	400-020B	400B	0.157	4.00	0.209															
	GVF% 350-020C	-	-	0.138	3.50	0.268	0.008											GVF% ...-OO1C GFVS% ...-OO1C		
	400-020C	-	-	0.157	4.00	0.268														
	GVF% 350-040C	GVF% 350C	0.138	3.50	0.268	0.016												GVF% ...-OO1C GIFV% ...-OO1C		
400-040C	400C	0.157	4.00	0.268																
 	GVF% 200-100AR	GVF% 100AR	0.079	2.00	0.091	0.039					●	●	●	●	●	●	GVF% ...-201A GIFV% ...-201A	● G126 ● G138		
	250-125AR	125AR	0.098	2.50	0.091	0.049					●	●	●	●	●	●				
	300-150AR	150AR	0.118	3.00	0.091	0.059					●	●	●	●	●	●				
	GVF% 300-150BR	GVF% 150BR	0.118	3.00	0.189	0.059						●	●	●	●	●	●	GVF% ...-OO1B GFVS% ...-OO1B GFVT% ...-OO1B GIFV% ...-OO1B	● G126 ● G129 ● G130 ● G138	
	400-200BR	200BR	0.157	4.00	0.209	0.079						●	●	●	●	●	●			

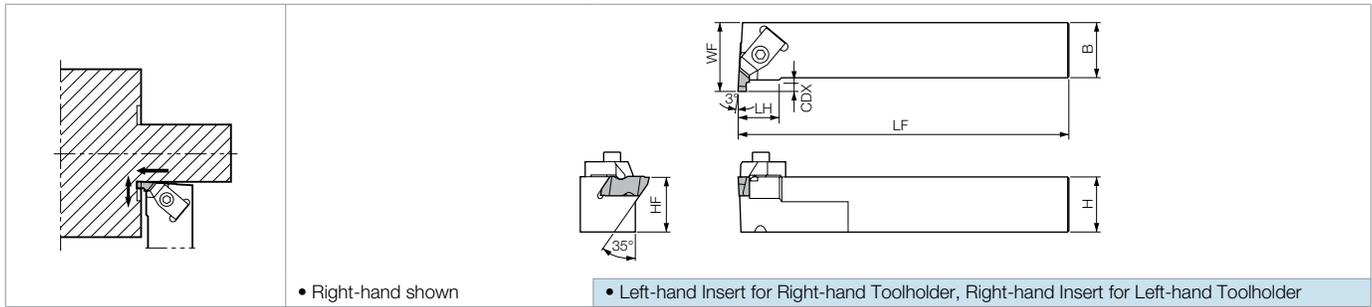
- Dimension CDX shows available Grooving Depth.
- MEGA indicates MEGACOAT

Recommended Cutting Conditions ● G145

Inserts are sold in 10 piece boxes.

CBN & PCD Inserts are sold in 1 piece boxes.

■ KKCE



● Toolholder Dimensions

Part Number	Stock		Dimensions (in)							Spare Parts		
	R	L	H	HF	B	LF	LH	WF	CDX	Clamp	Clamp Screw	Wrench
KKCE% 12-3B	●	●	0.750	0.750	0.750	4.500	0.750	1.125	0.210	CKC-3%	SKC-3	LW-156
16-3D	●	●	1.000	1.000	1.000	6.000	0.750	1.250	0.210			
20-3D	●	●	1.250	1.250	1.250	6.000	0.750	1.500	0.210			

● Applicable Inserts

Application	Face Grooving
Ref. Page	Below
Insert	
Toolholder	KKCE%...3
	KCFP_3...

Face Grooving Limits		
Insert Part Number	Maximum Groove Depth	Minimum Groove Diameter
KCFP3...	0.060	0.940
	0.094	1.200
	0.125	1.420
	0.150	1.630

■ KCFP Inserts

Insert Right-handed Insert Shown	Part Number	Unit	Dimensions (in)							Insert Grade					
			CW		CDX	RE	W1	INSL	S	Cermet		PVD		Carbide	Ceramic
			(in)	(mm)						TC40	TC60	PR630	PR930	KW10	A65
	KCFP 3125%	inch	0.125	3.15	0.150	0.008	0.195	0.886	0.344				●		
	3156%		0.156	3.97	0.150	0.008	0.195	0.886	0.344				●		
	3189%		0.189	4.80	0.150	0.023	0.195	0.886	0.344				●		

• Dimension CDX shows available Grooving Depth.

■ Recommended Cutting Conditions (Cera-Notch)

Workpiece Material	Cermet Feeds (ipr)	Carbide Feeds (ipr)	Recommended Insert Grade (Vc : sfm)							
			Cermet		MEGACOAT		Carbide			Ceramic
			TC40	TC60	PR1215	PR660	PR930	KW10	A65	
Carbon Steel	0.002~0.005	0.002~0.010	300~900	250~900	300~800	200~550	250~650	-	-	
Alloy Steel	0.002~0.005	0.002~0.010	250~800	250~800	300~750	100~500	150~550	-	-	
Stainless Steel	0.002~0.005	0.002~0.010	-	200~600	300~600	100~550	100~550	-	-	
Tool Steel	0.002~0.005	0.002~0.010	200~650	200~650	300~600	-	100~550	-	-	
Hardened Steel (>45Rc)	-	-	-	-	-	-	-	-	250~500*	
Gray Cast Iron	0.003~0.006	0.002~0.012	200~700	-	300~700	-	-	-	500~1000	
Ductile Iron	0.003~0.006	0.002~0.012	-	150~600	300~600	-	-	-	500~1000	
Aluminum	0.002~0.008	0.002~0.012	150~1600	-	-	-	-	500~1600	-	

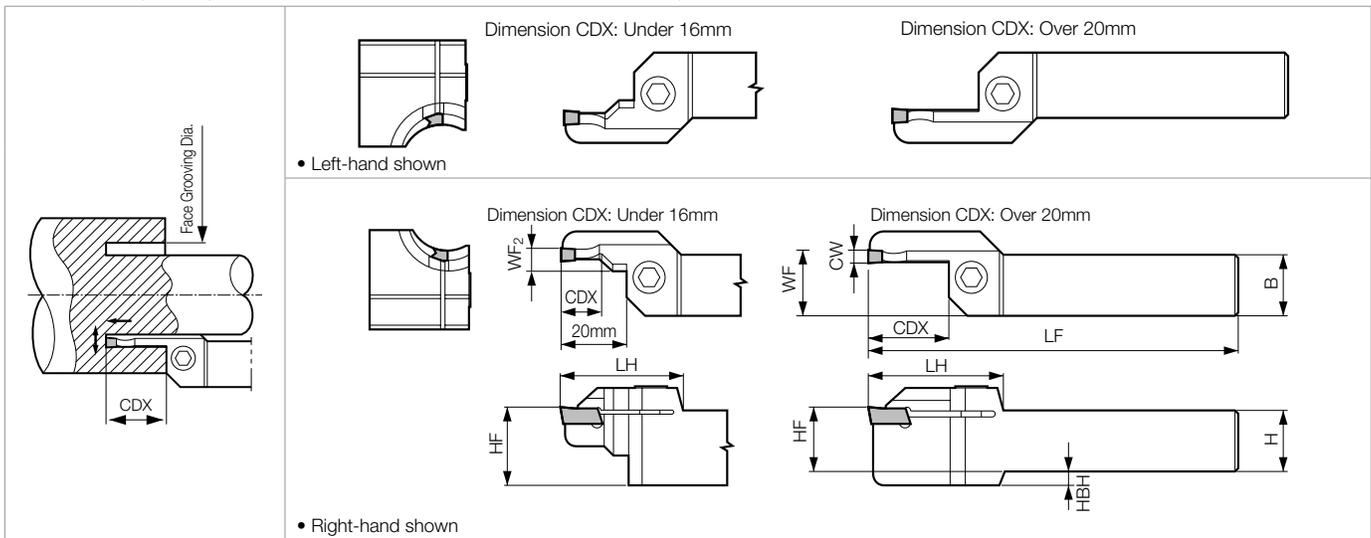
Speeds & Feeds listed are for external grooving. Reduce parameters by 10% for internal grooving.

*Feeds = 0.003~0.008 ipr

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

FACE GROOVING TOOLHOLDERS

KFMS (will be phased out and switched to **KGDF** / **G100-G120**)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions										Width	Face Grooving Dia.		Spare Parts		
	R	L		H	HF	HBH	B	LF	LH	WF	WF ₂	CDX	CW		DAXN (min)	DAXX (min)	Clamp Bolt	Wrench	Washer
KFMS% 16-3-4050	●		inch	1.000	1.000	-	1.000	6.000	1.539	1.027	0.240	0.512	0.118	1.575	1.969	HH5X25	LW-4	-	
16-3-5065	●							1.618			-	0.866		1.969	2.559				
KFMS% 2020K2530-3	●		mm	20	20	-	20	125	39	20.7	-	13	3	25	30	HH5X20	LW-4	-	
2020K3040-3	●								40					50					
2020K4050-3	●								50					65					
2020K5065-3	●								65					85					
2020K6585-3	●								85					110					
2020K85110-3	●								110					145					
2020K110145-3	●								25					30					
2525M2530-3	●	●							30					40					
2525M3040-3	●	●							40					50					
2525M4050-3	●	●							50					65					
2525M5065-3	●	●							65					85					
2525M6585-3	●	●							85					110					
2525M85110-3	●	●							110					145					
2525M110145-3	●	●							25					35					
KFMS% 2020K2535-4	●		mm	20	20	-	20	125	39	20.7	-	12	4	25	35	HH5X20	LW-4	-	
2020K3550-4	●								35					50					
2020K5070-4	●								50					70					
2020K70100-4	●								70					100					
2020K100150-4	●								100					150					
2020K150220-4	●								150					220					
2020K220800-4	●								220					∞					
2525M2535-4	●	●							25					35					
2525M3550-4	●	●							35					50					
2525M5070-4	●	●							50					70					
2525M70100-4	●	●							70					100					
2525M100150-4	●	●							100					150					
2525M150220-4	●	●							150					220					
2525M220800-4	●	●							220					∞					

- Dimension **CDX** shows available grooving depth.
- Face Grooving Dia. \varnothing D: The diameter range of the initial groove.
- For KFMS%.....-5 toolholder can hold a 0.236" width insert. () value shows the dimension of a 0.236" width insert.

Applicable Inserts **G135**

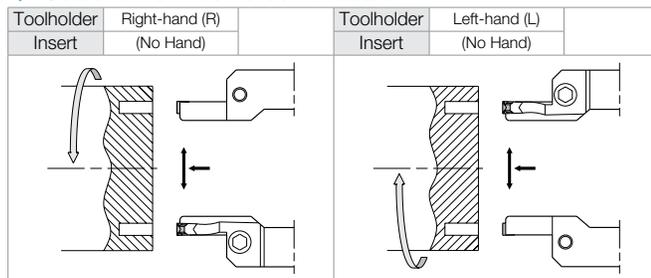
FACE GROOVING TOOLHOLDERS

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Width	Face Grooving Dia.		Spare Parts	
	R	L		H	HF	HBH	B	LF	LH	WF	WF ₂	CDX		CW	DAXN (min)	DAXX (min)	Clamp Bolt	Wrench
KFMS% 16-5-75115 16-5-115180 16-5-180235	●		inch	1.000		-	1.000	6.000	2.012	1.027 (1.047)	-	1.260	0.197 (0.236)	2.953	4.528	HH5X25	LW-4
	●												4.528	7.087			
	●													7.087	9.252		
KFMS% 2020K2535-5 2020K3550-5 2020K5075-5 2020K75115-5 2020K115180-5 2020K180235-5 2020K235800-5	●		mm	20		-	20	125	39	20.7 (21.2)	-	20	5 (6)	25	35	HH5X20	LW-4
	●													35	50		
	●													50	75		
	●													75	115		
	●													115	180		
	●													180	235		
	●													235	∞		
2525M2535-5 2525M3550-5 2525M5075-5 2525M75115-5 2525M115180-5 2525M180235-5 2525M235800-5	●	●	mm	25		-	25	150	39	25.7 (26.2)	-	20	5 (6)	25	35	HH5X25	LW-4
	●	●							35			50					
	●	●							50			75					
	●	●							75			115					
	●	●							115			180					
	●	●							180			235					
	●	●							235			∞					

- Dimension **CDX** shows available grooving depth.
- Face Grooving Dia.: The diameter range of the initial groove.
- For KFMS% ...-5 toolholder can hold a 0.236" width insert. () value shows the dimension of a 0.236" width insert.

◆ Selection of Toolholder & Insert



■ Applicable Inserts

Part Number	INSL	S
FMM30-03 FMM60-04	0.472	0.138
FMN3 FMN6	0.472	0.138

Material	Classification of Usage
P Carbon Steel / Alloy Steel	● : Light Interruption / 1st Choice
M Stainless Steel	○ : Light Interruption / 2nd Choice
K Cast Iron	● : Continuous / 1st Choice
N Non-ferrous Metals	○ : Continuous / 2nd Choice
S Titanium Alloy	
H Hard materials (≤40HRC)	

Insert	Part Number	Dimensions (in)			Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders			
		CW		RE			TN90	CR9025	PR915			PR930	PR905	KW10
		inch	mm											
 Face Grooving Chip Control Oriented / M Class	FMM 30-03	0.118	3.0	0.012	●	●	●	●	●	●	KFMS%...-3(...)			
	FMM 40-04	0.157	4.0	0.016	●	●	●	●	●	●	KFMS%...-4(...)			
	FMM 50-04	0.197	5.0	0.016	●	●	●	●	●	●	KFMS%...-5(...)			
	FMM 60-04	0.236	6.0	0.016	●	●	●	●	●	●	KFMS%...-5(...)			
 Face Grooving Sharp-Cutting Oriented / M Class	FMN 3	0.118	3.0	0.010	●	●	●	●	●	●	KFMS%...-3(...)			
	FMN 4	0.157	4.0	0.010	●	●	●	●	●	●	KFMS%...-4(...)			
	FMN 5	0.197	5.0	0.010	●	●	●	●	●	●	KFMS%...-4(...)			
	FMN 6	0.236	6.0	0.010	●	●	●	●	●	●	KFMS%...-5(...)			

● FMN type inserts are only for Deep Grooving and not applicable for Turning.

Recommended Cutting Conditions **G144**

◆ Limit of Turning Toward Center

It causes the toolholder to interfere with the groove wall depending on the initial cut's diameter.

Part Number	DMIN ₂			
	25	26	27	28 and over
	Ød (mm)			
KFMS% 2020K2530-3	4	2	0	0
KFMS% 2525M2530-3				
KFMS% 2020K2535-4	6	3	0	
KFMS% 2525M2535-4				
KFMS% 2020K2535-5	7	4	1	(No remaining boss)
KFMS% 2525M2535-5	* (5)	* (2)	* (0)	

e.g.) KFMSR 2525M2530-3 with Ø25 as first cut towards the center, it will cause a rubbing with the toolholder cartridge if Ød is 4.0mm.

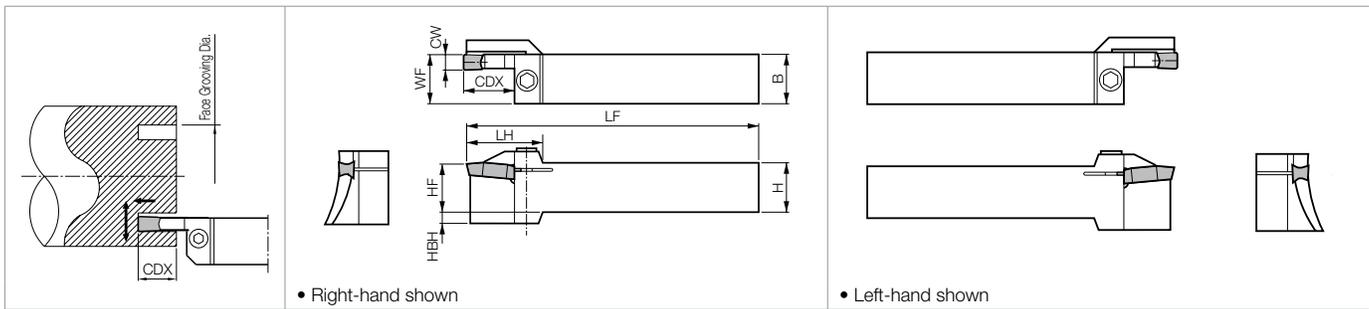
* () value shows the Dimension using FMM60-04 Insert.

Inserts are sold in 10 piece boxes.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

FACE GROOVING TOOLHOLDERS

KFMS-8



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)									Face Grooving Dia.		Spare Parts	
	R	L	H	HF	HBH	B	LF	LH	WF	CDX	CW	DAXN (min)	DAXX (min)	Clamp Bolt	Wrench
KFMS% 2525M5464-8	●	●	25	25	-	25	150	41	26	25	8	54 (0)	64 (∞)	HH6X25	LW-5
2525M6382-8	●	●	25	25	2.4	25	150	41	26	25	8	63 (0)	82 (∞)		
2525M80115-8	●	●	25	25	6.0	25	150	40	26	25	8	80 (0)	115 (∞)		
2525M105160-8	●	●	25	25	6.0	25	150	40	26	25	8	105 (0)	160 (∞)		
2525M155510-8	●	●	25	25	6.0	25	150	43	26	25	8	155 (0)	510 (∞)		
3232P155510-8	●		32	32	-	32	170	43	33	25	8				

- Dimension CDX shows available grooving depth.
- The value () of Face Grooving Dia. DAXX (max) is the maximum outer diameter value after the initial groove between DAXN (min) ~ DAXX (max) (It is possible to widen the groove to infinity ∞). The value () of Face Grooving Dia. DAXN (min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN (min) ~ DAXX (max).

Applicable Inserts

Part Number	INSL	S	(mm)	P	M	K	N	S	H	Classification of Usage						
				Carbon Steel / Alloy Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Titanium Alloy	Hard materials (≤40HRC)	Hard materials (≥40HRC)	●	○	●	○	●	○
GMM 8030-080MW	30	5.5									●	○	●	○	●	○
GMG 8030-050MG	30	5.5									●	○	●	○	●	○
GMGA 8030-400R	30	5.5									●	○	●	○	●	○

Insert	Part Number	Dimensions (mm)		Cermet	CVD Coated Carbide	PVD Coated Carbide			Carbide	Applicable Toolholders	
		CW	RE			TN90	CR9025	PR915			PR930	PR905	KW10
Chip Control Oriented / M Class	GMM 8030-080MW	8.0	0.8		●			●	●	●	KFMS% ...8
Sharp-Cutting Oriented / Precision Class Ground Chipbreaker	GMG 8030-050MG	8.0	0.5		●	●		●	●	●	
Sharp-Cutting Oriented / Precision Class Full-R / Copying	GMGA 8030-400R	8.0	4.0							●	

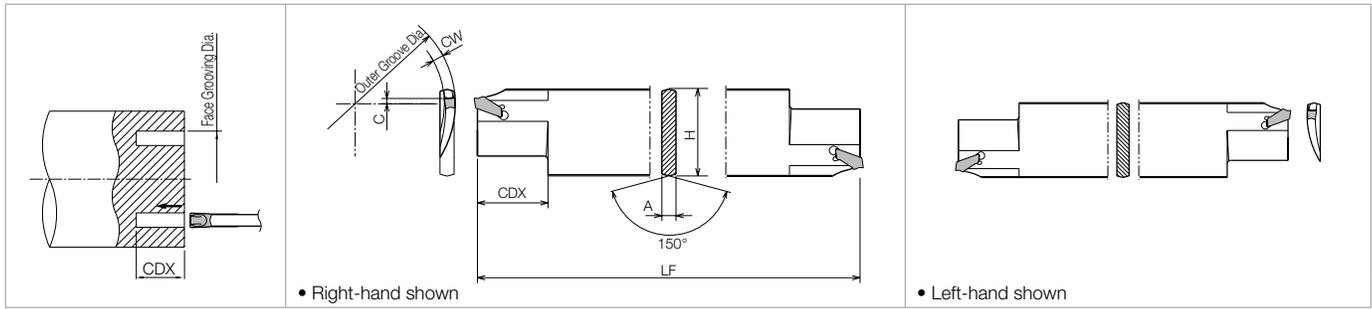
• If using a full-R insert with KIGM-8 type toolholder, you need to modify the corner of insert adapter of toolholder.

Recommended Cutting Conditions **G147**

Inserts are sold in 10 piece boxes.

FACE GROOVING BLADE

KFTB-S



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)							Face Grooving Dia.		Spare Parts	Applicable Inserts	Applicable Tool Block H44
	R	L	*H	LF	A	CDX	C	CW	DAXN (min)	DAXX (min)	Releasing Wrench			
KFTB% 65100-4S	●	●	32	150	5.2	25	4	4.0	65	100	LTK-5	FTK4	KTKTB 20-32 25-32 32-32	
90150-4S	●	●	32	150	5.2	30	0	4.0	90	150				
150250-4S	●	●	32	150	5.2	30	0	4.0	140	250				
250800-4S	●	●	32	150	3.2	30	0	4.0	230	∞				
KFTB% 90150-5S	●	●	32	150	5.2	30	0	5.0	90	150	LTK-5	FTK5	KTKTBF 25-32 32-32	
150250-5S	●	●	32	150	5.2	32	0	5.0	150	250				
250800-5S	●	●	32	150	4.0	38	0	5.0	250	∞				

- Dimension **CDX** shows available grooving depth.
- Face Grooving Dia.: The diameter range of the initial groove.
- The insert has a Self-Clamping system and it is not suitable for tight tolerance grooves (tolerance ± 0.05mm).
- KFTB% 65100-4S toolholder is designed with the edge position 4mm above the Center.
- * Dimension **H** shows the length between virtual tops.

Applicable Inserts

Material	Classification of Usage
P Carbon Steel / Alloy Steel	●
M Stainless Steel	●
K Cast Iron	●
N Non-ferrous Metals	○
S Titanium Alloy	●
H Hard materials (≤40HRC)	○
H Hard materials (≥40HRC)	○

● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert	Part Number	Dimensions (mm)		Cermet	CVD Coated Carbide	PVD Coated Carbide	Carbide	Applicable Toolholders
		CW	RE					
	FTK 4	4.0	0.25	●	●	●	●	KFTB% 65100-4S KFTB% 90150-4S KFTB% 150250-4S KFTB% 250800-4S
	5	5.0	0.25	●	●	●	●	KFTB% 90150-5S KFTB% 150250-5S KFTB% 250800-5S

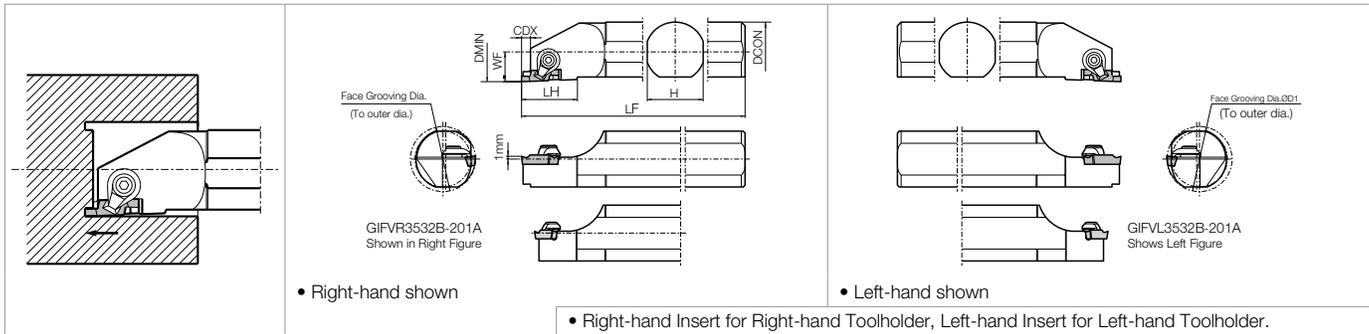
Recommended Cutting Conditions **G146**

Selection of Blade and Insert

Combination of Blade + KTKTB				Combination of Blade + KTKTBF			
Blade	Right-hand (R)	Insert	Neutral	Blade	Right-hand (R)	Insert	Neutral
Blade	Block	Blade	Block	Blade	Block	Blade	Block
KFTBR	KTKTB	KFTBL	KTKTB	KFTBR	KTKTBF	KFTBL	KTKTBF

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

GIFV



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)							Face Grooving Dia.		Spare Parts				Applicable Inserts ● G132
	R	L	DMIN	DCON	H	LF	LH	WF	CDX	DAXN (min)	DAXX (min)	Clamp Set		Wrench		
GIFV% 3532B-201A	●	●	35	32	30	250	23	16	2.2	35 (12)	∞	CPS-5V	-	FT-15	-	GVF% ...-...A GVF% ...-...AR
GIFV% 3532B-351B	●	●	35	32	30	250	30	16	4.6	35 (25)	50 (∞)	-	CPS-6V	-	LW-3	GVF% 250~350-020B GVF% 300-150BR
3532B-352B	●	●	35	32	30	250	30	16	5.1	35 (25)	50 (∞)					GVF% 400~490-020B GVF% 400-200BR
5032B-501B	●	●	50	32	30	250	30	16	4.6	50 (25)	70 (∞)					GVF% 250~350-020B GVF% 300-150BR
5032B-502B	●		50	32	30	250	30	16	5.1	50 (25)	70 (∞)	-	-	-	LW-4	GVF% 400~490-020B GVF% 400-200BR
GIFV% 5032B-501C	●	●	50	32	30	250	35	16	6.6	50 (25)	70 (∞)	-	CPS-8V	-	LW-4	GVF% 350~450-040C
5032B-502C	●	●	50	32	30	250	35	16	8.1	50 (25)	70 (∞)					GVF% 500~600-040C

Note 1. Dimension **CDX** shows available grooving depth.
 2. Standard toolholders are designed with the edge position 1.0mm above the center.

Face Grooving Dia. ØD1 depends on the application.

Applications	Part Number	Face Grooving Dia. Ød1 (mm)	Face Grooving Dia. ØD (mm)			Notes
		(MIN)	MIN	MAX	(MAX)	
	GIFV% 3532B-201A	-	35	∞	∞	-
	GIFV% 3532B-351B			50		
	3532B-352B		50	70		
	5032B-501B			70		
	5032B-502B					
GIFV% 5032B-501C	12	∞	If ØD2 ≥ 58-2W, the Face Grooving Dia. can be expanded to Ød1 (MIN.) toward the Center. W = Edge Width			
GIFV% 3532B-201A	25	35		50		
GIFV% 3532B-351B		50		70		
3532B-352B				70		
5032B-501B		70				
5032B-502B	70					
GIFV% 5032B-501C		12	∞	If ØD2 ≥ 75-2W, the Face Grooving Dia. can be expanded to Ød1 (MIN.) toward the Center. W = Edge Width		
GIFV% 3532B-201A	25	35	50			
GIFV% 3532B-351B		50	70			
3532B-352B			70			
5032B-501B		70				
5032B-502B	70					
GIFV% 5032B-501C		12	∞	-		
GIFV% 3532B-201A	25	35	50			
GIFV% 3532B-351B		50	70			
3532B-352B			70			
5032B-501B		70				
5032B-502B	70					

- The value () of Face Grooving Dia. DAXX (max) is the maximum outer diameter value after the initial groove between DAXN (min) - DAXX (max) (It is possible to widen the groove to infinity ∞)
- The value () of Face Grooving Dia. DAXN (min) is the minimum diameter of the boss which remains in the center when widening the groove width to a smaller value after the initial groove between DAXN (min) - DAXX (max)

RECOMMENDED CUTTING CONDITIONS

◆ GBA (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)										① f (feed) during Grooving (ipr)					Notes			
	MC*	Cermet			M*	MN*	PVD		Carbide	CBN	PCD	② f (feed) during Traversing (ipr)							
	PV7040	TN620	TC40	TN90	PR1215	PR1625	PR930	PR1115	PR905	KW10	KBN510	KBN525	KPD001 (KPD010)	③ D.O.C. during Traversing (in)					
														GBA00%033 - 100 031N - 041N	GBA00%125 - 200 047N - 078N		GBA00%230 - 300 094N - 109N	GBA00%330 - 400 125N - 156N	GBA00%400 - 480 172N - 188N
Carbon Steel	☆ 490-790	★ 260-720	☆ 490-720	☆ 490-720	★ 260-660	★ 260-590	☆ 260-590	☆ 260-590	-	-	-	-	① 0.0012-0.0031 ② Traversing N/A ③ Traversing N/A	① 0.0016-0.0035 ② 0.0016-0.0035 ③ MAX 0.012	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0047 ② 0.0020-0.0039 ③ MAX 0.031		
Alloy Steel	☆ 430-720	★ 260-660	☆ 430-660	☆ 430-660	★ 260-590	★ 260-520	☆ 260-520	☆ 260-520	-	-	-	-	① 0.0012-0.0028 ② Traversing N/A ③ Traversing N/A	① 0.0016-0.0031 ② 0.0016-0.0031 ③ MAX 0.012	① 0.0020-0.0035 ② 0.0020-0.0035 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.031		
Stainless Steel	-	-	-	☆ 230-490	☆ 200-490	★ 200-430	☆ 200-430	★ 200-430	-	-	-	-	① 0.0012-0.0028 ② Traversing N/A ③ Traversing N/A	① 0.0016-0.0031 ② 0.0016-0.0031 ③ MAX 0.012	① 0.0020-0.0035 ② 0.0020-0.0035 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.031		
Cast Iron	-	-	-	-	-	-	-	★ 260-590	☆ 200-390	★ 490-1310	-	-	① 0.0012-0.0031 ② Traversing N/A ③ Traversing N/A	① 0.0016-0.0035 ② 0.0016-0.0035 ③ MAX 0.012	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0047 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0047 ② 0.0020-0.0039 ③ MAX 0.031		
Aluminum	-	-	-	-	-	-	-	-	★ 490-1310	-	-	★ 490-6560	① 0.0020-0.0047 ② Traversing N/A ③ Traversing N/A	① 0.0020-0.0059 ② 0.0020-0.0059 ③ MAX 0.020	① 0.0020-0.0059 ② 0.0020-0.0059 ③ MAX 0.031	① 0.0031-0.0059 ② 0.0031-0.0059 ③ MAX 0.031	① 0.0031-0.0059 ② 0.0031-0.0059 ③ MAX 0.031		
Brass	-	-	-	-	-	-	-	-	★ 490-980	-	-	★ 660-2620	① 0.0020-0.0047 ② Traversing N/A ③ Traversing N/A	① 0.0020-0.0059 ② 0.0020-0.0059 ③ MAX 0.020	① 0.0020-0.0059 ② 0.0020-0.0059 ③ MAX 0.031	① 0.0031-0.0059 ② 0.0031-0.0059 ③ MAX 0.031	① 0.0031-0.0059 ② 0.0031-0.0059 ③ MAX 0.031		
Hardened Materials	-	-	-	-	-	-	-	-	-	★ 260-390	-	-	① - ② - ③ -	① 0.0008-0.0020 ② Traversing N/A ③ Traversing N/A	① 0.0012-0.0028 ② 0.0004-0.0016 ③ MAX 0.004	① - ② - ③ -	① - ② - ③ -		

• Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation
 * MC: MEGACOAT Cermet, M: MEGACOAT PVD, MN: MEGACOAT NANO PVD.

◆ GBA (GM Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)			① f (feed) during Grooving (ipr)					Notes
	Cermet	MEGACOAT NANO	MEGACOAT	② f (feed) during Traversing (ipr)					
	TN620	PR1625	PR1215	③ D.O.C. during Traversing (in)					
				GBA43% 140-010GM	GBA43% 150-020GM	GBA43% 175-020GM- 230-020GM	GBA43% 250-030GM- 350-030GM	GBA43% 400-040GM	
Carbon Steel	★ 260-790	★ 260-720	☆ 260-720	① 0.0012-0.0039 ② 0.0012-0.0031 ③ MAX 0.008	① 0.0012-0.0047 ② 0.0012-0.0031 ③ MAX 0.012	① 0.0012-0.0047 ② 0.0012-0.0035 ③ MAX 0.012	① 0.0016-0.0059 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0059 ② 0.0020-0.0039 ③ MAX 0.031	
Alloy Steel	★ 260-720	★ 260-660	☆ 260-660	① 0.0012-0.0039 ② 0.0012-0.0031 ③ MAX 0.008	① 0.0012-0.0047 ② 0.0012-0.0031 ③ MAX 0.012	① 0.0012-0.0047 ② 0.0012-0.0035 ③ MAX 0.012	① 0.0016-0.0059 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0059 ② 0.0020-0.0039 ③ MAX 0.031	
Stainless Steel	-	★ 200-490	★ 200-490	① 0.0012-0.0039 ② 0.0012-0.0031 ③ MAX 0.008	① 0.0012-0.0039 ② 0.0012-0.0031 ③ MAX 0.012	① 0.0012-0.0039 ② 0.0012-0.0035 ③ MAX 0.012	① 0.0016-0.0047 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0016-0.0047 ② 0.0020-0.0039 ③ MAX 0.031	

• Above cutting condition is for external grooving. Set both cutting speed and feed 20% lower for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GBA (MY Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)							① f (feed) during Grooving (ipr)					Notes	
	Cermet	M	PVD		Carbide	CBN	PCD	② f (feed) during Traversing (ipr)						
	TN6020	TC40	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	③ D.O.C. during Traversing (in)					
									GBA43% 175MY~ 200MY	GBA43% 230MY~ 265MY	GBA43% 300MY	GBA43% 330MY~ 350MY		GBA43% 400MY
Carbon Steel	☆ 490-720	-	★ 260-660	☆ 260-660	☆ 260-660	-	-	-	① 0.0012-0.0031 ② 0.0012-0.0031 ③ MAX 0.012	① 0.0016-0.0035 ② 0.0016-0.0035 ③ MAX 0.012	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0047 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0047 ② 0.0020-0.0039 ③ MAX 0.031	
Alloy Steel	☆ 430-660	-	★ 260-590	☆ 260-590	☆ 260-590	-	-	-	① 0.0012-0.0028 ② 0.0012-0.0039 ③ MAX 0.012	① 0.0016-0.0031 ② 0.0016-0.0031 ③ MAX 0.012	① 0.0020-0.0035 ② 0.0020-0.0035 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.031	
Stainless Steel	☆ 230-490	-	☆ 200-490	☆ 200-490	★ 200-490	-	-	-	① 0.0012-0.0028 ② 0.0012-0.0039 ③ MAX 0.012	① 0.0016-0.0031 ② 0.0016-0.0031 ③ MAX 0.012	① 0.0020-0.0035 ② 0.0020-0.0035 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.020	① 0.0020-0.0039 ② 0.0020-0.0039 ③ MAX 0.031	

• Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation
 * M: MEGACOAT PVD



RECOMMENDED CUTTING CONDITIONS

◆ GBF Insert

Workpiece Material	Recommended Insert Grade (Vc sfm)			① f (feed) during Grooving (ipr)				Notes
	MEGACOAT	MEGACOAT NANO	Carbide	② f (feed) during Traversing (ipr)				
	PR1215	PR1535	KW10	③ D.O.C. during Traversing (in)				
				GBF32%025... ~ GBF32%053...	GBF32%065... ~ GBF32%095...	GBF32%100... ~ GBF32%145...	GBF32%150... ~ GBF32%300...	
Carbon Steel	★ 260-590	☆ 230-530	-	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
				② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Alloy Steel	★ 260-590	☆ 230-530	-	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
				② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Stainless Steel	☆ 200-430	★ 160-390	-	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
				② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Cast Iron	-	-	★ 200-330	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
				② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Aluminum Alloys	-	-	★ 490-1,310	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
				② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Brass	-	-	★ 490-980	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
				② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
				③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GBF-GL Insert

Workpiece Material	Recommended Insert Grade (Vc sfm)		① f (feed) during Grooving (ipr)				Notes
	MEGACOAT	MEGACOAT NANO	② f (feed) during Traversing (ipr)				
	PR1215	PR1535	③ D.O.C. during Traversing (in)				
			GBF32R075-005GL	GBF32R095-005GL ~ GBF32R100-005GL	GBF32R150-010GL ~ GBF32R200-010GL	GBF32R300-010GL	
Carbon Steel	★ 260-590	☆ 230-530	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
			② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
			③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Alloy Steel	★ 260-590	☆ 230-530	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
			② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
			③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Stainless Steel	☆ 200-430	★ 160-390	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
			② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
			③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ TGF (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)							① f (feed) during Grooving (ipr)				Notes
	Cermet	MEGA	PVD		Carbide	CBN	PCD	② f (feed) during Traversing (ipr)				
	TC40	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)	③ D.O.C. during Traversing (in)				
							TGF32% 033-050-005	TGF32% 075-095-010	TGF32% 100-145-010	TGF32% 150-250-010		
Carbon Steel	☆ 490-720	★ 260-590	☆ 260-590	☆ 260-590	-	-	-	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
								② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Alloy Steel	☆ 430-660	★ 260-520	☆ 260-520	☆ 260-520	-	-	-	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
								② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Stainless Steel	-	☆ 200-430	☆ 200-430	★ 200-430	-	-	-	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
								② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Cast Iron	-	-	-	-	★ 200-330	-	-	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
								② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Aluminum	-	-	-	-	★ 490-1310	-	★ 490-6560	① 0.0004-0.0020	① 0.0008-0.0028	① 0.0012-0.0031	① 0.0012-0.0031	Wet
								② Traversing N/A	② Traversing N/A	② 0.0012-0.0024	② 0.0012-0.0024	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	
Brass	-	-	-	-	★ 490-980	-	★ 660-2620	① 0.0004-0.0016	① 0.0008-0.0024	① 0.0012-0.0028	① 0.0012-0.0028	Wet
								② Traversing N/A	② Traversing N/A	② 0.0008-0.0020	② 0.0008-0.0020	
								③ Traversing N/A	③ Traversing N/A	③ MAX 0.008	③ MAX 0.008	

* MEGA indicates MEGACOAT.

★ : 1st Recommendation ☆ : 2nd Recommendation

RECOMMENDED CUTTING CONDITIONS

◆ GH (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)				Notes				
	Cermet				PVD	Carbide			Ceramic					② f (feed) during Traversing (ipr)			
	TN90	TC40	TC60	PR930	KW10	A65	A66N	PT600M	③ D.O.C. during Traversing (in)								
									GH 40-50...	GH 55-70...	GH 75-80...	GH 100-120...					
Carbon Steel	☆ 490-720	☆ 490-720	☆ 330-490	★ 260-590	-	-	-	-	① 0.0028-0.0079	① 0.0028-0.0079	① 0.0039-0.0098	① 0.0059-0.0118	Wet				
									② 0.0028-0.0059	② 0.0028-0.0059	② 0.0039-0.0079	② 0.0059-0.0098					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
Alloy Steel	☆ 430-660	☆ 430-660	☆ 260-430	★ 260-520	-	-	-	-	① 0.0028-0.0071	① 0.0028-0.0071	① 0.0039-0.0091	① 0.0059-0.0106					
									② 0.0028-0.0051	② 0.0028-0.0051	② 0.0039-0.0071	② 0.0059-0.0087					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
Stainless Steel	☆ 230-490	-	☆ 200-330	★ 200-430	-	-	-	-	① 0.0028-0.0063	① 0.0028-0.0063	① 0.0039-0.0083	① 0.0059-0.0098					
									② 0.0028-0.0051	② 0.0028-0.0051	② 0.0039-0.0071	② 0.0059-0.0087					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
Cast Iron	-	-	-	-	★ 200-330	☆ 490-980	☆ 490-980	☆ 490-980	KW10	KW10	KW10	KW10					
									① 0.0028-0.0079	① 0.0028-0.0079	① 0.0039-0.0098	① 0.0059-0.0118					
									② 0.0028-0.0059	② 0.0028-0.0059	② 0.0039-0.0079	② 0.0059-0.0098					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
									A65 / A66N	A65 / A66N	A65 / A66N	A65 / A66N					
									① 0.0012-0.0028	① 0.0012-0.0028	① 0.002-0.0035	① 0.002-0.0035					
									② Traversing N/A	② Traversing N/A	② Traversing N/A	② Traversing N/A					
Aluminum	-	-	-	-	★ 490-1310	-	-	-	① 0.0028-0.0079	① 0.0028-0.0079	① 0.0039-0.0098	① 0.0059-0.0118					
									② 0.0028-0.0059	② 0.0028-0.0059	② 0.0039-0.0079	② 0.0059-0.0098					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
Brass	-	-	-	-	★ 490-980	-	-	-	① 0.0028-0.0079	① 0.0028-0.0079	① 0.0039-0.0098	① 0.0059-0.0118					
									② 0.0028-0.0059	② 0.0028-0.0059	② 0.0039-0.0079	② 0.0059-0.0098					
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059	③ MAX 0.079					
Hardened Materials	-	-	-	-	-	☆ 130-260	☆ 130-260	☆ 130-260	① 0.0008-0.0020	① 0.0008-0.0020	① 0.0008-0.002	① -					
									② 0.0004-0.0012	② 0.0004-0.0012	② 0.0004-0.0016	② -					
									③ MAX 0.004	③ MAX 0.008	③ MAX 0.008	③ -					

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GHU (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)			Notes	
	Cermet				CVD	PVD	Ceramic			② f (feed) during Traversing (ipr)			
	TN60	TC40	TC60	CR9025	PR630	PR930	A65	A66N	③ D.O.C. during Traversing (in)				
									GHU 40-20	GHU 50-20	GHU 60-20		
Carbon Steel	☆ 430-660	-	-	☆ 260-590	-	-	-	-	① 0.0024-0.0047	① 0.0024-0.0047	① 0.0024-0.0059	Wet	
									② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0047		
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059		
Alloy Steel	☆ 330-590	-	-	☆ 260-520	-	-	-	-	① 0.0024-0.0047	① 0.0024-0.0047	① 0.0024-0.0059		
									② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0047		
									③ MAX 0.039	③ MAX 0.039	③ MAX 0.059		
Stainless Steel	-	-	-	☆ 200-430	-	-	-	-	① 0.0024-0.0039	① 0.0024-0.0039	① 0.0024-0.0047		
									② 0.0020-0.0031	② 0.0020-0.0031	② 0.0020-0.0039		
									③ MAX 0.031	③ MAX 0.031	③ MAX 0.047		

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% lower for internal grooving.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GA (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)			Notes	
	Cermet				CVD	PVD	Carbide			② f (feed) during Traversing (ipr)			
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	③ D.O.C. during Traversing (in)				
									GA 30	GA 40	GA 50		
Carbon Steel	☆ 430-660	-	-	-	★ 260-590	-	-	-	① 0.0024-0.0071	① 0.0024-0.0083	① 0.0024-0.0098	Wet	
									② 0.0020-0.0059	② 0.0020-0.0067	② 0.0020-0.0079		
									③ MAX 0.031	③ MAX 0.039	③ MAX 0.051		
Alloy Steel	☆ 330-590	-	-	-	★ 260-520	-	-	-	① 0.0024-0.0059	① 0.0024-0.0071	① 0.0024-0.0087		
									② 0.0020-0.0047	② 0.0020-0.0059	② 0.0020-0.0071		
									③ MAX 0.012	③ MAX 0.020	③ MAX 0.031		
Stainless Steel	-	-	-	-	★ 200-430	-	-	-	① 0.0024-0.0039	① 0.0024-0.0039	① 0.0024-0.0047		
									② 0.0020-0.0031	② 0.0020-0.0031	② 0.0020-0.0039		
									③ MAX 0.031	③ MAX 0.031	③ MAX 0.047		

★ : 1st Recommendation ☆ : 2nd Recommendation

RECOMMENDED CUTTING CONDITIONS

◆ SIGC

Workpiece	Recommended Insert Grade (Vc : sfm)		(1) Feed Rate for Grooving (ipr)			Notes
	MEGACOAT NANO PLUS	MEGACOAT NANO	(2) Feed Rate for Traversing (ipr)			
			(3) D.O.C. for Traversing (in)			
			PR1725	PR1535	GC08%...		GC10%, GC12% 100 ~ 200...	GC10%, GC12% 250 ~ 300...
Carbon Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0008 ~ 0.0016	(1) 0.0008 ~ 0.0016	Coolant
			(2) 0.0004 ~ 0.0012	(2) 0.0008 ~ 0.0016	(2) 0.0008 ~ 0.0016	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	
Alloy Steel	★ 160 - 260	☆ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0008 ~ 0.0016	(1) 0.0008 ~ 0.0016	
			(2) 0.0004 ~ 0.0012	(2) 0.0008 ~ 0.0016	(2) 0.0008 ~ 0.0016	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	
Stainless Steel	☆ 160 - 260	★ 160 - 260	(1) 0.0004 ~ 0.0012	(1) 0.0004 ~ 0.0012	(1) 0.0004 ~ 0.0012	
			(2) 0.0004 ~ 0.0012	(2) 0.0004 ~ 0.0012	(2) 0.0004 ~ 0.0012	
			(3) Max. 0.0020	(3) Max. 0.0020	(3) Max. 0.0039	

★ : 1st Recommendation ☆ : 2nd Recommendation

G
GROOVING

RECOMMENDED CUTTING CONDITIONS

◆ SIGE (Ground Chipbreaker : GE%...A(R), GE%...B(R))

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)			Notes
	Cermet	MEGACOAT	PVD	Carbide	② f (feed) during Traversing (ipr)			
					③ D.O.C. during Traversing (in)			
TN6020	PR1225	PR1025	KW10	GE% 031-002A ~ GE% 078-004A GE% 100-005A ~ GE% 200-010A GER100-050AR ~ GER200-100AR	GE% 031-002B ~ GE% 088-004B GE% 100-005B ~ GE% 200-010B GER100-050BR ~ GER200-100BR	GE% 094-004B ~ GE% 122-008B GE% 250-020B ~ GE% 300-020B		
Carbon Steel	☆ 160-260	★ 160-260	☆ 160-260	-	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0039	
Alloy Steel	☆ 160-260	★ 160-260	☆ 160-260	-	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0039	
Stainless Steel	-	★ 160-260	☆ 160-260	-	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0020	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0020	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0039	
Cast Iron	-	-	-	★ 160-260	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0020	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0039	
Aluminum	-	-	-	★ 160-330	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0039	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0039	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0079	
Brass	-	-	-	★ 160-330	① 0.0004-0.0012 ② 0.0004-0.0012 ③ Max. 0.0039	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0039	① 0.0008-0.0016 ② 0.0008-0.0016 ③ Max. 0.0079	

• Use PVD coated grade or uncoated carbide for traversing with edge width 0.0394*(1mm). (GE% 100-005A/100-005B) ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ SIGE (Ground Chipbreaker : GE%...C(R), GE%...D(R), GE%...E)

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)						Notes
	Cermet	MEGA-COAT	PVD	Carbide	② f (feed) during Traversing (ipr)						
					③ D.O.C. during Traversing (in)						
TN6020	PR1225	PR1025	GW15	GE% 100-200-010C 200-100CR	GE% 250-350-020C 250-300-150CR	GE% 200-280-020D 200-100DR	GE% 300-400-020D 300-150DR	GE% 350-430-020E	GE% 450-500-020E		
Carbon Steel	☆ 390-590	★ 200-460	☆ 200-460	-	① 0.0012-0.0031 ② 0.0012-0.0031 ③ Max. 0.0118	① 0.0012-0.0031 ② 0.0012-0.0031 ③ Max. 0.0118	① 0.0016-0.0035 ② 0.0016-0.0035 ③ Max. 0.0118	① 0.0016-0.0035 ② 0.0016-0.0035 ③ Max. 0.0118	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0197	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0197	
Alloy Steel	☆ 330-520	★ 200-390	☆ 200-390	-	① 0.0012-0.0028 ② 0.0012-0.0039 ③ Max. 0.0118	① 0.0012-0.0028 ② 0.0012-0.0039 ③ Max. 0.0118	① 0.0016-0.0031 ② 0.0016-0.0031 ③ Max. 0.0118	① 0.0016-0.0031 ② 0.0016-0.0031 ③ Max. 0.0118	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0197	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0197	
Stainless Steel	☆ 230-430	★ 200-360	☆ 200-360	-	① 0.0012-0.0028 ② 0.0012-0.0039 ③ Max. 0.0118	① 0.0012-0.0028 ② 0.0012-0.0039 ③ Max. 0.0118	① 0.0016-0.0031 ② 0.0016-0.0031 ③ Max. 0.0118	① 0.0016-0.0031 ② 0.0016-0.0031 ③ Max. 0.0118	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0197	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0197	
Cast Iron	-	-	-	★ 200-330	① 0.0012-0.0031 ② 0.0012-0.0031 ③ Max. 0.0118	① 0.0012-0.0031 ② 0.0012-0.0031 ③ Max. 0.0118	① 0.0016-0.0035 ② 0.0016-0.0035 ③ Max. 0.0118	① 0.0016-0.0035 ② 0.0016-0.0035 ③ Max. 0.0118	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0197	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0197	
Aluminum	-	-	-	★ 490-980	① 0.0020-0.0047 ② 0.0020-0.0047 ③ Max. 0.0197	① 0.0020-0.0047 ② 0.0020-0.0047 ③ Max. 0.0197	① 0.0020-0.0059 ② 0.0020-0.0059 ③ Max. 0.0197	① 0.0020-0.0059 ② 0.0020-0.0059 ③ Max. 0.0197	① 0.0031-0.0059 ② 0.0031-0.0059 ③ Max. 0.0315	① 0.0031-0.0059 ② 0.0031-0.0059 ③ Max. 0.0315	
Brass	-	-	-	★ 330-820	① 0.0020-0.0047 ② 0.0020-0.0047 ③ Max. 0.0197	① 0.0020-0.0047 ② 0.0020-0.0047 ③ Max. 0.0197	① 0.0020-0.0059 ② 0.0020-0.0059 ③ Max. 0.0197	① 0.0020-0.0059 ② 0.0020-0.0059 ③ Max. 0.0197	① 0.0031-0.0059 ② 0.0031-0.0059 ③ Max. 0.0315	① 0.0031-0.0059 ② 0.0031-0.0059 ③ Max. 0.0315	

• Use PVD coated grade or uncoated carbide for traversing with edge width 0.0394* (1mm). (GE% 100-010C / 100-010D / 100-010E) ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ SIGE (Molded Chipbreaker : GER...CM, GER...DM, GER...EM)

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)						Notes
	Cermet	MEGA COAT	PVD	Carbide	② f (feed) during Traversing (ipr)						
					③ D.O.C. during Traversing (in)						
TN6020	PR1225	PR1025	GW15	GER 150-200-010CM GER 150-200-010DM GER 150-200-010EM	GER 250-350-020CM	GER 230-250-020DM	GER 300-400-020DM GER 250-350-020EM	GER 350-400-020EM	GER 450-500-020CM		
Carbon Steel	-	★ 200-520	☆ 200-520	-	① 0.0012-0.0039 ② 0.0012-0.0039 ③ Max. 0.0394	① 0.0012-0.0047 ② 0.0012-0.0039 ③ Max. 0.0591	① 0.0016-0.0047 ② 0.0016-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	
Alloy Steel	-	★ 200-460	☆ 200-460	-	① 0.0012-0.0039 ② 0.0012-0.0039 ③ Max. 0.0394	① 0.0012-0.0039 ② 0.0012-0.0039 ③ Max. 0.0591	① 0.0016-0.0047 ② 0.0016-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0047 ② 0.0020-0.0039 ③ Max. 0.0591	
Stainless Steel	-	★ 200-360	☆ 200-360	-	① 0.0012-0.0031 ② 0.0012-0.0039 ③ Max. 0.0394	① 0.0012-0.0031 ② 0.0012-0.0039 ③ Max. 0.0591	① 0.0016-0.0031 ② 0.0016-0.0039 ③ Max. 0.0591	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0591	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0591	

★ : 1st Recommendation ☆ : 2nd Recommendation



RECOMMENDED CUTTING CONDITIONS

◆ GIA (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)			Notes
	Cermet				CVD	PVD		Carbide	② f (feed) during Traversing (ipr)			
	TN60	TN90	TC40	TC60	CR9025	PR630	PR930	KW10	③ D.O.C. during Traversing (in)			
	GIA 30		GIA 40		GIA 50							
Carbon Steel	☆ 200-390	-	-	-	★ 200-390	-	-	-	① 0.0016-0.0031	① 0.0016-0.0035	① 0.0020-0.0039	Wet
								② 0.0008-0.0031	② 0.0008-0.0031	② 0.0020-0.0031		
								③ MAX 0.012	③ MAX 0.016	③ MAX 0.020		
Alloy Steel	☆ 200-330	-	-	-	★ 200-330	-	-	-	① 0.0016-0.0028	① 0.0016-0.0028	① 0.0020-0.0031	
								② 0.0008-0.0028	② 0.0008-0.0028	② 0.0020-0.0031		
								③ MAX 0.012	③ MAX 0.016	③ MAX 0.020		
Stainless Steel	-	-	-	-	★ 200-260	-	-	-	① 0.0016-0.0028	① 0.0016-0.0028	① 0.0020-0.0031	
								② 0.0008-0.0028	② 0.0008-0.0028	② 0.0020-0.0031		
								③ MAX 0.012	③ MAX 0.016	③ MAX 0.020		

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ FMM / FMN

Workpiece Material	Recommended Insert Grade (Vc sfm)						Face Grooving (FMM / FMN)			Traversing (FMM)			Notes
	Cermet		CVD	PVD		Carbide	Edge Width (in)			Edge Width (in)			
	TN90	CR9025	PR915	PR930	PR905	KW10	0.1181	0.1575	0.1969 / 0.2362	0.1181	0.1575	0.1969 / 0.2362	
	Feed Rate (ipr)						Feed Rate (ipr)						
Carbon Steel	☆ 330-720	☆ 260-660	☆ 260-660	★ 260-660	-	-	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	Wet
Alloy Steel	☆ 260-660	☆ 230-590	☆ 230-590	★ 230-590	-	-	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	
Stainless Steel	☆ 230-520	☆ 200-490	★ 200-490	☆ 200-490	-	-	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	
Cast Iron	-	-	-	-	★ 260-590	☆ 230-490	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	
Aluminum	-	-	-	-	-	★ 660-1640	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	
Brass	-	-	-	-	-	★ 330-660	0.0012-0.0020	0.0012-0.0031	0.0020-0.0039	0.0020-0.0039	0.0020-0.0098	0.0039-0.0118	

- Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.
- FMN type Inserts are only for Deep Grooving, and when used for turning, set to D.O.C. = 0.079" and under.

★ : 1st Recommendation ☆ : 2nd Recommendation

Turning Conditions

① FMM Toolholder

Recommended Cutting Conditions		
D.O.C. (MAX) (in)	Under 50% of Edge Width	D.O.C. ≤ 0.0197CW
f (MAX) (ipr)	Under 3-5% of Edge Width	f _s [0.0012(Min.) ~ 0.0020(Max.)]CW

- (D.O.C.) x (f) should be as follows.

Edge Width (in)	0.1181	0.1575	0.1969	0.2362
Load (in ²)				
D.O.C. x Feed Rate (f)	~0.004	~0.006	~0.010	~0.014

• D.O.C. x f ≤ 0.0004CW²

RECOMMENDED CUTTING CONDITIONS

◆ GV (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)						① f (feed) during Grooving (ipr)							Notes
	Cermet			MEGA	PVD	Carbide	② f (feed) during Turning (ipr)							
	TN90	TC40	TC60	PR1225	PR930	KW10	③ D.O.C. during Turning (in)							
							GV% 100-300...SS 100-300...S	GV% 145-185...B	GV% 200-280...B	GV% 300-400...B		GV% 280-300...C	GV% 340-400...C		GV% 430-500...C
Carbon Steel	☆	☆	☆	★	☆	-	① 0.0012-0.0031	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0020-0.0047	
	☆	☆	☆	★	☆	-	② 0.0012-0.0031	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	
							③ MAX 0.012	③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	
Alloy Steel	☆	☆	☆	★	☆	-	① 0.0012-0.0028	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0020-0.0039	
	☆	☆	☆	★	☆	-	② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0020-0.0039	
							③ MAX 0.012	③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	
Stainless Steel	☆	-	☆	★	☆	-	① 0.0012-0.0028	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0016-0.0031	① 0.0020-0.0039	① 0.0020-0.0039	
	☆	-	☆	★	☆	-	② 0.0012-0.0039	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0016-0.0031	② 0.0020-0.0039	② 0.0020-0.0039	
							③ MAX 0.012	③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	
Cast Iron	-	-	-	-	-	★ 200-330	① 0.0012-0.0031	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0016-0.0035	① 0.0020-0.0047	① 0.0020-0.0047	
	-	-	-	-	-	★ 200-330	② 0.0012-0.0031	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	
	-	-	-	-	-	★ 200-330	③ MAX 0.012	③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	
Aluminum	-	-	-	-	-	★ 490-980	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059	
	-	-	-	-	-	★ 490-980	② 0.0020-0.0047	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059	
	-	-	-	-	-	★ 490-980	③ MAX 0.020	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	
Brass	-	-	-	-	-	★ 330-820	① 0.0020-0.0047	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059	
	-	-	-	-	-	★ 330-820	② 0.0020-0.0047	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059	
	-	-	-	-	-	★ 330-820	③ MAX 0.020	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	

* Use MEGACOAT, PVD coated grade or carbide for turning with edge width 0.0394" (1mm) (GV% 100SS/100S/100A)

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GVF (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)						① f (feed) during Grooving (ipr)					Notes	
	Cermet			MEGA	PVD	Carbide	② f (feed) during Traversing (ipr)						
	TN60	TN90	TC40	TC60	PR1225	PR930	KW10	③ D.O.C. during Traversing (in)					
								GVF% 200-340...A	GVF% 250-350...B	GVF% 400-490...B	GVF% 350-450...C		GVF% 500-600...C
Carbon Steel	-	☆	☆	☆	★	☆	-	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0020-0.0039	① 0.0020-0.0047	① 0.0020-0.0047	
	-	☆	☆	☆	★	☆	-	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039	
	-							③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	
Alloy Steel	-	☆	☆	☆	★	☆	-	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0020-0.0035	① 0.0020-0.0039	① 0.0020-0.0039	
	-	☆	☆	☆	★	☆	-	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0020-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	
	-							③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	
Stainless Steel	-	☆	-	☆	★	☆	-	① 0.0012-0.0028	① 0.0016-0.0031	① 0.0020-0.0035	① 0.0020-0.0039	① 0.0020-0.0039	
	-	☆	-	☆	★	☆	-	② 0.0012-0.0039	② 0.0016-0.0031	② 0.0020-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	
	-							③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	
Cast Iron	-	-	-	-	-	★ 200-330	① 0.0012-0.0031	① 0.0016-0.0035	① 0.0020-0.0039	① 0.0020-0.0047	① 0.0020-0.0047		
	-	-	-	-	-	★ 200-330	② 0.0012-0.0031	② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0039	② 0.0020-0.0039		
	-	-	-	-	-	★ 200-330	③ MAX 0.012	③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031		
Aluminum	-	-	-	-	-	★ 490-1310	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059		
	-	-	-	-	-	★ 490-1310	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059		
	-	-	-	-	-	★ 490-1310	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	③ MAX 0.031		
Brass	-	-	-	-	-	★ 490-980	① 0.0020-0.0047	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0059	① 0.0031-0.0059		
	-	-	-	-	-	★ 490-980	② 0.0020-0.0047	② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0059	② 0.0031-0.0059		
	-	-	-	-	-	★ 490-980	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	③ MAX 0.031		

• Apply a sufficient amount of coolant.

• The D.O.C. should be under 0.020" (0.5mm) if a good surface finish is required.

★ : 1st Recommendation ☆ : 2nd Recommendation

RECOMMENDED CUTTING CONDITIONS

◆ FTK

	Recommended Insert Grade (Vc sfm)					Edge Width (in)		Notes
	Cermet	CVD	PVD		Carbide	0.1575	0.1969	
	TN90	CR9025	PR660	PR930	KW10	Feed Rate (ipr)		
Carbon Steel	☆ 390-660	★ 260-590	☆ 200-430	☆ 200-430	-	0.0020-0.0059	0.0020-0.0059	Wet
Alloy Steel	☆ 330-520	★ 230-490	☆ 200-430	☆ 200-430	-	0.0020-0.0059	0.0020-0.0059	
Stainless Steel	☆ 260-490	☆ 200-460	★ 160-390	☆ 160-390	-	0.0020-0.0059	0.0020-0.0059	
Cast Iron	-	-	-	-	★ 160-330	0.0039-0.0118	0.0039-0.0118	
Aluminum	-	-	-	-	★ 660-1480	0.0020-0.0098	0.0020-0.0098	
Brass	-	-	-	-	★ 330-660	0.0020-0.0098	0.0020-0.0098	

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GMN (CBN / PCD)

Workpiece Material	Recommended Insert Grade (Vc sfm)		① f (feed) during Grooving (ipr)				Notes
	CBN	PCD	② f (feed) during Traversing (ipr)				
	KBN510 KBN525	KPD001 (KPD010)	③ D.O.C. during Traversing (in)				
			GMN2	GMN3	GMN4 GMN5	GMN6	
Aluminum	-	★ 490-6560	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0071	① 0.0039-0.0079	Wet
			② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0071	② 0.0039-0.0079	
			③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	③ MAX 0.031	
Brass	-	★ 660-2620	① 0.0020-0.0059	① 0.0020-0.0059	① 0.0031-0.0071	① 0.0039-0.0079	
			② 0.0020-0.0059	② 0.0020-0.0059	② 0.0031-0.0071	② 0.0039-0.0079	
			③ MAX 0.020	③ MAX 0.031	③ MAX 0.031	③ MAX 0.031	
Cast Iron	★ 490-1310	-	① 0.0016-0.0035	① 0.0020-0.0039	① 0.0020-0.0047	① 0.0020-0.0059	
			② 0.0016-0.0035	② 0.0020-0.0039	② 0.0020-0.0047	② 0.0020-0.0059	
			③ MAX 0.012	③ MAX 0.020	③ MAX 0.020	③ MAX 0.031	
Hardened Materials	★ 260-390	-	① 0.0008-0.0020	① 0.0012-0.0028	① 0.0012-0.0031	① 0.0020-0.0039	
			② 0.0004-0.0012	② 0.0004-0.0020	② 0.0012-0.0031	② 0.0020-0.0039	
			③ MAX 0.004	③ MAX 0.008	③ MAX 0.012	③ MAX 0.016	

★ : 1st Recommendation ☆ : 2nd Recommendation

G GROOVING

RECOMMENDED CUTTING CONDITIONS

◆ GMG / GMM / GMN / GMGA

Workpiece Material	Recommended Insert Grade (Vc sfm)						Grooving				Traversing				Notes
	Cermet		CVD		PVD		Carbide		Edge Width (in)		Edge Width (in)		Edge Width (in)		
	TN90	CR9025	PR915	PR930	PR905	KW10	0.0787~0.1181	0.1575	0.1969	0.2362/0.3150	0.0787~0.1181	0.1575	0.1969	0.2362/0.3150	
							Feed Rate (ipr)				Feed Rate (ipr)				
Carbon Steel	☆ 330-720	☆ 260-660	☆ 260-660	★ 260-660	-	-	0.0020-0.0059	0.0039-0.0098	0.0059-0.0138	0.0079-0.0138	0.0039-0.0079	0.0059-0.0118	0.0079-0.0157	0.0098-0.0157	Wet
Alloy Steel	☆ 260-660	☆ 230-590	☆ 230-590	★ 230-590	-	-	0.0020-0.0059	0.0039-0.0098	0.0059-0.0138	0.0079-0.0138	0.0039-0.0079	0.0059-0.0118	0.0079-0.0157	0.0098-0.0157	
Stainless Steel	☆ 230-520	☆ 200-490	★ 200-490	☆ 200-490	-	-	0.0020-0.0059	0.0039-0.0079	0.0059-0.0138	0.0079-0.0138	0.0039-0.0079	0.0059-0.0098	0.0079-0.0157	0.0098-0.0157	
Cast Iron	-	-	-	-	★ 330-660	☆ 230-490	0.0020-0.0079	0.0039-0.0118	0.0059-0.0157	0.0079-0.0157	0.0039-0.0098	0.0059-0.0138	0.0079-0.0177	0.0098-0.0177	
Aluminum	-	-	-	-	-	★ 660-1640	0.0020-0.0079	0.0031-0.0098	0.0039-0.0098	0.0047-0.0118	0.0039-0.0079	0.0039-0.0098	0.0039-0.0098	0.0059-0.0118	
Brass	-	-	-	-	-	★ 330-660	0.0020-0.0059	0.0031-0.0079	0.0039-0.0098	0.0047-0.0118	0.0039-0.0079	0.0039-0.0098	0.0039-0.0098	0.0059-0.0118	

Traversing Conditions

★ : 1st Recommendation ☆ : 2nd Recommendation

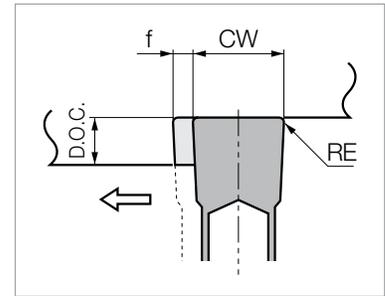
① KGM Toolholder

Recommended Cutting Conditions		
D.O.C.(MAX) (in)	Under 80% of Edge Width	D.O.C. ≤ 0.0315CW
f (MAX) (ipr)	Under 10% of Edge Width	f ≤ 0.0039CW

• (D.O.C.) x (f) should not exceed 1/2 of D.O.C.(MAX) x f(MAX)

Edge Width (in)	0.0787~0.0984	0.1181	0.1575	0.1969	0.2362	0.3150
Load (in ²)						
D.O.C. x Feed Rate (f)	~0.0079	~0.0142	~0.0252	~0.0394	~0.0567	~0.1008

• D.O.C. x f ≤ 1/2 x 0.0315w x 0.0039w = 0.0016w²



② KGM-T Toolholder (Deep Grooving)

Use KGM-T toolholder under 90% lower cutting conditions than the KGM Toolholder

③ KGM / KGMS / KFMS-8 Toolholder

Recommended Cutting Conditions		
D.O.C.(MAX) (in)	Under 50% of Edge Width	D.O.C. ≤ 0.0197CW
f (MAX) (ipr)	Under 4% of Edge Width	f ≤ 0.0016CW

• (D.O.C.) x (f) should not exceed 1/2 of D.O.C.(MAX) x f(MAX)

Edge Width (in)	0.0787~0.0984	0.1181	0.1575	0.1969	0.2362	0.3150
Load (in ²)						
D.O.C. x Feed Rate (f)	~0.0039	~0.0071	~0.0126	~0.0197	~0.0283	~0.0504

• D.O.C. x f ≤ 0.0008w²

④ KIGM Toolholder

Recommended Cutting Conditions		
D.O.C.(MAX) (in)	Under 70% of Edge Width	D.O.C. ≤ 0.0276CW
f (MAX) (ipr)	Under 8% of Edge Width	f ≤ 0.0031CW

• (D.O.C.) x (f) should be as follows. (under 70% of KGM)

Edge Width (in)	0.1181	0.1575	0.1969
Load (in ²)			
D.O.C. x Feed Rate (f)	~0.0098	~0.0173	~0.0276

• D.O.C. x f ≤ 0.0016CW²

◆ GMG / GMM / GMGA 8030 (Face Grooving)

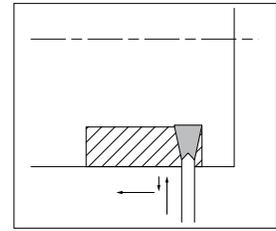
Workpiece Material	Recommended Insert Grade (Vc sfm)						Face Grooving	Traversing	Notes
	Cermet		CVD		PVD		Edge Width (in)	Edge Width (in)	
	TN90	CR9025	PR915	PR930	PR905	KW10	0.3150	0.3150	
							Feed Rate (ipr)	Feed Rate (ipr)	
Carbon Steel	☆ 330-720	☆ 260-520	☆ 260-520	★ 260-520	-	-	0.0039-0.0079	0.0039-0.0098	Wet
Alloy Steel	☆ 260-520	☆ 230-520	☆ 230-520	★ 230-520	-	-	0.0039-0.0079	0.0039-0.0098	
Stainless Steel	☆ 230-460	☆ 200-430	★ 200-430	☆ 200-430	-	-	0.0039-0.0079	0.0039-0.0098	
Cast Iron	-	-	-	-	★ 260-590	☆ 230-430	0.0039-0.0118	0.0039-0.0138	
Aluminum	-	-	-	-	-	★ 660-980	0.0031-0.0098	0.0031-0.0118	
Brass	-	-	-	-	-	★ 330-490	0.0031-0.0098	0.0031-0.0118	

★ : 1st Recommendation ☆ : 2nd Recommendation

Guide for External Grooving

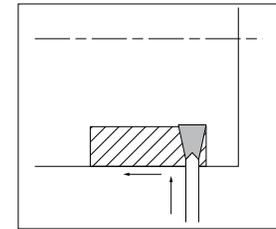
Point (I) (Traversing after Grooving)

- 1) Grooving Depth Over 0.5mm: At roughing (Refer to Fig.1)
Before Traversing, pull the tool back about 0.1mm after grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)
- 2) Grooving Depth under 0.5mm: At finishing (Refer to Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell time is not necessary.)



Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)

Fig.1



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.5mm: At finishing)

Fig.2

Point (II)

- 1) When widening the groove width
(Refer to Fig.3), apply the "Step Traversing" as shown in Fig.3.
 - 2) The side walls should be finished with a plunging pass.
(For better chip control, ap over 0.5mm is recommended.)
- Note) If the workpiece is not supported at the center, reduce the feed rate when grooving towards center.

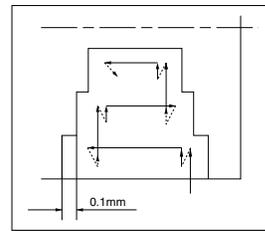


Fig.3

G GROOVING

Guide for Face Grooving

<Toolholder Selection>

- (1) Choose the best tool depending on the groove width.
The Cutting Dia. $\varnothing D$ listed in the catalog indicates the depth of the first plunge of face grooving as shown in Fig.1.



- (2) Confirm Grooving Depth (dimension CDX)



- (3) It is recommended to install the toolholder in the reverse position. (Fig. 2)
(This will provide smooth chip flow and chip clearance.)

<Guide for Traversing>

Traversing direction should be from the outer diameter to the inner diameter as shown in Fig.3
This improves chip evacuation.

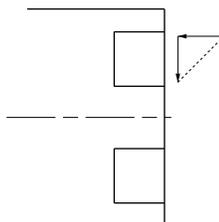


Fig.3

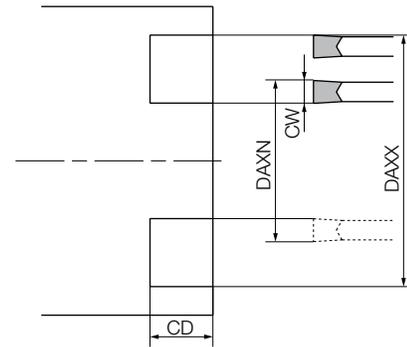


Fig.1

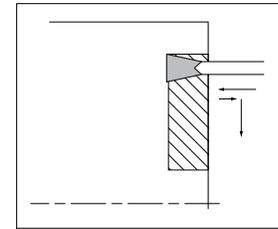
Toolholder	Right-hand (R)		Toolholder	Left-hand (L)	
	Insert	(No Hand)		Insert	(No Hand)

Fig.2 Toolholder's Hand and Rotation

■ Guide for External Grooving (Continued)

● Point (I) (Traversing after Grooving)

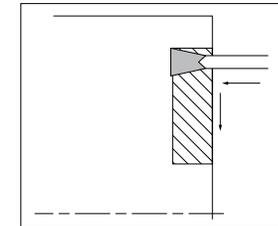
- 1) Grooving Depth Over 0.5mm: At roughing (Refer to Fig.4)
Before Traversing, pull the tool back about 0.1mm after grooving.
(Failure to pull the tool back before traverse machining will result in an unbalanced load applied on only one side of the cutting edge.)



Before Traversing, pull the tool back about 0.1mm after grooving.
(Grooving Depth Over 0.5mm: At roughing)

Fig.4

- 2) Grooving Depth under 0.5mm: At finishing (Refer to Fig.5)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell time is not necessary.)



Traversing subsequent to grooving is possible because there is only a small force on the cutting edge.
(Grooving Depth under 0.5mm: At finishing)

Fig.5

● Point (II)

- 1) When widening the groove width, apply the “Step Traversing” as shown in Fig. 6.
- 2) The side walls should be finished with a plunging pass.
(For better chip control, D.O.C. over 0.5mm is recommended.)

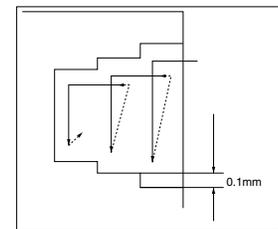


Fig.6

● Troubleshooting

Trouble	Countermeasures
Whitish trace remains at the groove bottom.	<ol style="list-style-type: none"> (1) Increase the cutting speed for finishing process only. (This can handle most of the cases.) If the method is not successful, try (2) as follows. (2) Check the insert edge's parallelness. [Adjustment: Apply the insert edge to the work face and adjust the toolholder within the angle of $\pm 5^\circ$. (Fig.7)]
Chips are entangled.	<ol style="list-style-type: none"> (1) Install the toolholder in the reverse position. Adjust the coolant flow to the cutting edge. (2) When widening the groove, do not machine one deep groove. Instead, repeat shallow grooving and Traversing.
Insert cracks when Traversing.	Reverse the facing direction.
Groove is not straight.	Check the edge's parallelness. Decrease the feed rate.

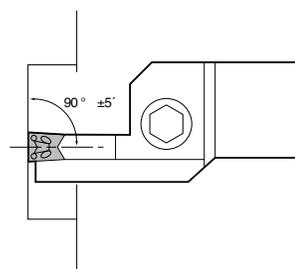


Fig.7

● Guide for Grooving with Cermet Insert (Steel)

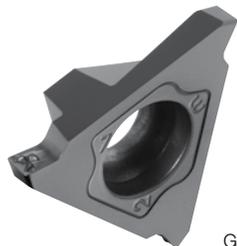
1. Set the feed under 0.0047" ipr (0.0020"~0.0039" ipr normally).
2. Coolant is recommended.
3. Set the cutting speed $V_c = 490\sim 720$ sfm.
4. Set the toolholder overhang as short as possible.

● How to Improve Surface Finish (when surface roughness below $3\mu\text{m Rz}$ is required)

1. Increase the cutting speed ($V_c = 720$ sfm MAX.)
2. Program retention time at the groove bottom.
3. Apply a light hone to the cutting edge.

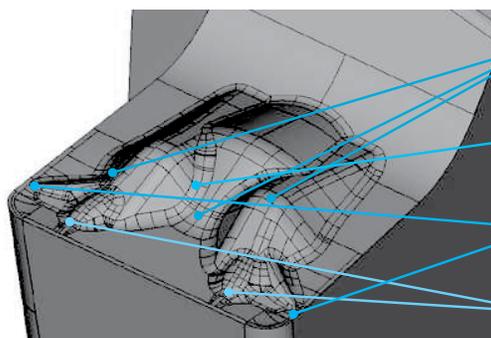
● Chip Control of Grooving Insert with Molded Chipbreaker

1. Good chip control to cover a wide application range of stable chip control at high cutting speed, covering wide range of feed rates
2. Improved chip control and excellent surface finish
Superior chip control performance
3. Chip control improvement with automated production line.
(prevents frequent machine stops)



GBA type GM chipbreaker

Multi Bump Design



Center bump and dent squeeze chips for better control.

Helps modifying chip shape.

Stable chip control during shouldering and chamfering.

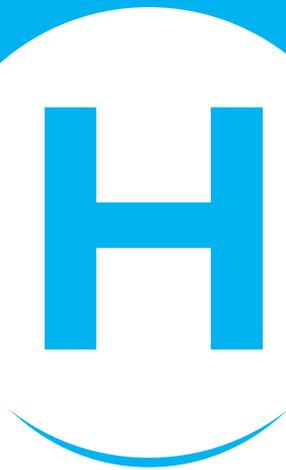
Front Bump: Stabilize chip control at low feed rates.

Smooth chip control due to optimized bump design of the chipbreaker

■ Alternative Toolholder Reference Table for Grooving Toolholder

Part Number	Overall Length (mm)	Conventional Toolholder			Alternative Toolholder			
		Spare Parts			Part Number	Overall Length (mm)	Notes	Reference Page
Clamp Screw	Wrench	Wrench						
KTGF% 1010K-16F	125	SB-4070TRW	FT-8	-	KTGF% 1010JX-16F	120		G20
1212M-16F	150				KTGF% 1212JX-16F	120		
1616M-16F	150				KTGF% 1616JX-16F	120		
KGM% 0810K-1.5-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	G48
1010K-1.5-125	125				KGM% 1010JX-1.5	120		
1212M-1.5-150	150				KGM% 1212JX-1.5	120		
KGM% 0810K-2-125	125	SE-40120TR	-	LTW-15S	-	-	No replacement	
1010K-2-125	125				KGM% 1010JX-2	120		
1212M-2-150	150				KGM% 1212JX-2	120		
KGM% 1616M-2-150	150	SE-50125TR	-	LTW-20	KGM% 1616JX-2	120		
KGM% 1010K-2.5-125	125	SE-40120TR	-	LTW-15S	KGM% 1010JX-2.5	120		
1212M-2.5-150	150				KGM% 1212JX-2.5	120		
1616M-2.5-150	150				KGM% 1616JX-2.5	120		
KGM% 1616M-3-150	150	SE-50125TR	-	LTW-20	KGM% 1616JX-3	120		

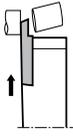
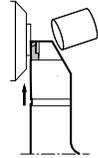
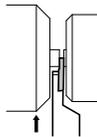
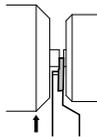
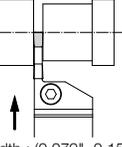
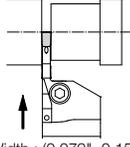
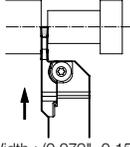
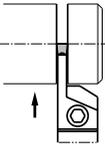
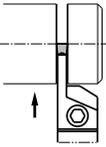
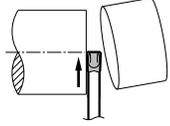
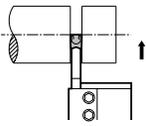
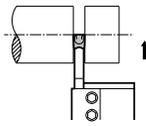
Note) The corresponding replacements may be different from the conventional parts in insert clamping system or insert size. Make sure their specifications referring to the catalog or other documents.



H1 - H54

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GUIDE FOR CUT-OFF	H3	
SUMMARY OF CUT-OFF TOOLS	H4 - H5	
SMALL DIAMETER CUT-OFF TOOLHOLDERS	H6 - H19	
KTKF	Lateral Side Screw Clamp Holder	H8
KTKF-S (Sub Spindle)	Lateral Side Screw Clamp Holder	H10
KTKF-JCT (Coolant Through)	Lateral Side Screw Clamp Holder	H13
KTKF-Y (Y-Axis Holder)	Lateral Side Screw Clamp Holder	H16
KTKFS (Sub Spindle)	Lateral Side Screw Clamp Holder	H18
CUT-OFF TOOLHOLDERS (2-EDGE INSERT, KGD)	H20 - H33	
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KGDS (Sub Spindle)	Integral Toolholder	H23
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KGM	Integral Toolholder	H36
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CUT-OFF TOOLHOLDERS (1-EDGE INSERT)	H40 - H51	
KPKB-JCT / KPKB	Blade	H43
KPKTB-JCT / KTKTB / KTKTBF	Tool Block	H44
KTKB-SS / KTKB-S	Blade	H49
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Product Lineup

Small Diameter Cut-Off Cut-Off Diameter Ø0.197"~Ø0.472" ~Ø0.630" (Ø5mm~Ø12mm) (~Ø16mm)	KTKF (H8)  Width : (0.020"~0.079") Width : (0.5mm~2.0mm)	KTKF-JCT (H13)  Width : (0.020"~0.079") Width : (0.5mm~2.0mm)	Sub Spindle Tooling	KTKF-S (H10)  Width : (0.039"~0.079") Width : (1.0mm~2.0mm)	KTKFS (H18)  Width : (0.039"~0.079") Width : (1.0mm~2.0mm)
	KGD (Bolt Clamp) Cut-Off Diameter Ø0.472"~Ø1.575" (Ø12mm~Ø50mm)	KGD (H22, H26)  Width : (0.079"~0.158") Width : (1.3mm~4.0mm)		KGD-JCT (Small Dia.) (H25)  Width : (0.079"~0.158") Width : (1.3mm~4.0mm)	KGD-S (H30)  Width : (0.079"~0.158") Width : (1.3mm~4.0mm)
KGM (Bolt Clamp) Cut-Off Diameter Ø0.709"~Ø1.575" (Ø18mm~Ø60mm)	KGM (H36)  Width : 0.059"-0.158", 0.118"-0.236" Width : (1.5mm~4mm, 3mm~8mm)	KGM-T (H37)  Width : 0.079"~0.197" Width : (2mm~6mm)			
KPKB KTKB / KTKH (1-edge Insert)	Toolholders Cut-Off Diameter Ø1.181"~Ø2.441" (Ø30mm~Ø79mm)	KTKH-S (H50)  Width : (0.020"~0.079") Width : (2.2mm~5.1mm)	Blade Type Cut-Off Diameter Ø0.551"~Ø0.630" (Ø32mm~Ø120mm)	KPKB-JCT (H43)  Width : (0.079"~0.157") Width : (2.0~4.0mm)	KTKB-S(S) (H49)  Width : (0.063"~0.378") Width : (1.6mm~9.6mm)

Cut-Off Tools

Series Name	Shape	Advantage	Applications
For Small Diameter Cut-Off		1) Insert clamp is side screw type from the side 2) 2-edge insert 3) Max. Cut-off Dia. : Ø0.630" (Ø16mm)	1) For cut-off and grooving of small workpieces 2) For small parts machining
KGD-JCT KGD		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Integral type and separate type are available 4) Max. Cut-off Dia. : Ø1.969" (Ø50mm) 5) JCT jet coolant-through styles available	1) PM Chipbreaker ... For Cut-Off 2) PH Chipbreaker ... For Cut-Off (High Feed Rate) / For Grooving 3) PG Chipbreaker ... For Cut-Off (for Small Parts Machining) / Sharp-Cutting Oriented 4) PF Chipbreaker ... For Cut-Off (for Small Parts Machining) / Low Feed 5) PQ Chipbreaker ... For Cut-Off (for Small Parts Machining) / Medium Feed
KGM		1) Insert is clamped from top side 2) 1-edge and 2-edge inserts available 3) Max. Cut-off Dia. : Ø2.362" (Ø60mm)	1) For cut-off and grooving of small workpieces 2) For automatic lathe, small machine 3) TMR-Chipbreaker provides stable chip control up to high feed rate ranges
KPKB-JCT KPKB		1) Easy self-clamping insert replacement (no hammer required) 2) Firm insert clamp ensures safety and security 3) Max. Cut-off Dia. : Ø3.937" (Ø100mm)	1) For cut-off in Steel, Stainless, Cast Iron, and Non-ferrous 2) PM Chipbreaker ... General Purpose Cut-Off (Lead angle styles available) 3) PH Chipbreaker ... Tough Edge
KTKB KTKH		1) Self-Clamping System Tap the insert lightly with a plastic hammer to set it in the pocket 2) 1-edge insert 3) Blade type and Integral Shank type 4) Max. Cut-off Dia. : Ø4.724" (Ø120mm)	1) For cut-off and deep grooving 2) Standard chipbreaker is general cut-off type Feed rate: over 0.004ipr P-Chipbreaker is for cut-off at low feed rates Feed rate: 0.001~0.003ipr

Tool Selection

		Small Diameter Cut-Off	KGD	KGM	KPKB KTKB / KTKH
Insert	1. Insert's Edge Number 1-edge Insert... For Larger Dia. Workpiece (Max. 4.724" / Ø120mm)	-	-	-	✓
	2-edge Insert... For Smaller Dia. Workpiece Cost per corner is reduced	✓	✓	✓	-
	2. Use a neutral angle insert if there is no restriction to the size of boss left on part. (See Fig.3 Below)	TKF...S TKF...NB TKFS...S	GDM GDMS	GMM	PKM TKN
	3. Use an angled insert to reduce the size of the remaining boss.	TKF...DR	GDM- $\frac{R}{L}$ (Fig. 2)	GMM- $\frac{R}{L}$ (Fig. 2)	PKM $\frac{R}{L}$ / TK $\frac{R}{L}$ (Fig. 1)
	4. Use a sharp-cornered lead-angled insert to make the remaining boss much smaller when machining small parts and thin parts.	TKF...DR	-	GMM- $\frac{R}{L}$ (Fig. 2)	-
5. Use the minimum width insert suitable for the machining.	✓	✓	✓	✓	
Toolholder	1. Use a suitable toolholder (blade) for the workpiece dia.	✓	✓	✓	✓
	2. Use a more rigid toolholder (blade).	✓	✓	✓	✓
	3. Use a side screw or self clamp toolholder if there is no space for clamping tools from top side (for small tools).	✓	-	-	-

How to Select Cut-Off Inserts with or without Lead Angle

- 1) Use a neutral angle insert, when remaining boss is not a concern. (See Fig.1)
- 2) Use an angled insert to reduce the remaining boss. (See Fig.2)
- 3) Use a sharp-edged insert with lead angle to minimize the remaining boss when cutting small parts and thin parts. (See Fig.3)

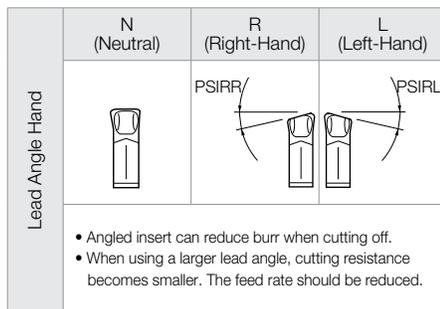


Fig.1

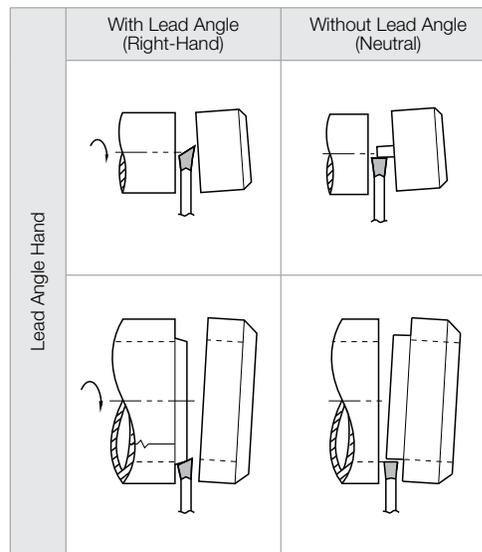


Fig.2

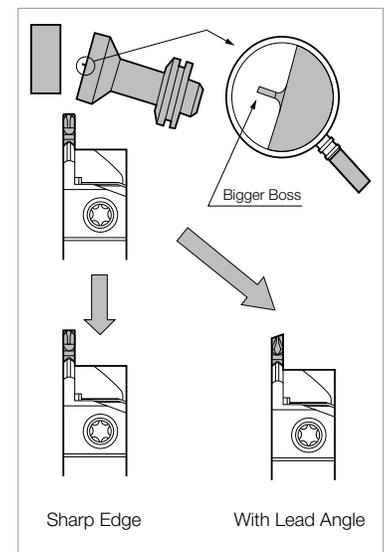


Fig.3

Caution

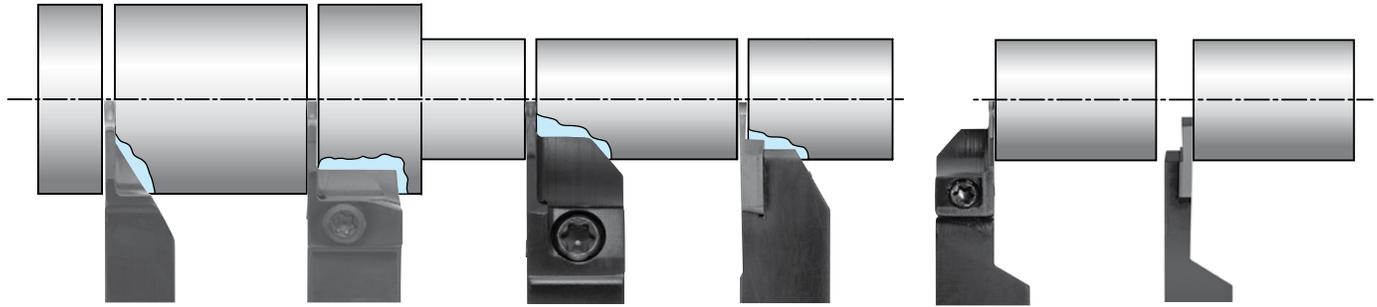
1) Set the cutting edge height 0.004"-0.008" above the center height	
2) Always apply sufficient coolant to the cutting edge	
3) Constant spindle revolution is recommended to obtain stable tool life	
4) Cut-off as close to the chuck as possible	
5) Decrease the feed rate from 1/2 to 1/3 when diameter is same as cut-off width	
<ul style="list-style-type: none"> • Overuse of insert and toolholder (blade) may cause insert breakage and toolholder (blade) damage. • Do not rework the insert and toolholder (blade) to prevent damage • Clean the insert pocket well with compressed air when replacing insert 	

Fig.4

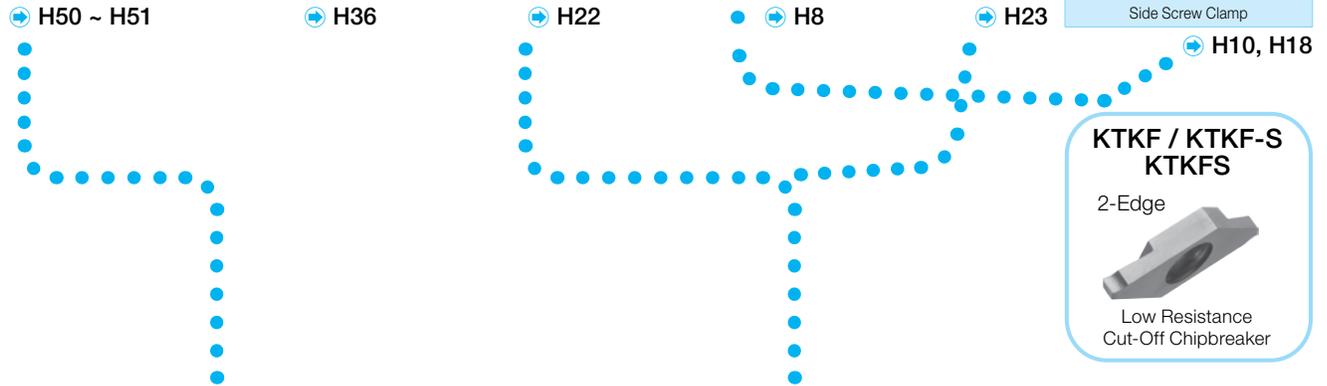
CUT-OFF TOOLS SUMMARY

Small Diameter Cut-Off ~Ø1.653" / ~45mm

Small Shank



KTKH-S	KGM	KGD / KGD-JCT	KTKF	KGDS	KTKF-S/KTKFS
Cut-Off Dia. ~Ø1.300* ~Ø45mm	Cut-Off Dia. ~Ø0.984* ~Ø32mm	Cut-Off Dia. ~Ø1.653* ~Ø42mm	Cut-Off Dia. ~Ø0.625* ~Ø16mm	Cut-Off Dia. ~Ø24mm	Cut-Off Dia. ~Ø0.630* ~Ø16mm
Shank 0.375"-0.500* 10mm-25mm	Shank 0.375"-0.500* 10mm-16mm	Shank 0.0.375"-0.750* 10mm-20mm	Shank 0.375"-0.625* 10mm-25mm	Shank 16mm	Shank 0.375"-0.500* 10mm-12mm
Edge Width 0.063"-0.094* 2.2mm-4.1mm	Edge Width 0.079"-0.118* 1.5mm-4.0mm	Edge Width 0.059"-0.157* 1.3mm-4.0mm	Edge Width 0.020"-0.079* 0.5mm-2.0mm	Edge Width 1.3mm-3.0mm	Edge Width 0.5mm-2.0mm (KTKF-S) 0.059"-0.098" (KTKFS) 1.0mm-2.0mm (KTKFS)
Self Clamp	Top Clamp	Top Clamp	Side Screw Clamp	Top Clamp	Side Screw Clamp

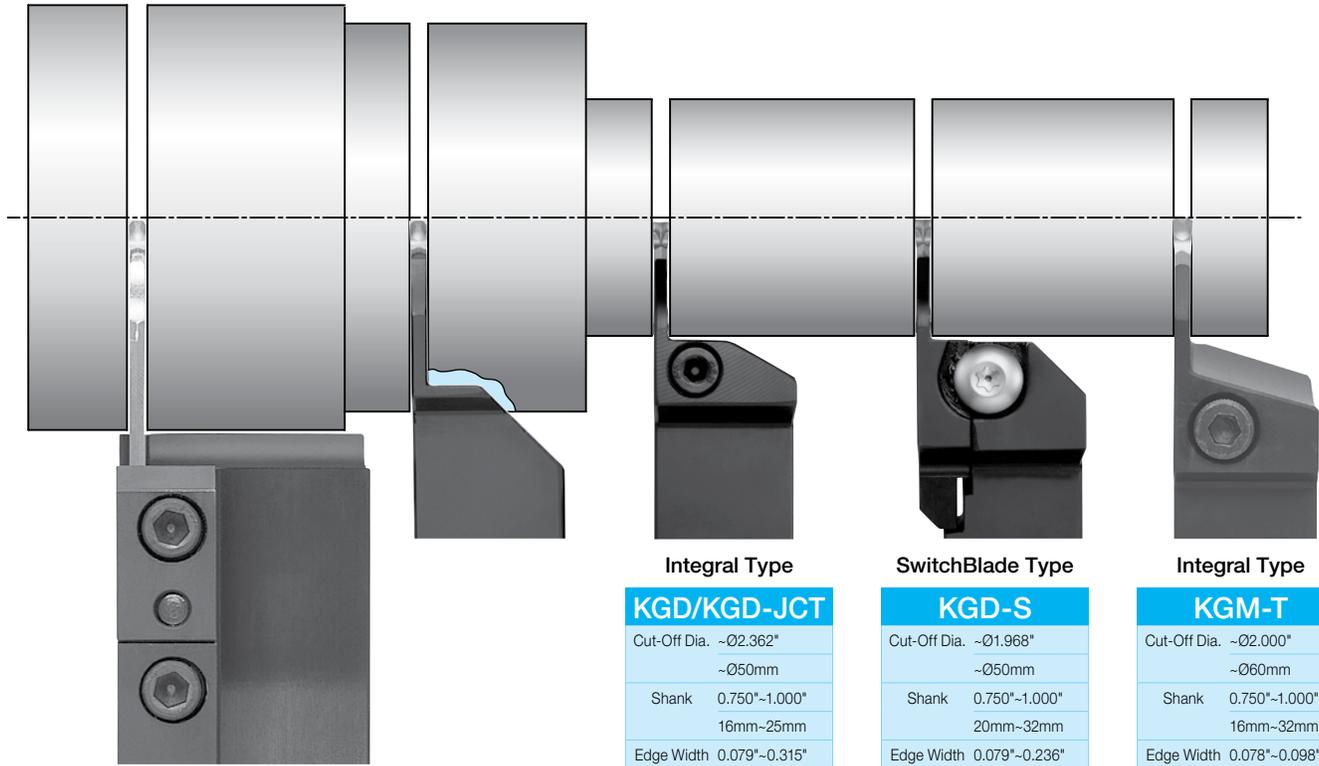


Chipbreaker Edge Shape	Cut-Off (Self Clamp) H35		
	General Cut-Off		Low Feed Cut-Off
	Chamfer + Honed	Sharp Edge	R Honed



CUT-OFF TOOLS SUMMARY

General Cut-Off ~Ø3.100" / ~120mm



Integral Type

KGD/KGD-JCT	
Cut-Off Dia.	~Ø2.362" ~Ø50mm
Shank	0.750"-1.000" 16mm~25mm
Edge Width	0.079"~0.315" 2.0mm~4.0mm
Top Clamp	

SwitchBlade Type

KGD-S	
Cut-Off Dia.	~Ø1.968" ~Ø50mm
Shank	0.750"-1.000" 20mm~32mm
Edge Width	0.079"~0.236" 2.0mm~4.0mm
Top Clamp	

Integral Type

KGM-T	
Cut-Off Dia.	~Ø2.000" ~Ø60mm
Shank	0.750"-1.000" 16mm~32mm
Edge Width	0.078"~0.098" 2.0mm~6.0mm
Top Clamp	

Blade + Toolblock

KPKB / KPKB-JCT	
Cut-Off Dia.	~Ø100mm
Block Shank	20mm~25mm
Edge Width	2.0mm~4.0mm
Self Clamp	

Blade + Toolblock

KTKB	
Cut-Off Dia.	~Ø120mm
Block Shank	0.750"-1.000" 16mm~32mm
Edge Width	1.6mm~9.6mm
Self Clamp	

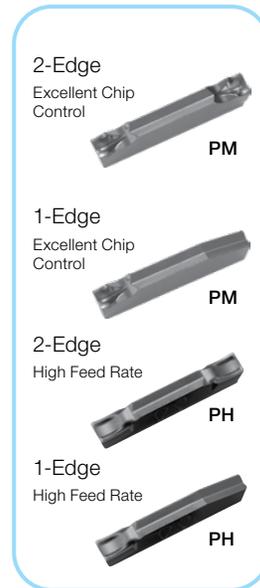
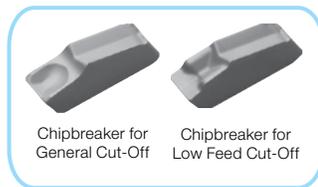
Integral Type

KTKH-S	
Cut-Off Dia.	~Ø3.100" ~Ø79mm
Shank	0.750"-1.000" 20mm~25mm
Edge Width	0.087"~0.201" 3.1mm~5.1mm
Self Clamp	

➔ H43

➔ H49

➔ H50 ~ H51



Blade + Toolblock		SwitchBlade Type	Integral Type		
KPKB ➔ H43	KTKB ➔ H49	KGD-S ➔ H30	KTKH-S ➔ H50	KGD ➔ H26	KGM ➔ H36

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

NEW

TKF12

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M	Stainless Steel	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	Cast Iron	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	Non-ferrous Metals	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Insert Right-handed Insert Shown	Part Number	Dimensions (in)								Angle (°)	MEGACOAT NANO			MEGACOAT	PVD Coated Carbide	DLC	Carbide	Ref. Page for Toolholder						
		CW		CUTDIA	RE	W1	S	D1	PSIRR		PRI725	PRI425	PRI535											
		inch	mm																					
 Right Lead Angle	TKF12% 050-S-16DR	0.020	0.50	0.197	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○				
	070-S-16DR	0.028	0.70	0.315	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○			
	100-S-16DR	0.039	1.00	0.472	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○		
	125-S-16DR	0.049	1.25	0.472	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	
	150-S-16DR	0.059	1.50	0.472	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
200-S-16DR	0.079	2.00	0.472	0.001	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○	○
 Right Lead Angle	TKF12% 050-S	0.020	0.50	0.197	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	070-S	0.028	0.70	0.315	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	100-S	0.039	1.00	0.472	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	125-S	0.049	1.25	0.472	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	150-S	0.059	1.50	0.472	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
200-S	0.079	2.00	0.472	0.001	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○	○
 Right Lead Angle Tough Edge	TKF12% 100-T-16DR	0.039	1.00	0.472	0.003	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	150-T-16DR	0.059	1.50	0.472	0.003	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	200-T-16DR	0.079	2.00	0.472	0.003	0.118	0.343	0.197	16°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
 Tough Edge	TKF12% 100-T	0.039	1.00	0.472	0.003	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	150-T	0.059	1.50	0.472	0.003	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	200-T	0.079	2.00	0.472	0.003	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
 Right Lead Angle	TKF12% 050-NB-20DR	0.020	0.50	0.197	0.000	0.118	0.343	0.197	20°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	070-NB-20DR	0.028	0.70	0.315	0.000	0.118	0.343	0.197	20°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	100-NB-20DR	0.039	1.00	0.472	0.000	0.118	0.343	0.197	20°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	150-NB-20DR	0.059	1.50	0.472	0.000	0.118	0.343	0.197	20°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
200-NB-20DR	0.079	2.00	0.472	0.000	0.118	0.343	0.197	20°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○	○
 Without Chipbreaker	TKF12% 050-NB	0.020	0.50	0.197	0.000	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	070-NB	0.028	0.70	0.315	0.000	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	100-NB	0.039	1.00	0.472	0.000	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	150-NB	0.059	1.50	0.472	0.000	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○
	200-NB	0.079	2.00	0.472	0.000	0.118	0.343	0.197	0°	●	△	△	●	△	△	○	○	○	○	○	○	○	○	○

H8

- Lead angle shows the angle when installed in the toolholder.
- As Fig. 1 of H8 shows, the cutting diameter of the insert is measured when the lead edge passes 0.039" past the center line of part.

Recommended Cutting Conditions H52

Indication of Description

TKF 12 R 050 - S - 16D R

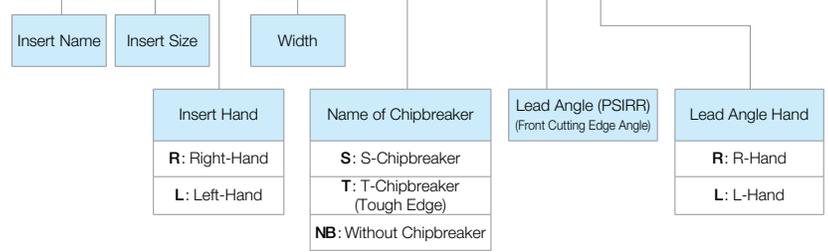
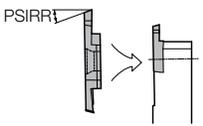
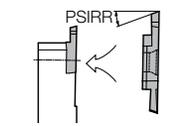


Table 1

Toolholder	R-Hand (R)	Toolholder	L-Hand (L)
Insert	R-Hand (R)	Insert	L-Hand (L)
Lead Angle	R-Hand (R)	Lead Angle	R-Hand (R)
PSIRR		PSIRR	

Inserts are sold in 10 piece boxes

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

NEW ITEMS!

TKF16

Classification of Usage ● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	●	○	○	○	○		
	M	Stainless Steel	○	○	●	○	○		
	K	Cast Iron							●
	N	Non-ferrous Metals							○

Insert Right-handed Insert Shown	Part Number	Dimensions (in)							Angle (°)	MEGACOAT NANO			MEGACOAT		PVD Coated Carbide		DLC		Carbide		Ref. Page for Toolholder				
		CW		CUTDIA	RE	W1	S	D1		PSIRR	PR1725		PR1425		PR1535		PR1225		PR1025			PDL025		KW10	
		inch	mm								R	L	R	L	R	L	R	L	R	L		R	L	R	L
 Right Lead Angle	TKF16 150-S-16DR	0.059	1.5	0.630	0.002	0.157	0.374	0.197	16°	●	●	△	△	●	●	●	●	△	△	●	●	●	●		
	200-S-16DR	0.079	2.0	0.630	0.002	0.157	0.374	0.197	16°	●	●	△	△	●	●	●	●	△	△	●	●	●	●		
 150-S	TKF16 150-S	0.059	1.5	0.630	0.002	0.157	0.374	0.197	0°	●	●	△	△	●	●	●	●	△	△	●	●	●	●		
	200-S	0.079	2.0	0.630	0.002	0.157	0.374	0.197	0°	●	●	△	△	●	●	●	●	△	△	●	●	●	●		
 Right Lead Angle Tough Edge	TKF16 150-T-16DR	0.059	1.5	0.630	0.003	0.157	0.374	0.197	16°	●	●	△	△	●	●	●	●								
	200-T-16DR	0.079	2.0	0.630	0.003	0.157	0.374	0.197	16°	●	●	△	△	●	●	●	●								
 Tough Edge	TKF16 150-T	0.059	1.5	0.630	0.003	0.157	0.374	0.197	0°	●	●	△	△	●	●	●	●								
	200-T	0.079	2.0	0.630	0.003	0.157	0.374	0.197	0°	●	●	△	△	●	●	●	●								
 Right Lead Angle Without Chipbreaker	TKF16 150-NB-20DR	0.059	1.5	0.630	0.000	0.157	0.374	0.197	20°	●	●	△	△	●	●			△	△			●	●		
	200-NB-20DR	0.079	2.0	0.630	0.000	0.157	0.374	0.197	20°	●	●	△	△	●	●			△	△			●	●		
 Without Chipbreaker	TKF16 150-NB	0.059	1.5	0.630	0.000	0.157	0.374	0.197	0°	●	●	△	△	●	●			△	△			●	●		
	200-NB	0.079	2.0	0.630	0.000	0.157	0.374	0.197	0°	●	●	△	△	●	●			△	△			●	●		

- Lead angle shows the angle when installed in the toolholder.
- As Fig.1 of H8 shows, the cutting diameter of the insert is measured when the lead edge passes 0.039" past the center line of part.

Recommended Cutting Conditions H52

Descriptions of Chipbreaker Edge Shape

Edge Shape	S-Chipbreaker		T-Chipbreaker (Tough Edge)		NB Chipbreaker	
	GAN	Part Number	GAN	Part Number	GAN	Part Number
	15°	TKF12...-S	12°	TKF...-T TKF...-T-16DR	0°	TKF...-NB TKF...-NB-20DR
	20°	TKF16...-S TKF16...-S-16DR				
	25°	TKF12...-S-16DR				

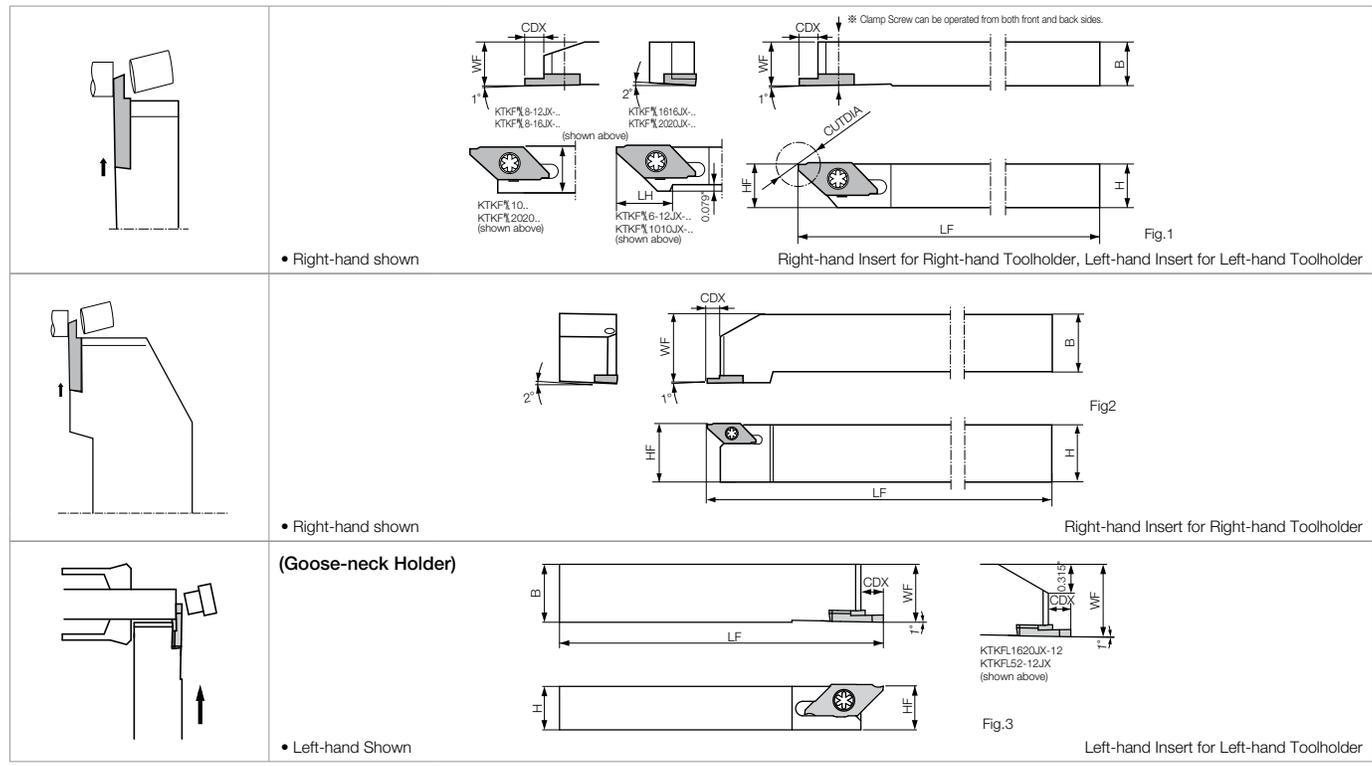
Inserts are sold in 10 piece boxes

INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING
DRILLING
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CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

KTKF / KTKF Goose-neck Holder



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Drawing	Spare Parts		Applicable Inserts
	R	L		H	HF	B	LF	LH	WF	CDX		Clamp Screw	Wrench	
KTKF% 6-12JX	●	●	inch	0.375	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKF12%...
8-12JX	●	●		0.500	0.500	0.500	4.750	-	0.500	0.236				
10-12JX	●	●		0.625	0.625	0.625	4.750	-	0.625	0.236				
KTKF% 6-16JX	●	●		0.375	0.375	0.375	4.750	0.787	0.375	0.315	Fig.1			
8-16JX	●	●		0.500	0.500	0.500	4.750	-	0.500	0.315				
10-16JX	●	●		0.625	0.625	0.625	4.750	-	0.625	0.315				
KTKF% 1010JX-12	●	●	mm	10	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKF12%...
1212JX-12	●	●		12	12	12	120	-	12	6				
1616JX-12	●	●		16	16	16	120	-	16	6				
2020JX-12	●	●		20	20	20	120	-	20	6				
KTKF% 1010JX-16	●	●	mm	10	10	10	120	20	10	8	Fig.1	SB-4590TRWN	LTW-10S	TKF16%...
1212JX-16	●	●		12	12	12	120	-	12	8				
1616JX-16	●	●		16	16	16	120	-	16	8				
2020JX-16	●	●		20	20	20	120	-	20	8				
KTKFR 1212F-12	●		mm	12	12	12	85	-	12	6	Fig.1	SB-4590TRWN	LTW-10S	TKF12R...
1212F-16	●			12	12	12	85	-	12	8				TKF16R...
KTKFR 2525M-12	●		mm	25	25	25	150	-	30	6	Fig.2	SB-4590TRWN	LTW-10S	TKF12R...
2525M-16	●			25	25	25	150	-	30	8				TKF16R...
KTKFL 52-12JX		●	inch	0.500	0.500	0.625	4.750	-	0.625	0.236	Fig.3	SB-4590TRWN	LTW-10S	TKF12L...
62.5-12JX		●		0.625	0.625	0.750	4.750	-	0.750	0.236				
KTKFL 1216JX-12		●	mm	12	12	16	120	-	16	6	Fig.3	SB-4590TRWN	LTW-10S	
1620JX-12		●		16	16	20	120	-	20	6				

• Dimension CDX shows the distance from the toolholder to the cutting edge.
 • See Page H6-H7 for actual cutting diameter.
 Note : Cutting diameter of -12 type toolholder (CUTDIA) depends on the insert grooving width.

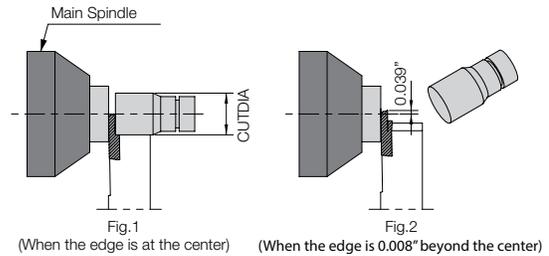
Recommended Cutting Conditions H52

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

How to Use

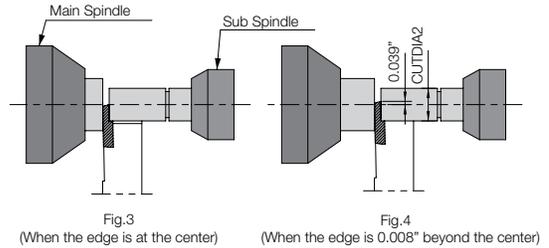
1) When using main spindle only

Workpiece maximum CUTDIA (Fig.1) = CUTDIA in toolholder table
 Even if the cutting edge runs beyond the center line, the insert does not contact the workpiece, since the workpiece falls off.
 (The clearance between the insert and the workpiece is 0.008")



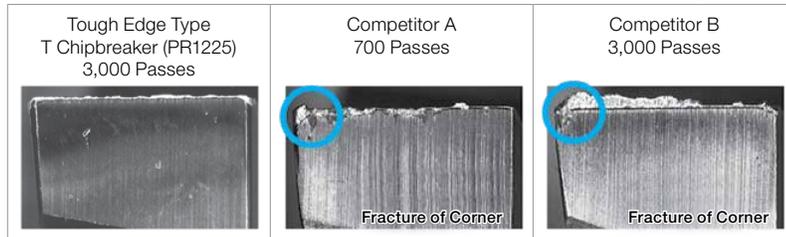
2) When using both Main and Sub spindles

In this case, when the cutting edge runs beyond the center line, the insert will contact the workpiece, since the workpiece does not fall off.
 Therefore the programmed distance beyond the center must be considered.
 e.g. When the cutting edge is programmed to run 1mm beyond the center.
 Workpiece maximum, CUTDIA2 (Fig.4) = [CUTDIA - 0.039" x 2] (in)
 (The clearance between the insert and the workpiece is 0.008")

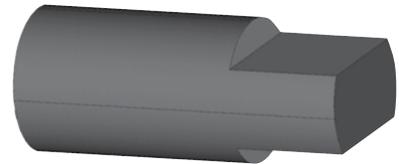


Tough Edge Type T Chipbreaker

Fracture Resistance Comparison (Interrupted Machining)



Cutting Conditions
 $V_c=250$ $f=0.0020$ ipr (Cut-Off 0.0006ipr)
 Wet W1-9 (with flat cuts on two sides)
 TKF12R200-T-16DR (PR1225)



Workpiece (with flat cuts on two sides)

	1,000 Passes	2,000 Passes	3,000 Passes
Tough Edge Type T Chipbreaker (PR1225)	→		
Competitor A	→ X		
Competitor B	→ X		

Compared to Competitor A and B, Tough Edge "T Chipbreaker" achieves superior fracture resistance during interrupted cutting.

How to Select Edge Preparation

Troubleshooting

Problems	Countermeasures	Countermeasures						
		Lead Angle (PSIRR)		Edge Width		Name of Chipbreaker		
		No (0°)	Yes	Narrower	Wider	S	T	NB
Insert Fracture	Insert Fracture Prevention	Effective			Effective		Effective	Effective
Long Cutting Time	Cutting Time Reduction	Effective			Effective		Effective	Effective
Entangled Chips	Chip Entanglement Prevention	Effective		Effective		Effective		
Large Boss Remains	Small Boss Remains		Effective	Effective		Effective		
Ring Remains (Hollow Workpiece)	Prevention of Ring		Effective	Effective		Effective		
Deformation of thin walled workpiece (pipe)	Preventing Deformation		Effective	Effective		Effective		

KTKF-S

Cut-Off Holders for Small Parts Machining and Sub-Spindle Operations

1 Recommended for Cut-off with Small Sub-Spindle Clearance

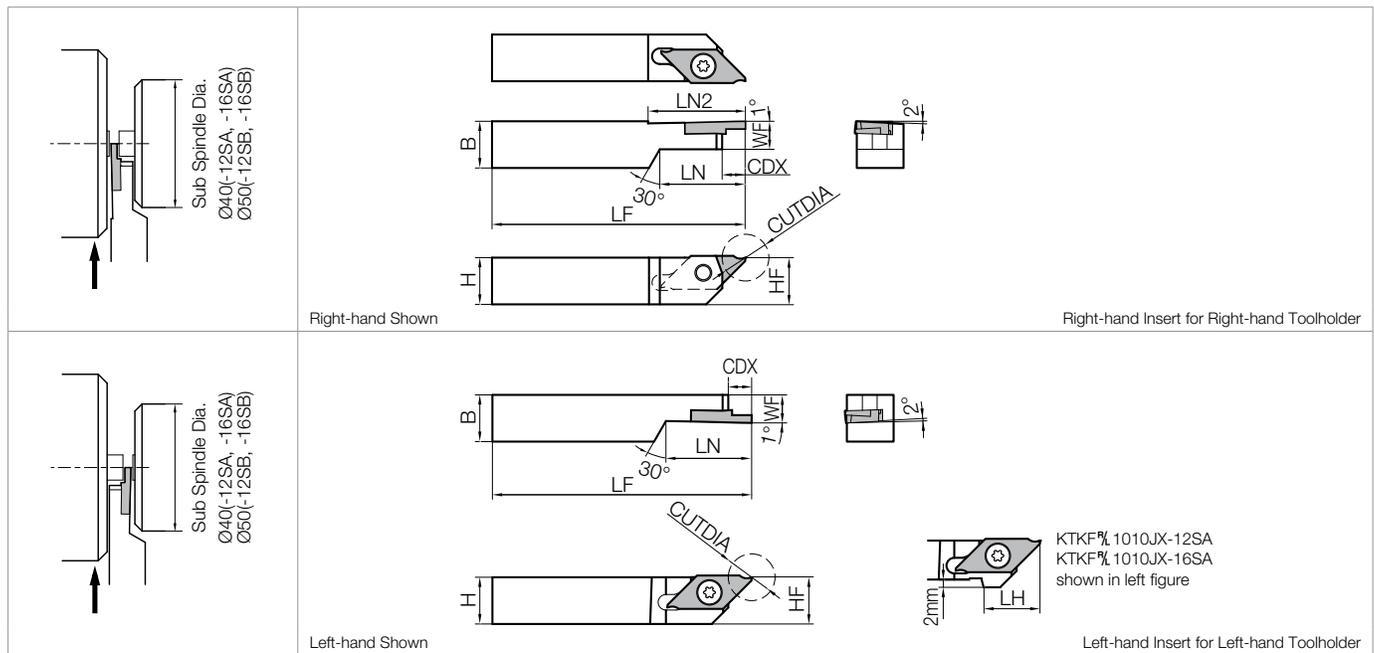
Thin holder head is great for when minimal clearance exists between the main spindle and sub spindle

2 Wide Selection of Inserts for Various Applications

Available Chipbreakers : Right lead angle, S Chipbreaker, T Chipbreaker, Without Chipbreaker

Available Insert Grades : PR1425 for Steel Machining, PR1535 for Stainless Steel Machining, and PDL025 for Aluminum Machining

KTKF-S (For Small Diameter Cut-Off / Sub-Spindle)



● Toolholder Dimensions

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)										Spare Parts		Applicable Inserts ● H6-H7
	R	L		CUTDIA	H	HF	B	LF	LH	LN	*LN2	WF	CDX	Clamp Screw	Wrench	
KTKF% 1010JX-12SA	●	●	5~12	10	10	10	120	15	22	26	7.2	6	SB-4570TRN	LTW-10S	TKF12% ...	
1212F-12SA	●	●		12	12	12	85	-								
KTKF% 1212JX-12SB	●	●	120	26												
KTKF% 1010JX-16SA	●	●	16	10	10	10	120	20	22	30	7.2	8				TKF16% ...
1212F-16SA	●	●		12	12	12	85	-								
KTKF% 1212JX-16SB	●	●		120	26											

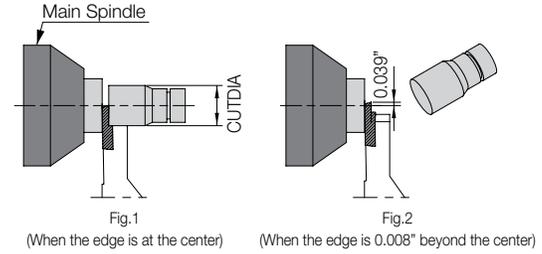
- Dimension CDX shows the distance from the toolholder to the cutting edge.
- CUTDIA dimension differs depending on insert edge width. See Page ● H6-H7 for actual cutting diameter.
- *LN2 dimension only applies to right-hand toolholders

Recommended Cutting Conditions ● H52

How to Use

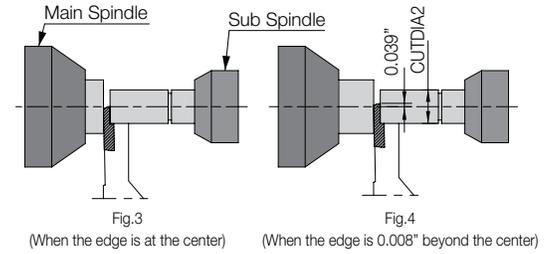
1) When using main spindle only

Workpiece maximum CUTDIA (Fig.1) = CUTDIA in toolholder table
 Even if the cutting edge runs beyond the center line, the insert does not contact the workpiece, since the workpiece falls off.
 (The clearance between the insert and the workpiece is 0.008")



2) When using both Main and Sub spindles

In this case, when the cutting edge runs beyond the center line, the insert will contact the workpiece, since the workpiece does not fall off.
 Therefore, the programmed distance beyond the center must be considered.
 e.g. When the cutting edge is programmed to run 1mm beyond the center.
 Workpiece maximum, CUTDIA2 (Fig.4) = [CUTDIA - 0.039"x2] (in)
 (The clearance between the insert and the workpiece is 0.008")



INSERT GRADES	A
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THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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KTKF-JCT

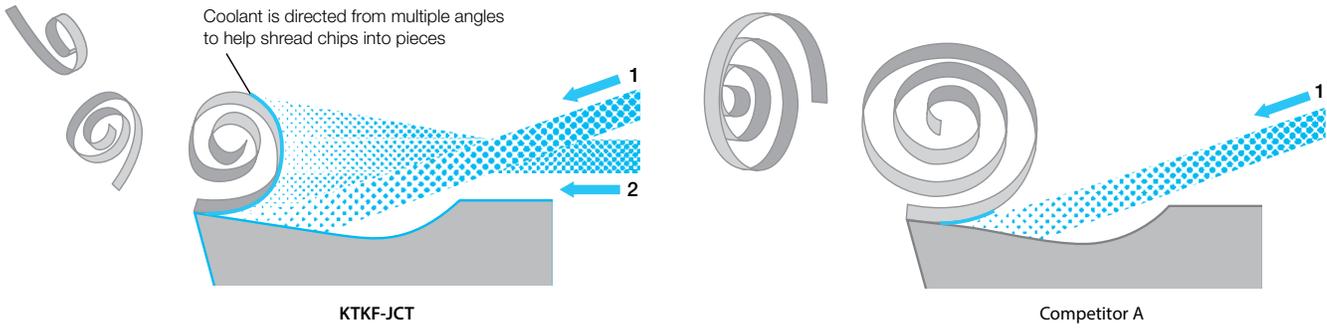
Cut-Off Holders for Small Parts Machining, Great for High Pressure Coolant

KTKF-JCT holders break chips evenly into small pieces with excellent chip control performance when machining difficult-to-cut material and stainless steel.

1 Excellent Chip Control Performance

The KTKF-JCT discharges coolant in two directions toward rake surface of insert and breaks chips into small pieces.

Coolant Discharge Structure Comparison

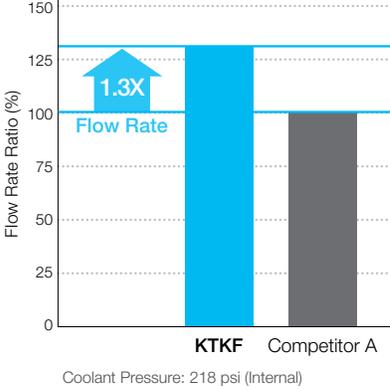


Chip Control Comparison (Internal Evaluation)

304				Ti-6Al-4V			
f (ipr)	0.0004	0.0008	0.0012	f (ipr)	0.0004	0.0008	0.0012
KTKF-JCT				KTKF-JCT			
Competitor A				Competitor A			

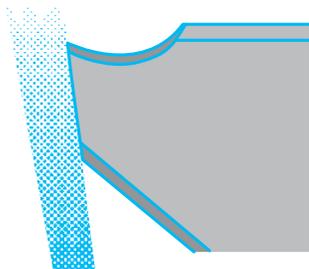
Cutting Conditions: Vc = 260 sfm, Wet (Oil-based) Coolant Pressure: 218 psi (Internal)
Workpiece : Ø0.472"

Coolant Flow Rate Comparison (Internal Evaluation)

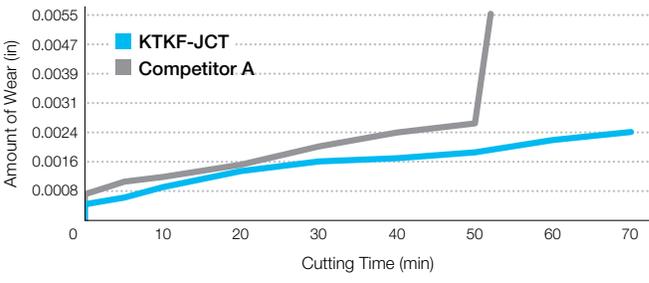


2 Superior Coolant Action Improves Tool Life

Coolant is also directed from the flank face of the insert to supply an ample amount of coolant to the tool edge area to help further suppress insert wear.

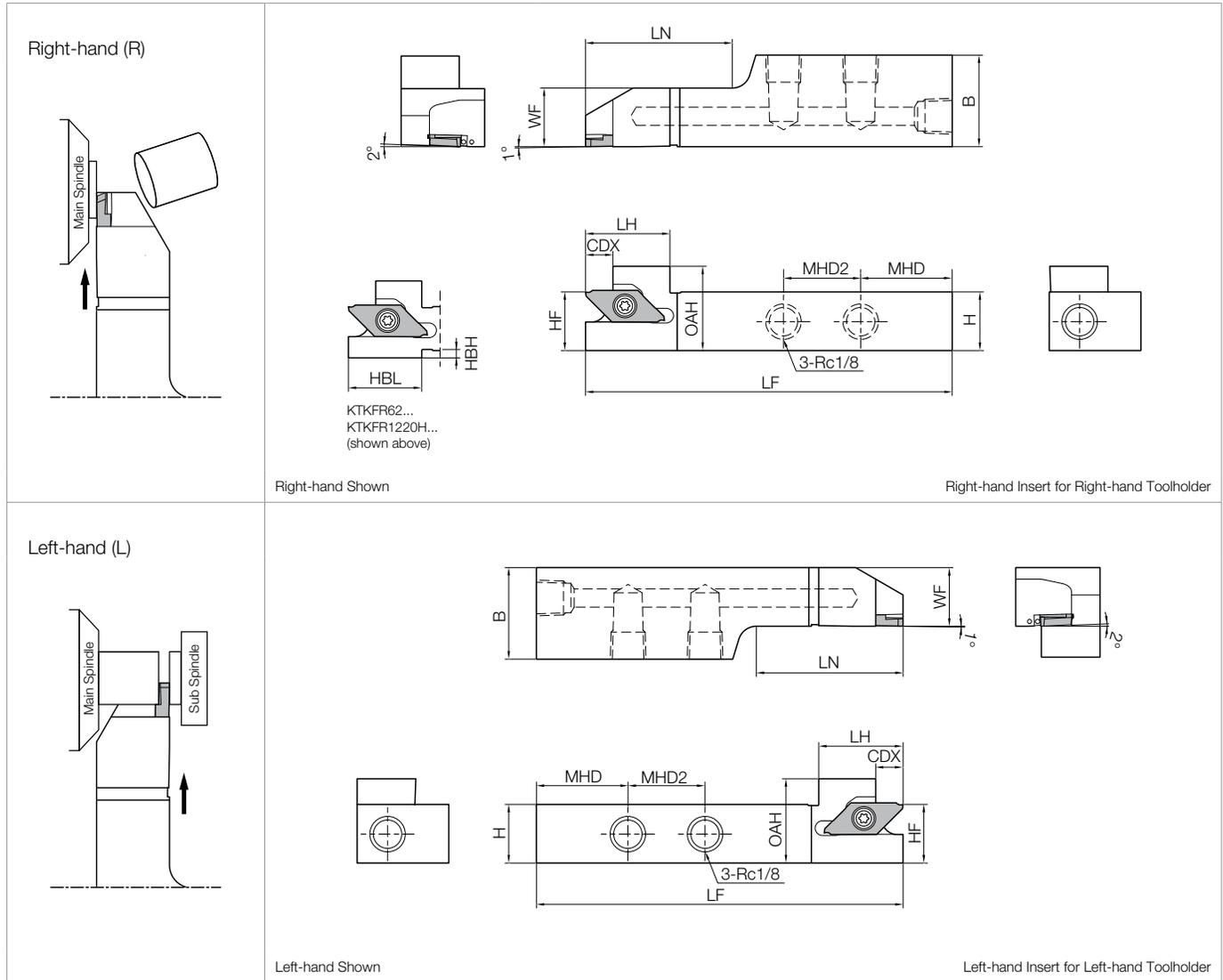


Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: Vc = 330 sfm, f = 0.0008 ipr, Wet (Oil-based)
Lubricating Pressure: 218 psi (Internal) Workpiece: Ti-6Al-4v Ø0.472"

KTKF-JCT



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions											Spare Parts			Applicable Inserts ● H6-H7		
	R	L		H=HF	OAH	B	LF	HBH	HBL	LH	LN	WF	CDX	MHD	MHD2	Clamp Screw	Wrench		Plug	
NEW KTKFR 62-12JCT	●		inch	0.500	0.775	0.750			0.783	0.783	1.110	0.500	0.295	1.417	-	SB-4590TRWN	FT-10	GP-1	TKF12R...	
NEW 82.5-12JCT	●			0.625	0.900	1.000	4.750	-	-	0.901	1.582	0.625	0.295	0.984	1.811					TKF16R...
NEW KTKFR 82.5-16JCT	●			0.625	0.900	1.000			-	0.901	1.582	0.625	0.378	0.984	1.811					
KTKFR 1220H-12JCT	●		mm	12	19	20		2	20	20	28	12		35	-	SB-4590TRWN	FT-10	GP-1	TKF12R...	
KTKF ⁵ 1625H-12JCT	●	●		16	23	25	100	-	-	23	40	16	7.5	25	46				TKF12 ⁵ ...	
2025H-12JCT	●	●		20	27	25				23	40	20		25	46					
KTKF ⁵ 1625H-16JCT	●	●		16	23	25	100	-	-	23	40	16		25	46				SB-4590TRWN	FT-10	GP-1	TKF16^{5}...
2025H-16JCT	●	●	20	27	25				23	41	20	9.6	25							

Recommended Cutting Conditions ● H52

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

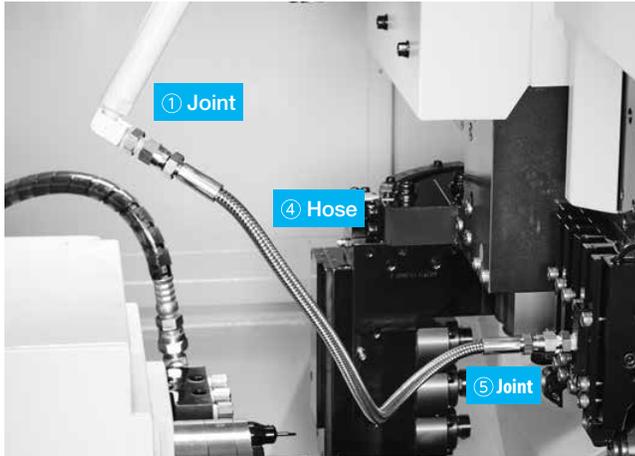
Coolant Pipe Parts

Pipe parts will be required separately if internal coolant is used.

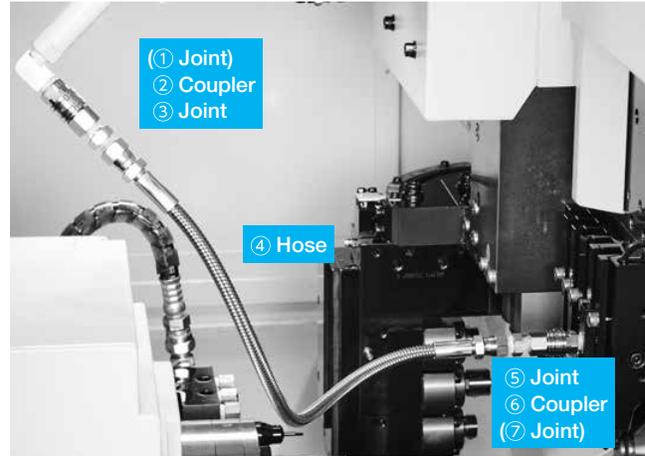
Pump Pressure: up to 2,900 psi

Pump Pressure: up to 1,088 psi if couplers are used

Without Coupler (Pump Pressure: up to 2,900 psi)



With Coupler (Pump Pressure: up to 1,088 psi)



Combination Part Description Example

Part	Description
① Joint	J-ST-R1/8-G1/8
④ Hose	HS-G1/8-G1/8-500
⑤ Joint	J-ST-R1/8-G1/8

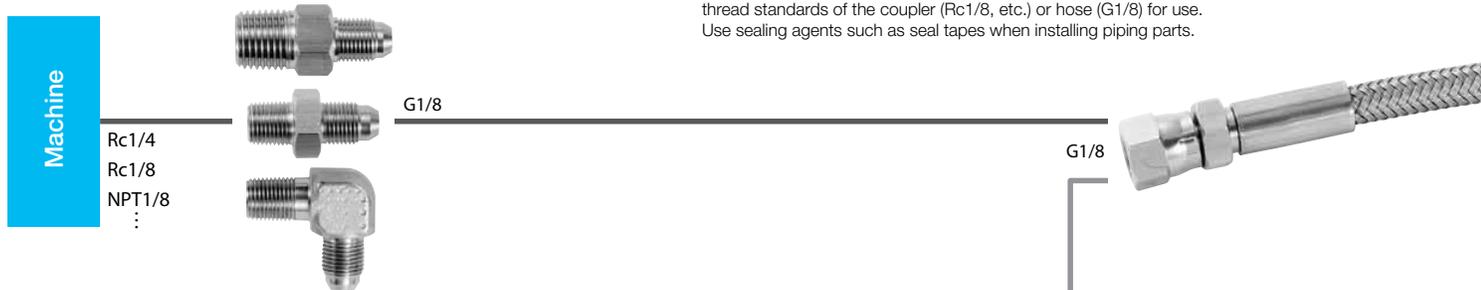
Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to the thread standard on the hose side (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Combination Part Description Example

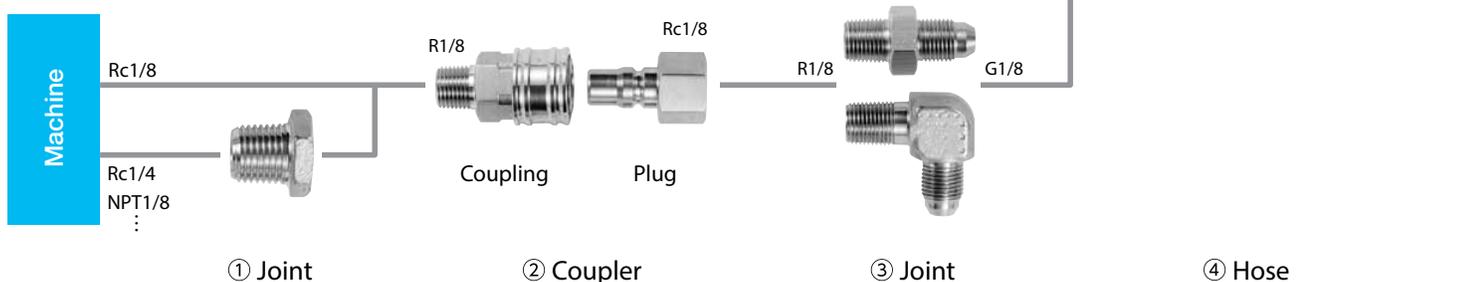
Part	Description
(① Joint)	-
② Coupler	CP-ST-R1/8, P-ST-RC1/8
③ Joint	J-ST-R1/8-G1/8
④ Hose	HS-G1/8-G1/8-500
⑤ Joint	J-ST-R1/8-G1/8
⑥ Coupler	P-ST-RC1/8, CP-ST-R1/8
(⑦ Joint)	-

Convert the thread standards on the machine's side (Rc1/4, Rc1/8, NPT1/8, etc.) to thread standards of the coupler (Rc1/8, etc.) or hose (G1/8) for use.
Use sealing agents such as seal tapes when installing piping parts.

Without Coupler (Pump Pressure: up to 2,900 psi)



With Coupler (Pump Pressure: up to 1,088 psi)



① Joint

② Coupler

③ Joint

④ Hose

Piping Installation Parts Description

Joint (① ③ ⑤ ⑦)

Pressure Resistance: up to 2,900 psi

Exterior	Description	Thread Standard	Stock
	J-ST-R1/4-G1/8	R1/4 ⇔ G1/8	●
	J-ST-NPT1/8-G1/8	NPT1/8 ⇔ G1/8	●
	J-ST-R1/8-G1/8	R1/8 ⇔ G1/8	●
	J-AN-R1/8-G1/8		●
	J-ST-R1/4-RC1/8	R1/4 ⇔ Rc1/8	●
	J-ST-NPT1/8-RC1/8	NPT1/8 ⇔ Rc1/8	●
	J-ST-R1/8-RC1/8	Rc1/8 ⇔ R1/8 (Extension Joint)	●

● : U.S. Stock

Coupler (② ⑥)

Pressure Resistance: up to 1,088 psi

Exterior	Description	Thread Standard	Stock
	CP-ST-R1/8	R1/8	●
	P-ST-RC1/8	Rc1/8	●

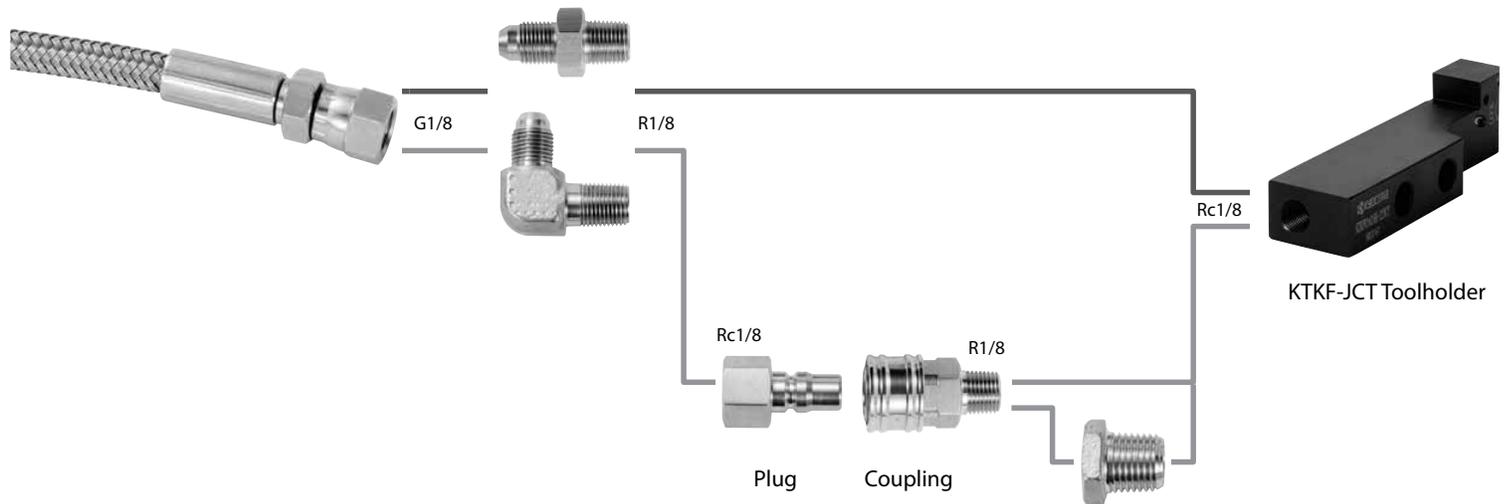
● : U.S. Stock

Hose (④)

Pressure Resistance: up to 2,900 psi

Exterior	Description	Thread Standard	Total Length (mm)	Stock
	HS-G1/8-G1/8-200	G1/8	200	●
	HS-G1/8-G1/8-300		300	●
	HS-G1/8-G1/8-400		400	●
	HS-G1/8-G1/8-500		500	●
	HS-G1/8-G1/8-600		600	●
	HS-G1/8-G1/8-800		800	●

● : U.S. Stock



④ Hose

⑤ Joint

⑥ Coupler

⑦ Joint (Extension Joint)

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

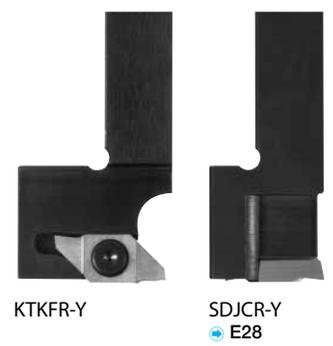
(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
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Y-axis Toolholders NEW

Improved Chip Control

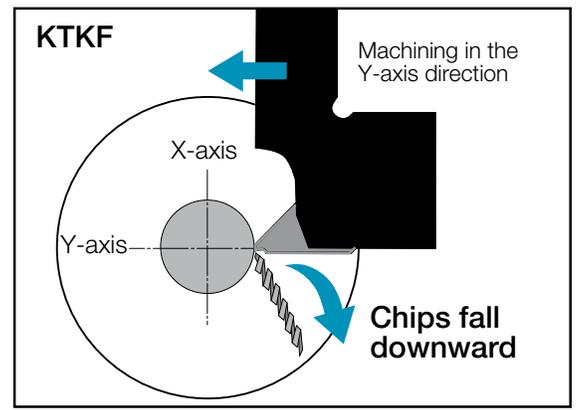
New Toolholder Designs for Better Chip Evacuation in Small Parts Machining



KTKFR-Y

SDJCR-Y
E28

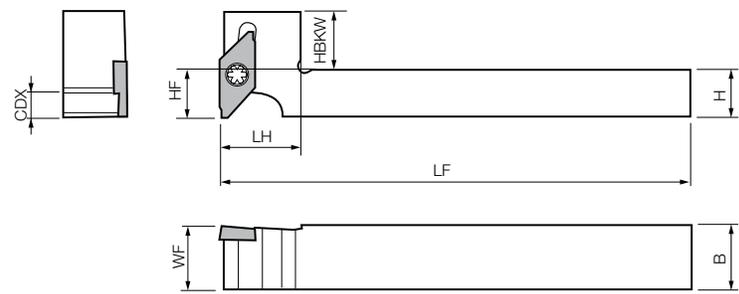
1 Controlled Chip Evacuation for Stable Machining



The Y-axis machining direction allows the chips to fall down and away from the workpiece, improving chip evacuation.

H CUT-OFF

KTKF-Y (Y-axis Holder) NEW



• Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

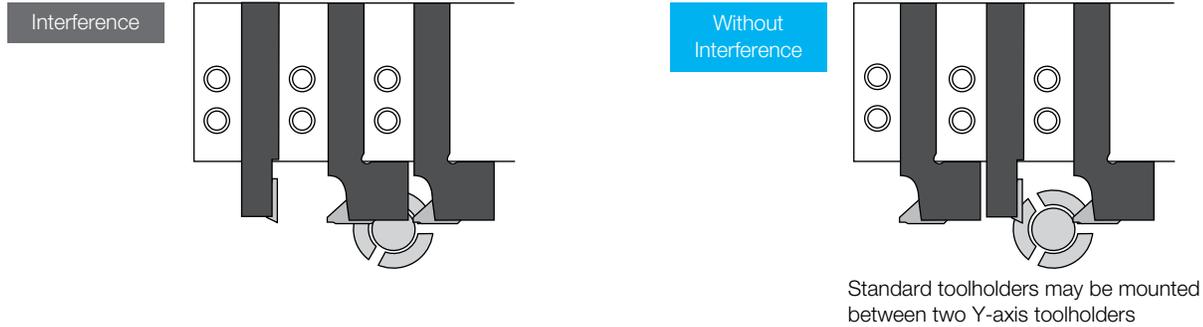
Part Number	Stock		Dimensions (mm)								Spare Parts		Applicable Inserts
	R	L	H	HF	B	LF	LH	WF	LU	HBKW	Clamp Screw	Wrench	
KTKFR 1216JX-12-Y	●		12	12	16	120	20	16	6	15	SB-4590TRWN	FT-10	TKF12R...
1616JX-12-Y	●		16	16	16		25	16						11

• Dimensions LU shows the distance from the toolholder to the cutting edge

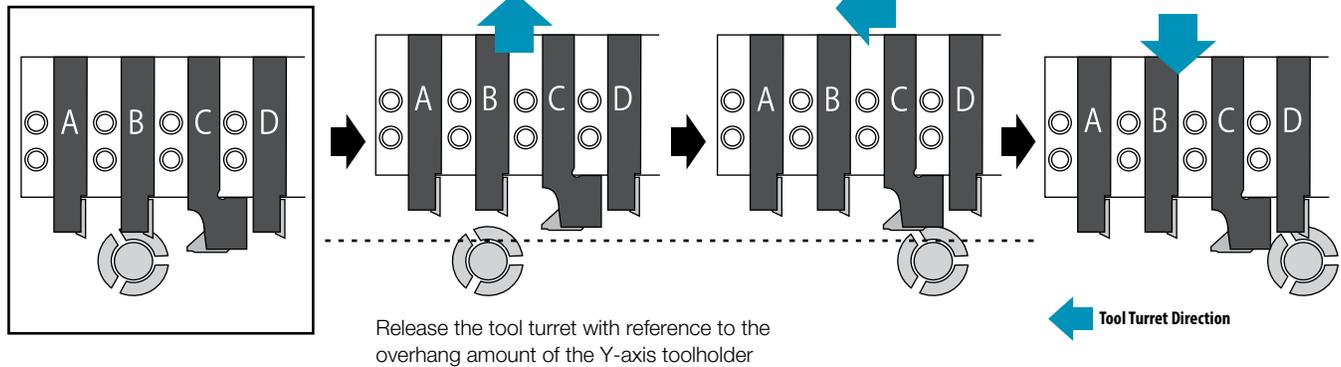
Recommended Cutting Conditions ● H52

Precautions

Do not use Y-axis toolholders side-by-side to prevent interference (Only two Y-axis holders can be used at the same time)



When changing the tool, set the retracted position with reference to the cutting edge of the Y-axis holder (When exchanging from tool B to D)



Note that using other toolholder styles together will result in different outside diameters

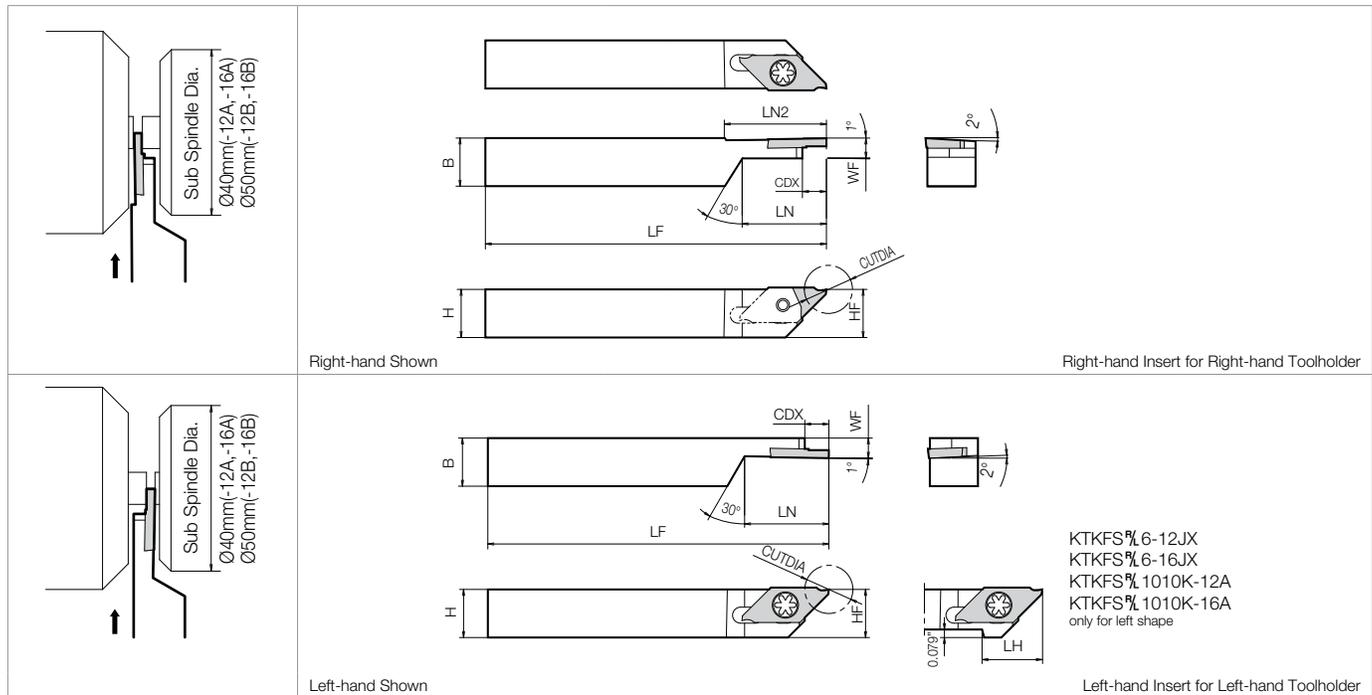
(Unit: mm)

Y-axis Toolholder Overhang	Examples	Overhang Amount : L			
		Available Outside Cutting Dia. (Ø)	20	22	25
20		A	Without Restriction	Without Restriction	Without Restriction
		B	13.0	13.0	13.0
		C	Without Restriction	Without Restriction	Without Restriction
25		A	38.0	58.0	Without Restriction
		B	14.9	13.6	13.0
		C	45.0	60.0	Without Restriction

- INSERT GRADES **A**
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CUT-OFF TOOLHOLDERS (SUB SPINDLE TOOLING)

KTKFS (Small Diameter Cut-Off / Sub Spindle)



Toolholder Dimensions

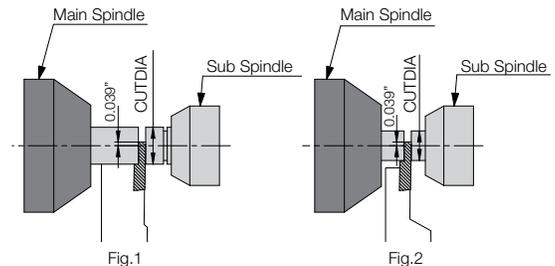
Part Number	Stock		Unit	Cut-Off Dia.	Dimensions									Spare Parts		Applicable Inserts ● H19			
	R	L			CUTDIA	H	HF	B	LF	LH	LN	*LN2	WF	CDX	Clamp Screw		Wrench		
KTKFS 6-12JX	●	●	inch	0.236-0.472	0.375	0.375	0.375	4.750	0.590	0.866	1.024	0.197	0.236	SB-4050TRN	LTW-10S	TKFS12 1/2			
8-12JX	●	●		0.236-0.472	0.500	0.500	0.500	4.750	-	1.024	1.024	0.197	0.236						
KTKFS 6-16JX	●	●		0.551-0.630	0.375	0.375	0.375	4.750	0.787	0.866	1.181	0.197	0.315				SB-4050TRN	LTW-10S	TKFS16 1/2
8-16JX	●	●		0.551-0.630	0.500	0.500	0.500	4.750	-	1.024	1.181	0.197	0.315						
KTKFS 1010K-12A	△	△	mm	6-12	10	10	10	120	15	22	26	5	6	SB-4050TRN	LTW-10S	TKFS12 1/2			
1212F-12A	△	△		6-12	12	12	12	85	-	22	26	5	6						
1212K-12B	△	△		6-12	12	12	12	120	-	26	26	5	6						
KTKFS 1010K-16A	△	△		14-16	10	10	10	120	20	22	30	5	8	SB-4050TRN	LTW-10S	TKFS16 1/2			
1212F-16A	△	△		14-16	12	12	12	85	-	22	30	5	8						
1212K-16B	△	△		14-16	12	12	12	120	-	26	30	5	8						

- Dimension CDX shows the distance from the toolholder to the cutting edge.
- CUTDIA dimension differs depending on insert edge width. See Page H19 for actual cutting diameter.
- *LN2 dimension only applies to right-hand toolholders

Recommended Cutting Conditions H19

TKFS (CUTDIA)

Insert Right-handed Insert Shown	Part Number	Dimensions		
		CW		CUTDIA (in)
		inch	mm	
	TKFS12 1/2 100-S	0.039	1.00	0.236
	150-S	0.059	1.50	0.354
	200-S	0.079	2.00	0.472
	TKFS16 1/2 150-S	0.059	1.50	0.551
	200-S	0.079	2.00	0.630



As Fig.2 shows, the cutting diameter of the insert is measured when the lead edge passes 0.039" past the center line of part.

- As Fig.1 shows, use KTKFL (Left-hand) when the distance between main spindle and sub spindle are long.
- As Fig.2 shows, KTKFS is recommended when the workpiece diameters are small and the distance between the main spindle and sub spindle are short

Applicable Inserts

Classification of Usage		NEW				
P	Carbon Steel / Alloy Steel	●	○	○	○	○
M	Stainless Steel	○	○	●	○	○
K	Cast Iron					●
N	Non-ferrous Metals					●

● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert Right-handed Insert Shown	Part Number	Dimensions (in)						MEGACOAT NANO		MEGACOAT	PVD Coated Carbide	Carbide								
		CW		CUTDIA	RE	W1	S	D1	PR1725		PR1425		PR1535		PR1225		PR1025		KW10	
		inch	mm						R	L	R	L	R	L	R	L	R	L	R	L
	TKFS12% 100-S	0.039	1.0	0.236					●	●	△	△	●	●	●	●	△	△	●	●
	150-S	0.059	1.5	0.354	0.002	0.087	0.343	0.173	●	●	△	△	●	●	●	●	△	△	●	●
	200-S	0.079	2.0	0.472					●	●	△	△	●	●	●	●	△	△	●	●
	TKFS16% 150-S	0.059	1.5	0.551	0.002	0.087	0.374	0.173	●	●	△	△	●	●	●	●	△	△	●	●
	200-S	0.079	2.0	0.630					●	●	△	△	●	●	●	●	△	△	●	●

- Lead angle shows the angle when installed in the toolholder.
- As Fig.1 of H18 shows, the cutting diameter of the insert is measured when the lead edge passes 0.039" past the center line of part.

Recommended Cutting Conditions

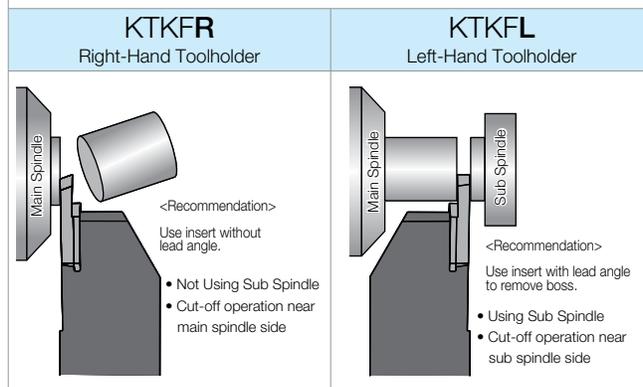
Workpiece Material	Recommended Grade (Vc sfm)					TKFS12			TKFS16		Notes
	MEGACOAT NANO PLUS	MEGACOAT NANO		MEGA COAT	Carbide	Width			Width		
		PR1425	PR1425			PR1535	PR1225	KW10	0.039" (1.0mm)	0.059" (1.5mm)		0.079" (2.0mm)	0.059" (1.5mm)	0.079" (2.0mm)
Carbon Steel	★ 230~560	☆ 225~550	☆ 230~490	☆ 225~500	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	Wet
Alloy Steel	★ 230~560	☆ 225~550	☆ 230~490	☆ 225~500	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Stainless Steel	☆ 200~460	☆ 200~450	★ 200~400	☆ 200~400	-	0.0004~0.0008	0.0004~0.0008	0.0004~0.0012	0.0004~0.0008	0.0004~0.0012	
Cast Iron	-	-	-	-	★ 175~325	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Aluminum	-	-	-	-	★ 650~1475	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Brass	-	-	-	-	★ 325~650	0.0004~0.0016	0.0004~0.0016	0.0004~0.0016	0.0004~0.0016	0.0004~0.0016	

★ : 1st Recommendation ☆ : 2nd Recommendation

KTKF / KTKFS Selection Reference

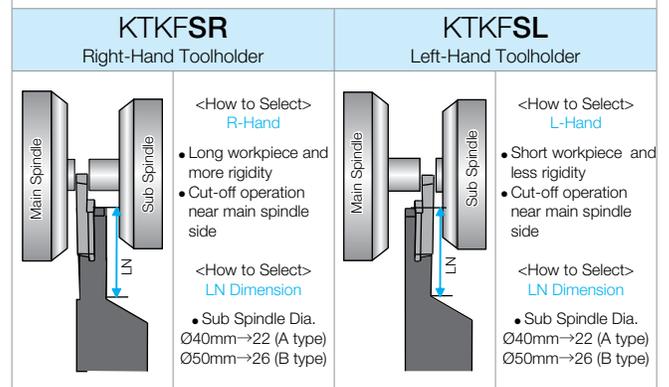
KTKF

- Both Right-hand and Left-hand types are applicable to gang tool post
- Left-hand type is used during cut-off operations using sub spindle



KTKFS

- When machining workpiece with small diameter, use KTKFS to reduce overhang distance from the main spindle



Inserts are sold in 10 piece boxes

CUT-OFF INSERTS

GDM / GDG

Insert Right-handed Insert Shown		Part Number	Dimensions (in)						Lead Angle	MEGA-COAT NANO	MEGA COAT			DLC	Carbide	Ref. Page for Toolholder			
			CW			RE	INSL	S			PSIR%	PR1535	PR1225				PR1215	PDL025	GW15
			inch	mm	Tolerance														
Out-off / Low Feed Low Feed 2-edge		GDM 1316N-003PF	0.051	1.3	±0.0016	0.0012	0.630	0.146	-	●	●	●			H22 H23				
		1316N-015PF	0.051	1.3		0.0059				●	●	●							
		1516N-003PF	0.059	1.5		0.0012				●	●	●							
		1516N-015PF	0.059	1.5		0.0059				●	●	●							
		2020N-003PF	0.079	2.0		0.0012				●	●								
		2020N-015PF	0.079	2.0		0.0059				●	●	●							
		2520N-003PF	0.098	2.5		0.0012				●	●								
		2520N-015PF	0.098	2.5		0.0059				●	●	●							
		3020N-003PF	0.118	3.0		0.0012				●	●								
		3020N-015PF	0.118	3.0		0.0059				●	●	●							
Out-off / Medium Feed 15° Lead Angle Low Feed / 2-edge		GDM 1316%-003PF-15D	0.051	1.3	±0.0016	0.0012	0.630	0.146	15°	●	●	●			H22 H23				
		1516%-003PF-15D	0.059	1.5		0.0012				●	●	●							
		1516R-015PF-15D	0.059	1.5		0.0059				●	●	●							
		2020%-003PF-15D	0.079	2.0		0.0012				●	●								
		2020R-015PF-15D	0.079	2.0		0.0059				●	●	●							
		2520%-003PF-15D	0.098	2.5		0.0012				●	●								
		2520R-015PF-15D	0.098	2.5		0.0059				●	●	●							
		3020%-003PF-15D	0.118	3.0		0.0012				●	●								
3020R-015PF-15D	0.118	3.0	0.0059	●	●	●													
Out-off / Medium Feed 15° Lead Angle Medium Feed / 2-edge		GDM 2020R-010PQ	0.079	2.0	±0.0012	0.0039	0.787	0.169	15°	●	●				H22 H31				
		2520R-010PQ	0.098	2.5		0.0039				●	●								
		3020R-010PQ	0.118	3.0		0.0039				●	●								
		GDM 2020R-010PQ-15D	0.079	2.0		0.0039				●	●								
		2520R-010PQ-15D	0.098	2.5		0.0039				●	●								
		3020R-010PQ-15D	0.118	3.0		0.0039				●	●								
Out-off / Low Cutting Force 2-edge		GDG 2020N-005PG	0.079	2.0	±0.0008	0.0020	0.787	0.169	-	●	●		●	●					
		2520N-005PG	0.098	2.5		0.0020				●	●		●	●					
		3020N-005PG	0.118	3.0		0.0020				●	●		●	●					
		GDG 2020R-005PG-15D	0.079	2.0		0.0020				●	●		●	●					
		2520R-005PG-15D	0.098	2.5		0.0020				●	●		●	●					
		3020R-005PG-15D	0.118	3.0		0.0020				●	●		●	●					

Using PM/PF Chipbreaker (designed for cut-off) for grooving will not create a flat bottom (See Fig.)



Recommended Cutting Conditions H32~H33

Inserts are sold in 10 piece boxes

CUT-OFF INSERTS

GDM / GDMS

Classification of Usage

- : Light Interruption / 1st Choice
- : Light Interruption / 2nd Choice
- : Continuous / 1st Choice
- : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	☺	●	☺
M	Stainless Steel	●	☺	☺
K	Cast Iron			

Insert Right-handed Insert Shown	Part Number	Dimensions (in)				Lead Angle	MEGA COAT NANO	MEGACOAT			Ref. Page for Toolholder			
		CW			RE			INSL	S	PSIR%		PR1 535	PR1 225	PR1 215
		inch	mm	Tolerance										
 2-edge	GDM 2020N-020PM	0.079	2.0		0.008				●	●	●			
	2520N-020PM	0.098	2.5		0.008				●	●	●			
	3020N-025PM	0.118	3.0	±0.0012	0.010	0.787	0.169	-	●	●	●			
	4020N-030PM	0.157	4.0		0.012				●	●	●			
 2-edge	GDM 2020R-020PM-6D	0.079	2.0		0.008				●	●	●			
	2520R-020PM-6D	0.098	2.5	±0.0012	0.008	0.787	0.169	6°	●	●	●			
	3020R-025PM-6D	0.118	3.0		0.010				●	●	●			
 1-edge	GDMS 2020N-020PM	0.079	2.0		0.008				●	●	●			
	3020N-025PM	0.118	3.0	±0.0012	0.010	0.787	0.169	-	●	●	●			
	4020N-030PM	0.157	4.0		0.012				●	●	●			
 1-edge	GDMS 2020R-020PM-6D	0.079	2.0		0.008				●	●	●			
	3020R-025PM-6D	0.118	3.0	±0.0012	0.010	0.787	0.169	6°	●	●	●			
	4020R-030PM-6D	0.157	4.0		0.012				●	●	●			
 High feed 2-edge	GDM 2020N-020PH	0.079	2.0		0.008				●	●	●			
	3020N-030PH	0.118	3.0	±0.0012	0.012	0.787			●	●	●			
	4020N-030PH	0.157	4.0		0.012				●	●	●			
 High feed 1-edge	GDMS 2020N-020PH	0.079	2.0		0.008				●	●	●			
	3020N-030PH	0.118	3.0	±0.0012	0.012	0.787			●	●	●			
	4020N-030PH	0.157	4.0		0.012				●	●	●			

Using PM/PF Chipbreaker (designed for cut-off) for grooving will not create a flat bottom (See Fig.)



Recommended Cutting Conditions ☺ H32-H33

Inserts are sold in 10 piece boxes

Insert Identification System

② Tolerance Symbol G: Ground Insert M: M Class	④ Width 13 : 1.3mm 25 : 2.5mm 15 : 1.5mm 30 : 3mm 20 : 2mm 40 : 4mm	⑥ Hand of Tool R : Right-hand L : Left-hand N : Neutral	⑧ Chipbreaker Symbol PF : Cut-Off (Low Feed) PM : Cut-Off (General Purpose) PQ : Cut-Off (Medium Feed) PH : Grooving and Cut-off (High Feed Rate) PG : Cut-Off (Low Cutting Force)
G	D	M	S
① Series Grooving / Cut-off GD Series	③ No. of Edges (No Indication) : 2-edge S : 1-edge	⑤ Insert Length 16 : 16mm 20 : 20mm	⑦ Corner-R (RE) 003 : 0.03mm 020 : 0.2mm 005 : 0.05mm 025 : 0.25mm 010 : 0.1mm 030 : 0.3mm 015 : 0.15mm
			⑨ Lead Angle No Indication : 0° 6D : 6° 15D : 15°

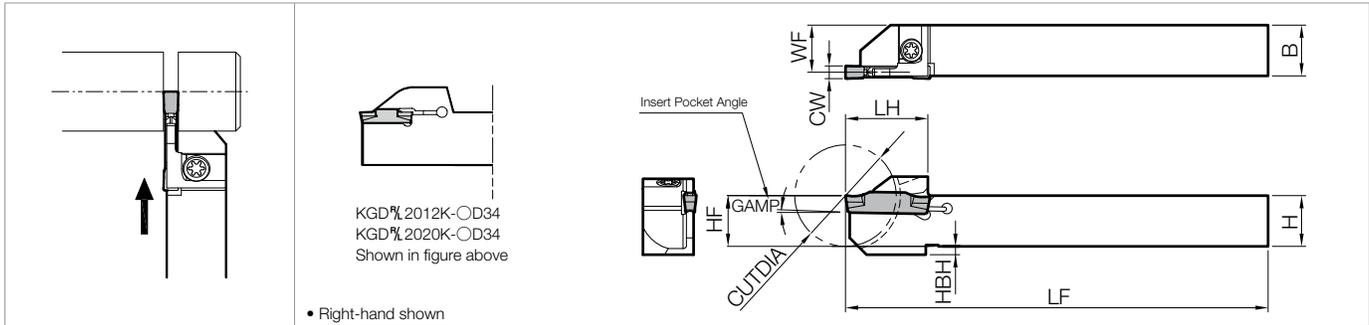
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INSERT GRADES	A
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GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD (for Small Parts Machining)

Insert Width: 0.059" ~ 0.157" / 1.3mm ~ 4.0mm



Toolholder Dimensions (Inch Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (in)							Angle (°)	Insert Width CW (in)		Spare Parts	
	R	L		CUTDIA	H	HF	HBH	B	LF	LH		WF	GAMP	MIN	MAX	Clamp Bolt	Wrench
KGD% 6-1.5JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.351	1°	-	0.059	SB-40120TR	LTW-15S
8-1.5JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.476					
KGD% 6-2JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.342	1°	0.079	0.118		
8-2JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.467					
10-2JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.592	1°	0.094	0.118		
KGD% 6-2.4JX	●	●	0.787	0.375	0.375	0.098	0.375	4.75	0.709	0.336					
8-2.4JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.461	1°	0.118	0.157		
10-2.4JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.586					
KGD% 8-3JX	●	●	0.944	0.500	0.500	0.051	0.500	4.75	0.768	0.453	1°	0.118	0.157	SE-50125TR	LTW-20
10-3JX	●	●	1.259	0.625	0.625	-	0.625	4.75	0.965	0.578					
KGD% 10-3D38JX	●	●	1.496	0.625	0.625	-	0.625	4.75	1.142	0.578	1°	0.118	0.157		
12-3D42JX	●	●	1.653	0.750	0.750	-	0.750	4.75	1.220	0.703					
43-3D42JX	●	●	1.653	0.750	0.750	-	0.500	4.75	1.220	0.453					

Toolholder Dimensions (Metric Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)							Angle (°)	Insert Width CW (mm)		Spare Parts	
	R	L		CUTDIA	H	HF	HBH	B	LF	LH		WF	GAMP	MIN	MAX	Clamp Bolt/Screw	Wrench
KGD% 1010JX-1.3D16	●	●	16	10	10	2	10	120	18.0	9.9	5°	1.3	1.3	SB-40120TR	LTW-15S
1010JX-1.3	●	●	20	10	10	2	10	120	18.0	9.5					
1212F-1.3D16	●	●	16	12	12	2	12	85	19.5	11.9					
1212JX-1.3D16	●	●	16	12	12	2	12	120	19.5	11.9					
1212F-1.3	●	●	24	12	12	2	12	85	19.5	11.5					
1212JX-1.3	●	●	24	12	12	2	12	120	19.5	11.5					
KGD% 1010JX-1.5D16	●	●	16	10	10	2	10	120	18.0	9.7	5°	1.5	1.5	SB-40120TR	LTW-15S
1010JX-1.5	●	●	20	10	10	2	10	120	18.0	9.4					
1212F-1.5D16	●	●	16	12	12	2	12	85	19.5	11.7					
1212JX-1.5D16	●	●	16	12	12	2	12	120	19.5	11.7					
1212F-1.5	●	●	24	12	12	2	12	85	19.5	11.4					
1212JX-1.5	●	●	24	12	12	2	12	120	19.5	11.4					
KGD% 1010JX-2	●	●	20	10	10	2	10	120	18.0	9.2	1°	2.0	3.0	SB-40120TR	LTW-15S
1212F-2	●	●	24	12	12	2	12	85	19.5	11.2					
1212JX-2	●	●	24	12	12	2	12	120	19.5	11.2					
1616JX-2	●	●	32	16	16	-	16	120	24.5	15.2					
2012K-2D34	●	●	34	20	20	-	12	125	32.5	11.2					
2020K-2D34	●	●	34	20	20	-	20	125	32.5	19.2					
KGD% 1010JX-2.4	●	●	20	10	10	2	10	120	18.0	9.0	1°	2.4	3.0	SB-40120TR	LTW-15S
1212F-2.4	●	●	24	12	12	2	12	85	19.5	11.0					
1212JX-2.4	●	●	24	12	12	2	12	120	19.5	11.0					
1616JX-2.4	●	●	32	16	16	-	16	120	24.5	15.0					
2012K-2.4D34	●	●	34	20	20	-	12	125	32.5	11					
2020K-2.4D34	●	●	34	20	20	-	20	125	32.5	19					
KGD% 1212JX-3	●	●	24	12	12	2	12	120	19.5	10.8	1°	3.0	3.0	SB-40120TR	LTW-15S
1616JX-3	●	●	32	16	16	-	16	120	24.5	14.8					
1616JX-3D38	●	●	38	16	16	-	16	120	29.0	14.8					
1913K-3D38	●	●	38	19	19	-	13	125	29.0	11.8					
2012JX-3D42	●	●	42	20	20	-	12	120	31.0	10.8					
2012JX-3D51	●	●	51	20	20	-	12	120	36.0	10.8					
2020JX-3D42	●	●	42	20	20	-	20	120	31.0	18.8	1°	3.0	4.0	SE-50125TR	LTW-20
2020JX-3D51	●	●	51	20	20	-	20	120	36.0	18.8					

Note 1) 0.157" (4mm) width insert can be installed in KGD% 8-3JX and KGD% 1212JX-3, but is not recommended due to the toolholder's rigidity.

2) Recommended tightening torque for clamp screw is 2.0Nm for SB-40120TR and 2.5Nm for SE-50125TR.

3) When machining material greater than 0.1417" (36mm) with KGD% ...-3D38(JX), KGD% ...-3D42(JX), or KGD% ...-3D51 toolholders, use 1-edge inserts.

Max. workpiece diameter for 2-edge inserts is Ø1.417" (36mm)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

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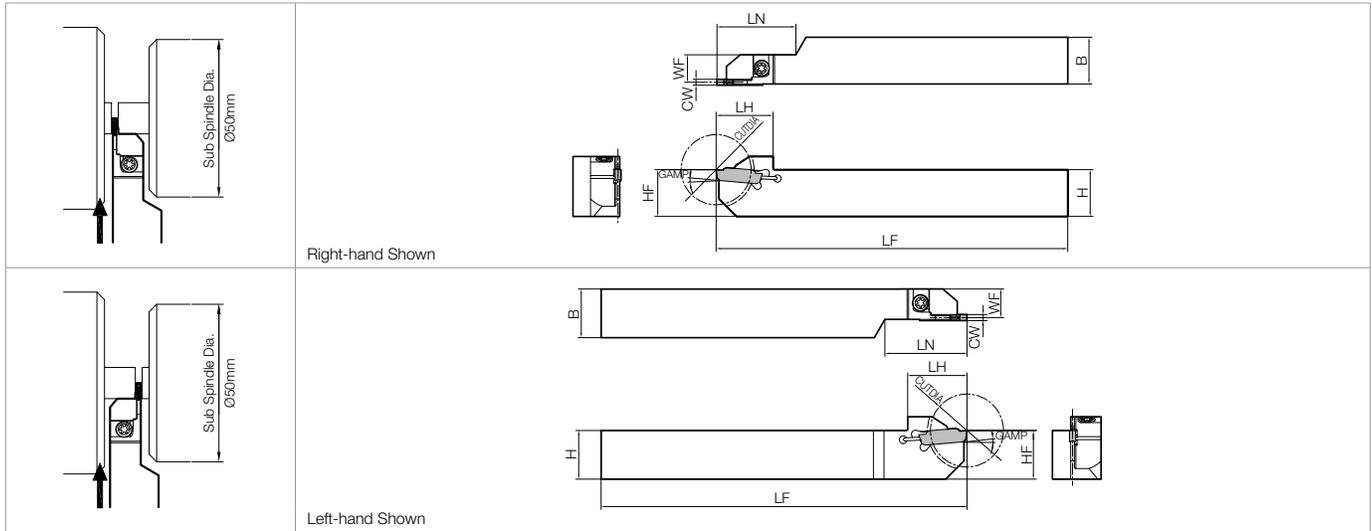
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KGDS (Small Diameter Cut-Off / Sub Spindle)



Toolholder Dimensions

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)							Angle (°)	Insert Width CW (mm)		Spare Parts				
	R	L		CUTDIA	H	HF	B	LF	LH	LN		WF	GAMP	MIN	MAX	Clamp Screw	Wrench	
KGDS% 1616JX-1.3B	●	●	24	16	16	16	120	19.5	27	9.50	5°	1.3	1.3	SB-40120TR	LTW-15S			
1616JX-1.5B	●	●														9.40	1.5	1.5
1616JX-2B	●	●														9.20	1°	2.0	3.0

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

KG / KGDS Selection Reference

KG

Standard Type

- Both Right-hand and Left-hand types are applicable to gang tool post.
- Left-hand type is used during cut-off operation using sub spindle.

KGD _R (Right-hand Toolholder)	KGD _L (Left-hand Toolholder)
<p><1st. Recommendation> Use insert with lead angle to remove boss.</p> <ul style="list-style-type: none"> Not using sub spindle Cut-off operation near main spindle side 	<p><1st. Recommendation> Use insert without lead angle.</p> <ul style="list-style-type: none"> Using sub spindle Cut-off operation near sub spindle side

KGDS

Sub Spindle Type

- When machining a workpiece with a small diameter, use KGDS to reduce overhang distance from the main spindle.

KGDS _R (Right-hand Toolholder)	KGDS _L (Left-hand Toolholder)
<ul style="list-style-type: none"> Long workpiece and more rigidity Cut-off operation near main spindle side 	<ul style="list-style-type: none"> Short workpiece and less rigidity Cut-off operation near sub spindle side

Toolholder Identification System (Small Diameter)

KGDS	R	1616	JX	3	D38
	Hand of Tool	Shank Width	Overall Length	Compatible Insert Width	Other
	R : Right-hand L : Left-hand	16mm X 16mm	120mm	GDM/GDMS Width: 3-4mm	D38: CUTDIA = 38mm
				1.3	B
				Compatible Insert Width	Other
				GDM/GDMS Width: 1.3mm	B: Sub-spindle Compatible

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TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD-JCT for Small Parts

Small Diameter Grooving / Cut-Off

Coolant-Through Cut-Off Holders for Small Parts Machining

Improved Tool Life Lowers Machining Costs

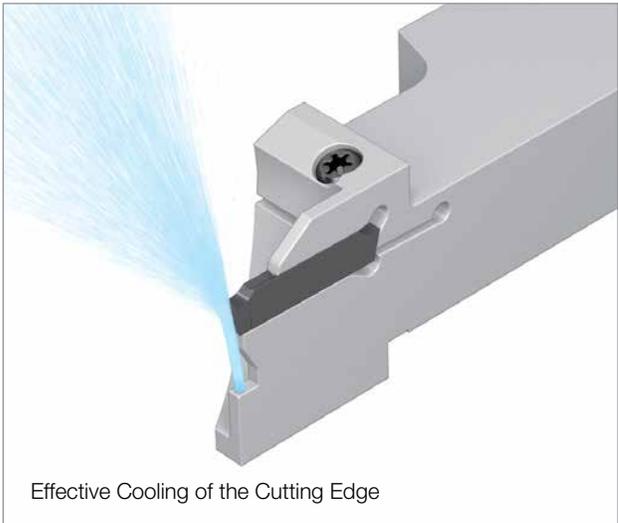
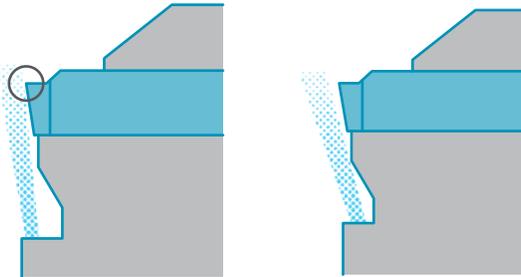
Optimized Coolant Hole Position

Discharges Coolant towards the Flank Face of the Insert

Coolant Discharge

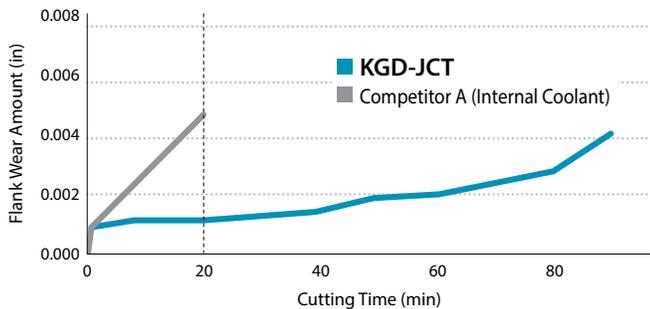
KGD-JCT
Sufficient cooling towards the cutting edge

Competitor A
Coolant does not flow directly towards the cutting edge



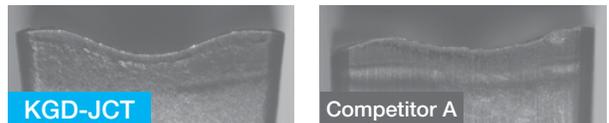
Wear Resistance Comparison

(Internal Evaluation)

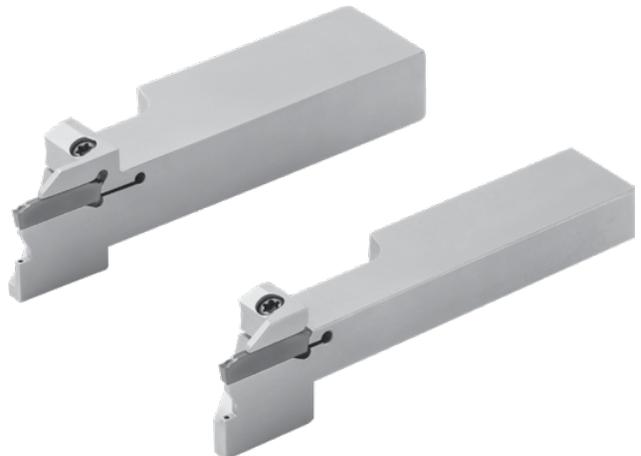


Cutting Conditions : $V_c = 260$ sfm, $f = 0.0024$ ipr (at $\phi 0.079''$: $f = 0.0007$ (ipr)
 KGDR1625H-2JCT, GDM2020N-015PF PR1535 (Insert Width : 0.079")
 Workpiece : 304 ($\phi 0.984''$)
 Internal Coolant(218 psi) Cut-off

Cutting Edge (After Machining 20 min)

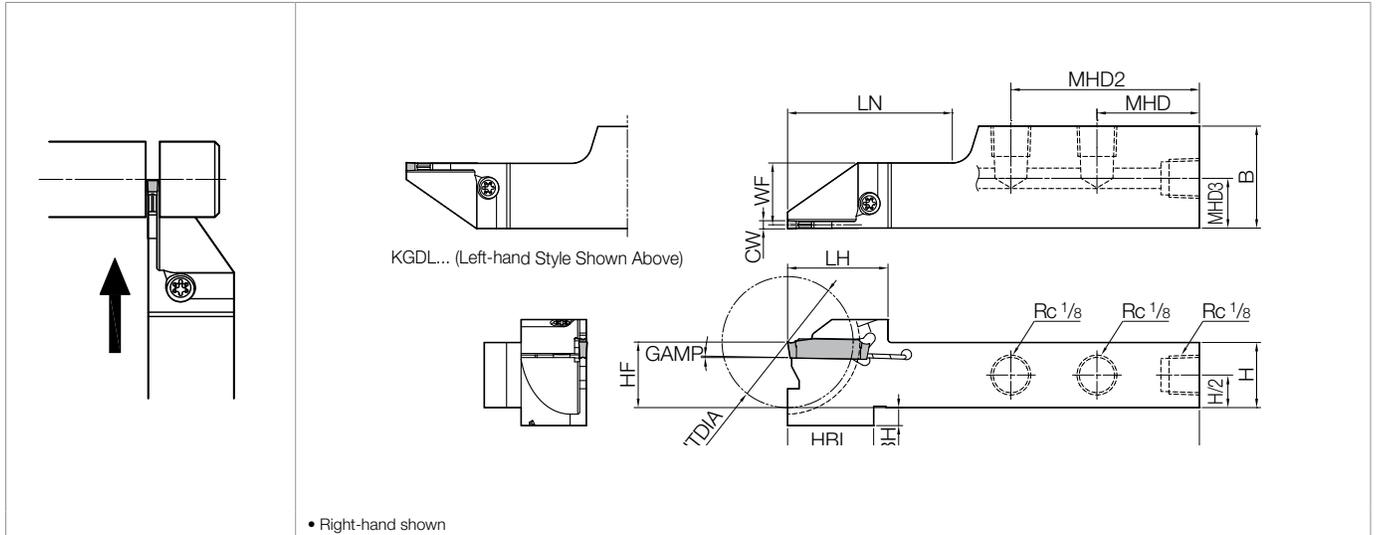


High density and high speeds coolant provides effective cooling of the cutting edge
 Superior cooling action improves tool life



■ KGD-JCT (for Small Parts Machining / Jet Coolant-Through) NEW

Insert Width: 0.079"~0.157" / 2.0mm~4.0mm



● Toolholder Dimensions (Metric Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)													Insert Width CW (mm)		Spare Parts		
	R	L		CUTDIA	H=HF	HBH	B	LF	LH	HBL	LN	WF	MHD	MHD2	MHD3	GAMP	MIN	MAX	Clamp Bolt	Wrench	Plug
KGDR 1220H-2JCT	●	●	24	12	8.5	20	100	19.5	21	44	11.2	35	-	8.4	1°	2.0	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1220H-2JCT	●	●						21.5	7.7												
KGDR 1625H-2JCT	●	●	32	16	4.5	25	100	24.5	21	40	15.2	25	46	12.2	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1625H-2JCT	●	●						7.7													
KGDR 1220H-2.4JCT	●	●	24	12	8.5	20	100	19.5	21	44	11	35	-	8.4	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1220H-2.4JCT	●	●						21.5	7.7												
KGDR 1625H-2.4JCT	●	●	32	16	4.5	25	100	24.5	21	40	15	25	46	12.2	1°	2.4	3.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1625H-2.4JCT	●	●						7.7													
KGDR 1220H-3JCT	●	●	24	12	8.5	20	100	19.5	21	44	10.8	35	-	8.6	1°	3.0	4.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1220H-3JCT	●	●						21.5	7.7												
KGDR 1625H-3JCT	●	●	32	16	4.5	25	100	24.5	21	40	14.8	25	46	12.2	1°	3.0	4.0	SB-40120TR	LTW-15S	GP-1	
KGDL 1625H-3JCT	●	●						7.7													

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

Coolant Connections and Pipe Parts [H15-H16](#)

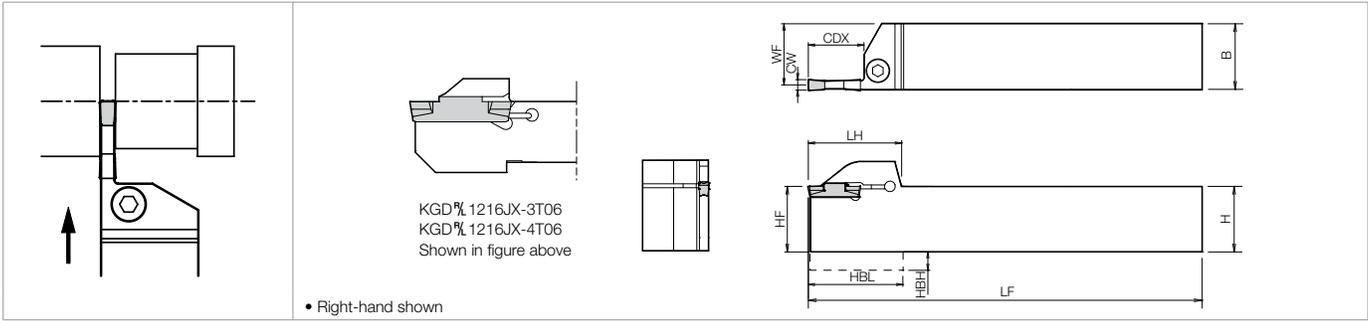
Recommended Cutting Conditions [H32-H33](#)



- A INSERT GRADES
- B TURNING INSERTS
- C GEN/PCD INSERTS
- D TURNING HOLDERS
- E SMALL TOOLS
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- K DRILLING
- M MILLING
- N QUICK CHANGE TOOLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

CUT-OFF TOOLHOLDERS

KGD (Integral-Style)



Toolholder Dimensions (Inch Size)

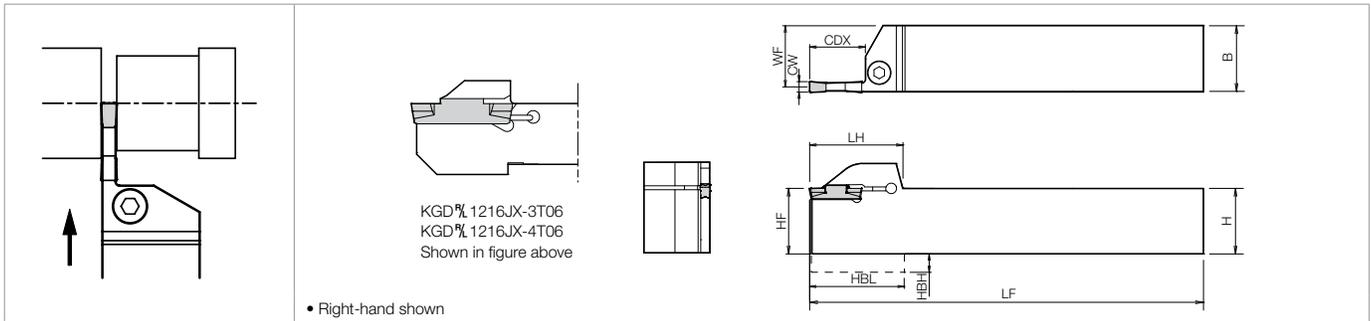
Width (in)	Max. D.O.C. (in)	Part Number	Stock		Dimensions (in)									Insert Width CW (in)		Spare Parts	
			R	L	H	HF	HBH	B	LF	LH	HL	WF	CDX*	MIN	MAX	Clamp Bolt	Wrench
0.079" (2mm)	0.669" (17mm)	KGD% 12-2T17	●	●	0.75	0.75	-	0.75	4.92	1.28	-	0.71	0.669" (17mm)	0.079" (2mm)	0.118" (3mm)	HH5X16	LW-4
		16-2T17	●	●	1.00	1.00	-	1.00	5.90	1.28	-	0.96				HH5X25	
0.118" (3mm)	0.393" (10mm)	KGD% 12-3T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.70	0.393" (10mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.95				HH5X25	
	0.787" (20mm)	KGD% 12-3T20	●	●	0.75	0.75	-	0.75	4.92	1.35	-	0.70	0.787" (20mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T20	●	●	1.00	1.00	-	1.00	5.90	1.39	-	0.95				HH5X25	
NEW	1.000" (25.4mm)	KGD% 12-3T254	●	●	0.75	0.75	-	0.75	4.92	1.52	-	0.70	1.000" (25.4mm)	0.118" (3mm)	0.157" (4mm)	HH5X16	LW-4
		16-3T254	●	●	1.00	1.00	-	1.00	5.90	1.52	-	0.95				HH5X25	
0.157" (4mm)	0.393" (10mm)	KGD% 12-4T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.68	0.393" (10mm)	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4
		16-4T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.93				HH5X25	
	0.787" (20mm)	KGD% 12-4T20	●	●	0.75	0.75	-	0.75	4.92	1.35	-	0.68	0.787" (20mm)	0.157" (4mm)	0.197" (5mm)	HH5X16	LW-4
		16-4T20	●	●	1.00	1.00	-	1.00	5.90	1.39	-	0.93				HH5X25	
0.984" (25mm)	0.984" (25mm)	KGD% 16-4T25	●	●	1.00	1.00	-	1.00	5.90	1.59	-	0.93	0.984" (25mm)			HH5X25	LW-4
0.197" (5mm)	0.393" (10mm)	KGD% 12-5T10	●	●	0.75	0.75	-	0.75	4.92	1.20	-	0.66	0.393" (10mm)	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4
		16-5T10	●	●	1.00	1.00	-	1.00	5.90	1.20	-	0.91				HH5X25	
	0.669" (17mm)	KGD% 12-5T17	●	●	0.75	0.75	-	0.75	4.92	1.47	-	0.66	0.669" (17mm)	0.197" (5mm)	0.236" (6mm)	HH5X16	LW-4
		16-5T17	●	●	1.00	1.00	-	1.00	5.90	1.47	-	0.91				HH5X25	
0.984" (25mm)	0.984" (25mm)	KGD% 16-5T25	●	●	1.00	1.00	-	1.00	5.90	1.59	-	0.91	0.984" (25mm)			HH5X25	LW-4
0.236" (6mm)	0.591" (15mm)	KGD% 16-6T15	●	●	1.00	1.00	-	1.00	5.90	1.28	-	0.89	0.591" (15mm)	0.236" (6mm)	0.236" (6mm)	HH5X25	LW-4
	1.181" (30mm)	KGD% 16-6T30	●	●	1.00	1.00	-	1.00	5.90	1.79	-	0.89	1.181" (30mm)				
0.315" (8mm)	0.984" (25mm)	KGD% 16-8T25	●	●	1.00	1.00	0.26	1.00	5.90	1.65	1.69	0.88	0.984" (25mm)	0.315" (8mm)	0.315" (8mm)	HH6X25	LW-5

Note 1) Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 2) Recommended tightening torque for clamp bolt is 6.5Nm for HH5X○○ and 8.0Nm for HH6X25.
 3) Above toolholders can also be used for cut-off applications.

Choose insert with width that falls within MIN and MAX parameters shown in table above. Insert table [H20-H21](#)

CUT-OFF TOOLHOLDERS

KGD (Integral-Style)



Toolholder Dimensions (Metric Size)

Width (mm)	Max. D.O.C. (mm)	Part Number	Stock		Dimensions (mm)									Insert Width CW (mm)		Spare Parts	
			R	L	H	HF	HBH	B	LF	LH	HBL	WF	CDX*	MIN	MAX	Clamp Bolt/Screw	Wrench
2.0	6	KGD 1616H-2T06	●	●	16	16	4.0	16	100	27.7	28.0	15.2	6	2.0	3.0	HH5X16	LW-4
		2020K-2T06	●	●	20	20	-	20	125	28.0	-	19.2				HH5X16	
		2525M-2T06	●	●	25	25	-	25	150	28.0	-	24.2				HH5X25	
	10	KGD 1616H-2T10	●	●	16	16	4.0	16	100	30.2	30.5	15.2	10			HH5X16	LW-4
		2020K-2T10	●	●	20	20	-	20	125	30.5	-	19.2				HH5X16	
		2525M-2T10	●	●	25	25	-	25	150	30.5	-	24.2				HH5X25	
	17	KGD 1616H-2T17	●	●	16	16	4.0	16	100	31.2	31.5	15.2	17			HH5X16	LW-4
		2012K-2T17	●	●	20	20	-	12	125	32.5	-	11.2				HH5X16	
		2020K-2T17	●	●	20	20	-	20	125	32.5	-	19.2				HH5X16	
2.4	17	2525M-2T17	●	●	25	25	-	25	150	32.5	-	24.2	HH5X25	LW-4			
		KGD 2012K-2.4T17	●	●	20	20	-	12	125	32.5	-	11.0	HH5X16				
		2020K-2.4T17	●	●	20	20	-	20	125	32.5	-	19.0	HH5X16				
3.0	6	KGD 1216JX-3T06	●	●	12	12	2.0	16	120	19.5	19.0	14.8	6	3.0	4.0	SE-50125TR	LTW-20
		1616H-3T06	●	●	16	16	4.0	16	100	27.7	28.0	14.8				HH5X16	
		2020K-3T06	●	●	20	20	-	20	125	28.0	-	18.8				HH5X16	
		2525M-3T06	●	●	25	25	-	25	150	28.0	-	23.8				HH5X25	
	10	KGD 1616H-3T10	●	●	16	16	4.0	16	100	30.2	30.5	14.8	10			HH5X16	LW-4
		2020K-3T10	●	●	20	20	-	20	125	30.5	-	18.8				HH5X16	
		2525M-3T10	●	●	25	25	-	25	150	30.5	-	23.8				HH5X25	
		KGD 1616H-3T20	●	●	16	16	4.0	16	100	34.2	34.5	14.8				HH5X16	
	20	2012K-3T20	●	●	20	20	-	12	125	34.5	-	10.8	20			HH5X16	LW-4
		2020K-3T20	●	●	20	20	-	20	125	34.5	-	18.8				HH5X16	
		2525M-3T20	●	●	25	25	-	25	150	35.5	-	23.8				HH5X25	
		KGD 1216JX-4T06	●	●	12	12	2.0	16	120	19.5	19.0	14.3				6		4.0	5.0	SE-50125TR	LTW-20
6	KGD 2020K-4T10	●	●	20	20	-	20	125	30.5	-	18.3	10	HH5X16				
	2525M-4T10	●	●	25	25	-	25	150	30.5	-	23.3		HH5X25				
20	KGD 2020K-4T20	●	●	20	20	-	20	125	34.5	-	18.3	20	HH5X16	LW-4			
	2525M-4T20	●	●	25	25	-	25	150	35.5	-	23.3		HH5X25				
25	KGD 2525M-4T25	●	●	25	25	-	25	150	40.5	-	23.3	25	HH5X25				

Note 1) Dimension CDX* : Shows the maximum grooving depth. If the dimension CDX is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).
 2) Recommended tightening torque for clamp bolt/screw is 6.5Nm for HH5X16, 8.0Nm for HH5X25 and 2.5Nm for SE-50125TR.
 3) Above toolholders can also be used for cut-off applications.

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

KGD-JCT

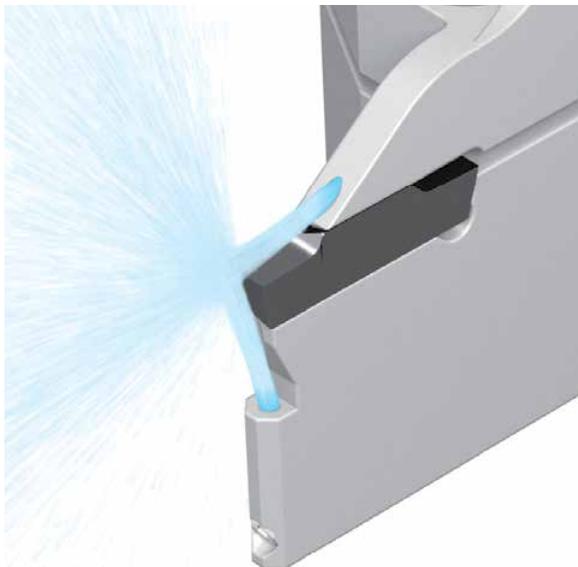
Coolant-Through Holders for External Grooving and Cut-Off

Coolant is Directed from the Rake Surface and the Flank Face of the Insert
Improved Chip Control and Longer Tool Life for External Grooving and Cut-off

1 Superior Chip Control Performance

Coolant towards the rake face

Coolant hole position and angle improve chip control



Chip Control Comparison (Internal Evaluation)

KGD-JCT showed better chip control performance even at lower feed rates
f = 0.002 ipr (218 psi)



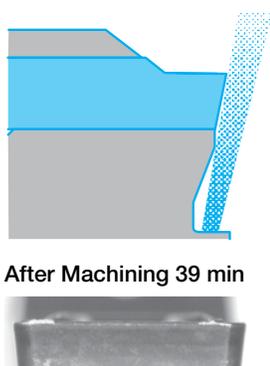
Cutting Conditions: Vc = 490 sfm, f = 0.002 ipr, d = 0.315", Wet Edge Width 4 mm (0.157") Workpiece: 4131 Grooving

2 Keeping the Cutting Edge Cool Leads to Longer Tool Life

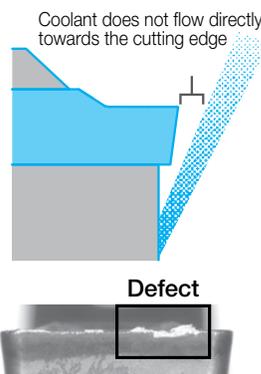
Coolant towards the rake surface and the flank face of the insert

Directing coolant towards the cutting edge lengthens tool life

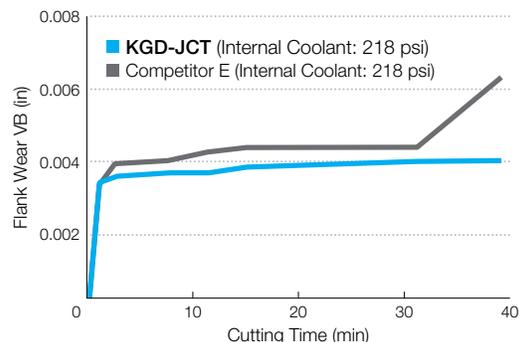
KGD-JCT



Competitor E



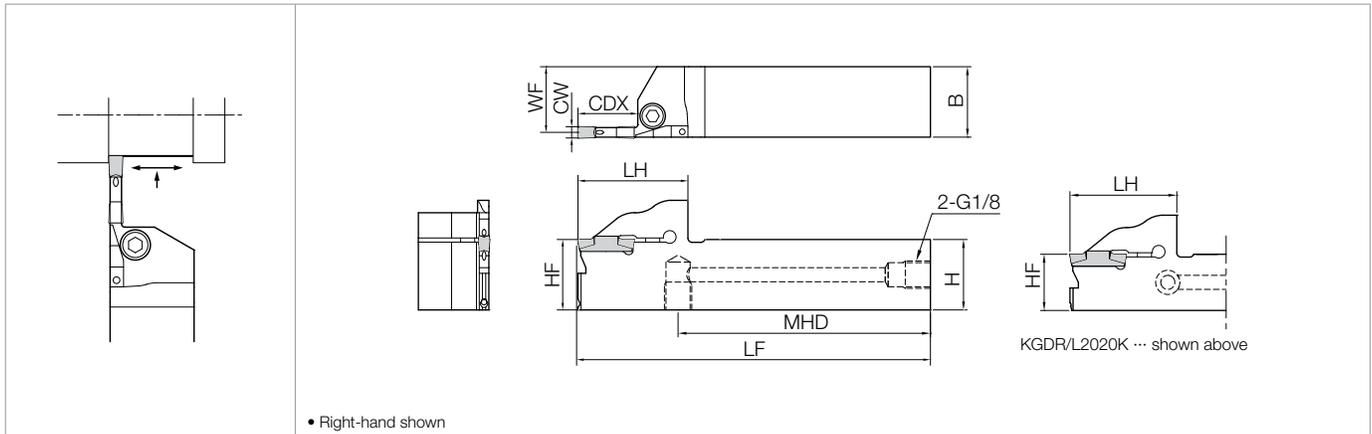
Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: Vc = 590 sfm, f = 0.006 ipr, d = 0.354", Wet Edge Width 0.158" Workpiece: 4131 Grooving

KGD-JCT Minimizes Wear and Provides Longer Tool Life without Insert Fracturing

■ KGD-JCT (Integral Style / Jet Coolant-Through) NEW



● Toolholder Dimensions (Inch Size)

Pressure Resistance: up to 2,175 psi

Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (in)								Insert Width CW (in)		Spare Parts		
			R	L	H	HF	B	LF	LH	WF	CDX	MHD	MIN	MAX	Clamp Bolt	Wrench	Plug
0.118 (3mm)	0.787 (20mm)	KGD% 12-3T20JCT	●	●	0.750	0.750	0.750	5.000	1.496	0.702	0.787 (20mm)	3.590	0.118 (3mm)	0.157 (4mm)	HH5X16	LW-4	HSG1/8X8.0
		16-3T20JCT	●	●	1.000	1.000	1.000	5.000	1.535	0.952	3.551	HH5X25					
0.157 (4mm)	0.787 (20mm)	KGD% 12-4T20JCT	●	●	0.750	0.750	0.750	5.000	1.496	0.683	0.787 (20mm)	3.590	0.157 (4mm)	0.197 (5mm)	HH5X16	LW-4	HSG1/8X8.0
		16-4T20JCT	●	●	1.000	1.000	1.000	5.000	1.535	0.933	3.551	HH5X25					
	KGD% 16-4T25.4JCT	●	●	1.000	1.000	1.000	5.000	1.732	0.933	1.000 (25.4mm)	3.354	HH5X25					

● Toolholder Dimensions (Metric Size)

Pressure Resistance: up to 2,175 psi

Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (mm)								Insert Width CW (mm)		Spare Parts		
			R	L	H	HF	B	LF	LH	WF	CDX	MHD	MIN	MAX	Clamp Bolt	Wrench	Plug
3	6	KGD% 2020K-3T06JCT	●	●	20	20	20	125	31.5	18.8	6	96.2	3.0	4.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-3T06JCT	●	●	25	25	25		31.5	23.8	6	96.5			HH5X25		
	10	KGD% 2020K-3T10JCT	●	●	20	20	20		34.0	18.8	10	94.2			HH5X16		
		2525K-3T10JCT	●	●	25	25	25		34.0	23.8	10	94.5			HH5X25		
	20	KGD% 2020K-3T20JCT	●	●	20	20	20		38.0	18.8	20	90.2			HH5X16		
		2525K-3T20JCT	●	●	25	25	25		39.0	23.8	20	89.5			HH5X25		
4	10	KGD% 2020K-4T10JCT	●	●	20	20	20	34.0	18.8	10	94.2	HH5X16	4.0	5.0	HH5X16	LW-4	HSG1/8X8.0
		2525K-4T10JCT	●	●	25	25	25	34.0	23.8	10	94.5	HH5X25					
	20	KGD% 2020K-4T20JCT	●	●	20	20	20	38.0	18.8	20	90.2	HH5X16					
		2525K-4T20JCT	●	●	25	25	25	39.0	23.8	20	89.5	HH5X25					
	25	KGD% 2525K-4T25JCT	●	●	25	25	25	44.0	23.8	25	84.5	HH5X25					

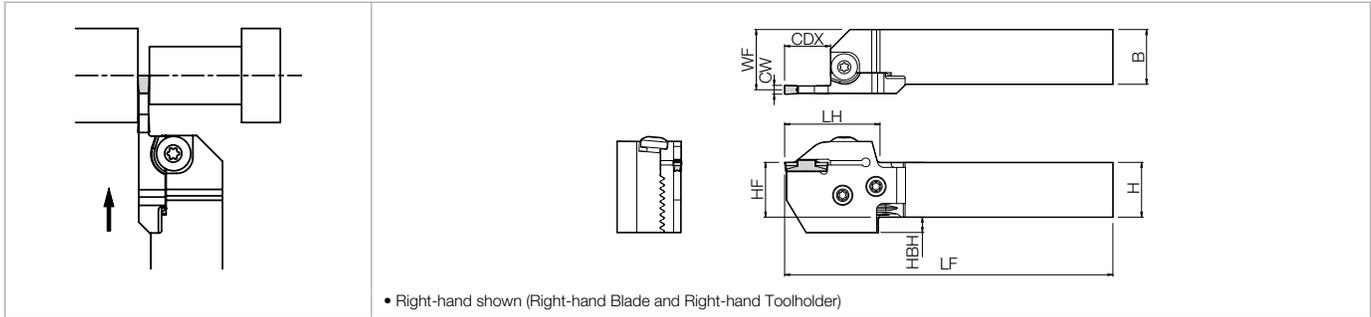
Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

Coolant Connections and Pipe Parts [D11](#)
Recommended Cutting Conditions [H32-H33](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EXTERNAL GROOVING / CUT-OFF TOOLHOLDERS

KGD-S (0° SwitchBlade Type)



Toolholder + Blade Dimensions (Inch Size)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Width (in)	Max. D.O.C. (in)	Shank Size (in)	Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number ● G37	Blade Part Number ● G37	Dimensions (in)							Insert Width CW (in)			
					R	L			H	HF	HBH	B	LF	LH	WF	CDX*	MIN.	MAX.	
0°	0.079 (2mm)	0.669 (17mm)	□0.75	KGD [®] 12X-2T17S	●	●	KGD [®] 12-C	KGD [®] -2T17-C	0.75	0.75	0.472	0.75	4.80	1.57	0.88	0.669 (17mm)	0.079 (2mm)	0.118 (3mm)	
			□1.00	16X-2T17S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	5.78	1.57	1.13				
	0.118 (3mm)	0.394 (10mm)	□0.75	KGD [®] 12X-3T10S	●	●	KGD [®] 12-C	KGD [®] -3T10-C	0.75	0.75	0.472	0.75	4.52	1.29	0.86	0.394 (10mm)	0.118 (3mm)	0.157 (4mm)	
			□1.00	16X-3T10S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	5.51	1.29	1.11				
		0.787 (20mm)	□0.75	KGD [®] 12X-3T20S	●	●	KGD [®] 12-C	KGD [®] -3T20-C	0.75	0.75	0.472	0.75	4.92	1.68	0.86				0.787 (20mm)
			□1.00	16X-3T20S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	5.90	1.68	1.11				
	0.157 (4mm)	0.394 (10mm)	□0.75	KGD [®] 12X-4T10S	●	●	KGD [®] 12-C	KGD [®] -4T10-C	0.75	0.75	0.472	0.75	4.52	1.29	0.84	0.394 (10mm)	0.157 (4mm)	0.197 (5mm)	
			□1.00	16X-4T10S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	5.51	1.29	1.09				
		0.787 (20mm)	□0.75	KGD [®] 12X-4T20S	●	●	KGD [®] 12-C	KGD [®] -4T20-C	0.75	0.75	0.472	0.75	4.92	1.68	0.84				0.787 (20mm)
			□1.00	16X-4T20S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	5.90	1.68	1.09				
		0.984 (25mm)	□0.75	KGD [®] 12X-4T25S	●	●	KGD [®] 12-C	KGD [®] -4T25-C	0.75	0.75	0.472	0.75	5.11	1.88	0.84				0.984 (25mm)
			□1.00	16X-4T25S	●	●	KGD [®] 16-C		1.00	1.00	0.276	1.00	6.10	1.88	1.09				

Note 1) When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.

2) The toolholder and blade part numbers are printed on the toolholder body. (Unit part numbers are not printed)

KGD-S: Right-hand blades for right-hand toolholders, and left-hand blades for left-hand toolholders.

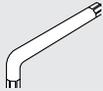
3) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.

4) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

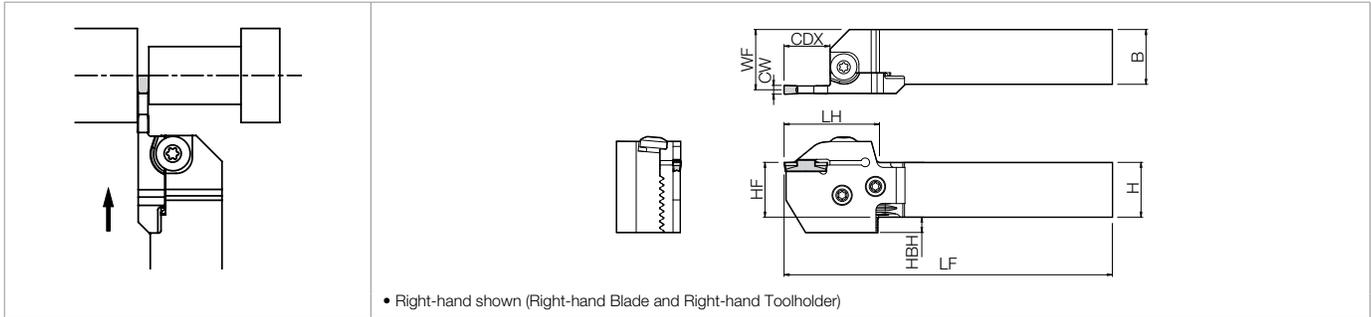
Spare Parts (Common with SwitchBlade Types)

* The parts are included in the toolholder and unit.

Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD [®]S	 BH6X10TR	 SB-60120TR	 LTW-25

EXTERNAL GROOVING / CUT-OFF TOOLHOLDERS

KGD-S (0° SwitchBlade Type)



Toolholder + Blade Dimensions (Metric Size)

(Choose **Right-hand** Blade for **Right-hand** Toolholder and **Left-hand** Blade for **Left-hand** Toolholder)

Shank Angle	Width (mm)	Max. D.O.C. (mm)	Shank Size (mm)	Unit Part Number (Toolholder + Blade)	Stock		Toolholder Part Number G37	Blade Part Number G37	Dimensions (mm)							Insert Width CW (mm)				
					R	L			H	HF	HBH	B	LF	LH	WF	CDX*	MIN.	MAX.		
0°	2	17	□20	KGD% 2020X-2T17S	●	△	KGD% 2020-C	KGD% -2T17-C	20	20	12	20	122	40	23.4	17	2.0	3.0		
			□25	2525X-2T17S	●	●	KGD% 2525-C		25	25	7	25	147	40	28.4					
			□32	No Unit Part Number →			KGD% 3232-C		32	32	-	32	167	40	35.4					
	3	10	10	□20	KGD% 2020X-3T10S	●	△	KGD% 2020-C	KGD% -3T10-C	20	20	12	20	115	33	23.0	10	3.0	4.0	
				□25	2525X-3T10S	●	△	KGD% 2525-C		25	25	7	25	140	33	28.0				
				□32	3232X-3T10S	△		KGD% 3232-C		32	32	-	32	160	33	35.0				
		20	20	20	□20	KGD% 2020X-3T20S	●	●	KGD% 2020-C	KGD% -3T20-C	20	20	12	20	125	43	23.0	20	3.0	4.0
					□25	2525X-3T20S	●	●	KGD% 2525-C		25	25	7	25	150	43	28.0			
					□32	3232X-3T20S	●	△	KGD% 3232-C		32	32	-	32	170	43	35.0			
	4	10	10	□20	KGD% 2020X-4T10S	●		KGD% 2020-C	KGD% -4T10-C	20	20	12	20	115	33	22.5	10	4.0	5.0	
				□25	2525X-4T10S	●		KGD% 2525-C		25	25	7	25	140	33	27.5				
				□32	No Unit Part Number →			KGD% 3232-C		32	32	-	32	160	33	34.5				
20		20	20	□20	KGD% 2020X-4T20S	●		KGD% 2020-C	KGD% -4T20-C	20	20	12	20	125	43	22.5	20	4.0	5.0	
				□25	2525X-4T20S	●	●	KGD% 2525-C		25	25	7	25	150	43	27.5				
				□32	3232X-4T20S	●	△	KGD% 3232-C		32	32	-	32	170	43	34.5				
25		25	25	□20	KGD% 2020X-4T25S	●	●	KGD% 2020-C	KGD% -4T25-C	20	20	12	20	130	48	22.5	25	4.0	5.0	
				□25	2525X-4T25S	●	●	KGD% 2525-C		25	25	7	25	155	48	27.5				
				□32	3232X-4T25S	●	△	KGD% 3232-C		32	32	-	32	175	48	34.5				

- Note 1) When using the toolholder in normal mounting position, the lower jaw of the toolholder may interfere with the tool presetter.
 2) The toolholder and blade part numbers are printed on the toolholder body. (Unit part numbers are not printed)
KGD-S: Right-hand blades for right-hand toolholders, and left-hand blades for left-hand toolholders.
 3) If the unit part number is not listed (No Unit Part Number), please purchase toolholder and blade separately.
 4) Dimension **CDX*** : Shows the maximum grooving depth. If the dimension **CDX** is 0.787" (20mm) or more, using a 2-edge insert, the maximum grooving depth is 0.709" (18mm).

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H20-H21](#)

Spare Parts (Common with SwitchBlade Types)

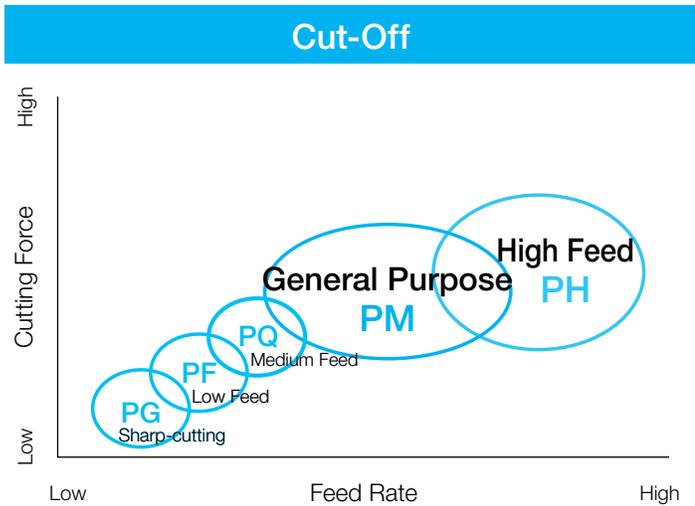
* The parts are included in the toolholder and unit.

Unit Part Number	Spare Parts		
	Clamp Bolt (for Insert Clamp)	Clamp Screw (for Blade)	Wrench
KGD% .....S	 BH6X10TR	 SB-60120TR	 LTW-25

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGD RECOMMENDED CUTTING CONDITIONS

Application Map



Recommended Cutting Conditions (PF / PQ / PG Chipbreakers) ★ : 1st Recommendation ☆ : 2nd Recommendation

PF Chipbreaker

Workpiece	Cutting Conditions (Vc : sfm)			Feed Rate (f : ipr)						Notes						
	Recommended Insert Grade			PF (RE = 0.0012)			PF (RE = 0.0059)									
	MEGACOAT NANO	MEGACOAT		CW (Insert Width)			CW (Insert Width)									
	PR1535	PR1225	PR1215	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.051" - 0.059" 1.3mm - 1.5mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm							
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	0.0004 - 0.0016	0.0008 - 0.0024	0.0008 - 0.0031	0.0004 - 0.0020	0.0012 - 0.0031	0.0016 - 0.0039	Coolant						
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590													
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490								0.0004 - 0.0012	0.0004 - 0.0016	0.0004 - 0.0020	0.0004 - 0.0016	0.0012 - 0.0028	0.0016 - 0.0031
Cast Iron	-	-	★ 260 - 660								0.0004 - 0.0020	0.0008 - 0.0028	0.0012 - 0.0031	0.0004 - 0.0024	0.0012 - 0.0035	0.0016 - 0.0039

PQ / PG Chipbreaker

Workpiece	Cutting Conditions (Vc : sfm)					Feed Rate (f : ipr)				Notes
	Recommended Insert Grade					PQ		PG		
	MEGACOAT NANO	MEGACOAT		DLC Coated Carbide	Carbide	CW (Insert Width)		CW (Insert Width)		
	PR1535	PR1225	PR1215	PDL025	GW15	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	0.079" 2.0mm	0.098" - 0.118" 2.5mm - 3.0mm	
Carbon Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-	0.0012 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	Coolant
Alloy Steel	☆ 230 - 490	★ 230 - 490	☆ 230 - 590	-	-					
Stainless Steel	★ 200 - 390	☆ 200 - 390	☆ 200 - 490	-	-	0.0008 - 0.0028	0.0008 - 0.0031	0.0004 - 0.0012	0.0004 - 0.0016	
Cast Iron	-	-	★ 260 - 660	-	☆ 160 - 330	0.0016 - 0.0039	0.0016 - 0.0047	0.0004 - 0.0016	0.0004 - 0.0020	
Aluminum Alloy	-	-	-	★ 660 - 1,640	☆ 660 - 1,480	-	-	0.0004 - 0.0020	0.0004 - 0.0024	
Brass	-	-	-	-	★ 330 - 660	-	-	0.0004 - 0.0028	0.0004 - 0.0031	

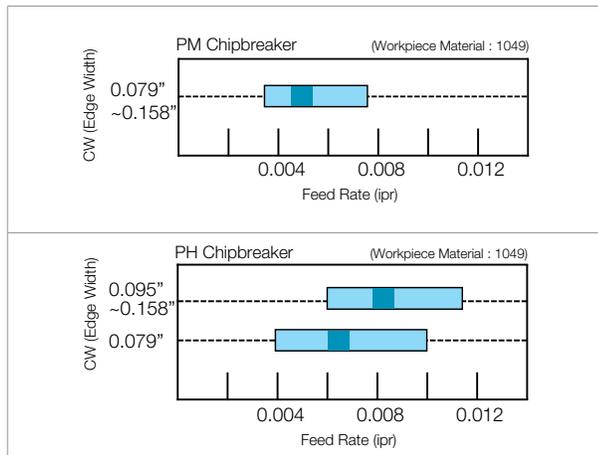
KGD RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions (PM / PH Chipbreakers) ★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Insert Grade (Vc sfm)			Feed Rate (ipr)			Remarks
	MEGACOAT NANO	MEGACOAT		PM	PH		
		PR1535	PR1225	PR1215	CW (Insert Width)		
				0.079"~0.158" (2mm~4mm)	0.079" (2mm)	0.095"~0.158" (3mm~4mm)	
Carbon Steel	☆ 260~660	★ 260~660	☆ 330~660	0.0031~0.0071	0.0039~0.0098	0.0059~0.0110	Wet
Alloy Steel	☆ 230~590	★ 230~590	☆ 260~590				
Stainless Steel	★ 200~490	☆ 200~490	☆ 200~490	0.0024~0.0047	0.0020~0.0047	0.0031~0.0059	
Cast Iron	-	-	★ 330~660	0.0031~0.0071	0.0039~0.0098	0.0059~0.0110	

★ : 1st Recommendation ☆ : 2nd Recommendation

Feed Examples



■ : Indicates the center value of feed (f)

CAUTION During Cut-Off

- 1) Flood coolant is recommended. Apply enough coolant to the cutting edge
- 2) Keep spindle revolution constant during processing to achieve longer tool life
- 3) Cut off as close to the chuck as possible
- 4) Reduce feed rate by 30-50% when diameter is same as cut-off insert width to prevent impact

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CUT-OFF INSERTS

GMM / GMN / GM^{R/L}

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	○	●	●	○	●
M	Stainless Steel		○	●	○	●
K	Cast Iron					●
N	Non-ferrous Metals					●

Insert	Part Number	Dimensions (in)						Lead Angle	Cermet	CVD Coated Carbide	PVD Coated Carbide					Carbide	Ref. Page for Toolholder	
		CW		RE	INSL	S	PSIR%				TN90	CR9025	PR915	PR930	PR115			KW10
		inch	mm															
Neutral	Deep Grooving / Cut-Off Sharp Cutting Oriented	GMM 1520-MT	0.059	1.5	0.002	0.787	0.169	-			●	●		●	●	●	●	H36
		2020-MT	0.079	2.0	0.002	0.787	0.169	-		●	●	●		●	●	●	●	H36
		2520-MT	0.098	2.5	0.002	0.787	0.169	-			●	●		●	●	●	●	H37
		3020-MT	0.118	3.0	0.002	0.787	0.169	-		●	●	●		●	●	●	●	H37
	Deep Grooving / Cut-Off Sharp Cutting Oriented Without Chipbreaker	GMM 1520-NB	0.059	1.5	0.002	0.787	0.169	-				●					●	H36
		2020-NB	0.079	2.0	0.002	0.787	0.169	-				●					●	H36
		2520-NB	0.098	2.5	0.002	0.787	0.169	-				●				△		H36
		3020-NB	0.118	3.0	0.002	0.787	0.169	-								●		H36
	Deep Grooving / Cut-Off Stability Oriented	GMM 2020-TK	0.079	2.0	0.008	0.787	0.169	-				●	●				●	H36
		2520-TK	0.098	2.5	0.008	0.787	0.169	-				●	●				●	H36
		3020-TK	0.118	3.0	0.010	0.787	0.169	-		●	●	●				●		H36
	Cut-Off / High Feed 2-Edge	GMM 2020-TMR	0.079	2.0	0.008	0.169	0.059	-								●		H36
2520-TMR		0.098	2.5	0.008	0.169	0.075	-								●		H37	
3020-TMR		0.118	3.0	0.010	0.169	0.091	-								●		H37	
Cut-Off Stability Oriented 1-Edge	GMM 2-TK	0.079	2.0	0.008	0.787	0.169	-				●	●				●	H36	
	3-TK	0.118	3.0	0.010	0.787	0.169	-			●	●	●				●	H36	
	4-TK	0.158	4.0	0.012	0.787	0.169	-			●	●	●				●	H36	
Deep Grooving / Cut-Off 1-Edge	GMN 2.2	0.087	2.2	0.007	0.787	0.169	-	●	●			●				●	H36	
	3	0.118	3.0	0.008	0.787	0.169	-	●	●			●				●	H36	
	4	0.158	4.0	0.010	0.787	0.169	-	●	●			●				●	H36	
	5	0.197	5.0	0.031	0.787	0.169	-	●	●			●				●	H36	
With Lead Angle	Cut-Off Sharp Cutting Oriented	GMM 1520 ^{R/L} -MT-15D	0.059	1.5	0.002	0.787	0.169	15°				●	●				●	H36
		2020 ^{R/L} -MT-15D	0.079	2.0	0.002	0.787	0.169	15°		●	●	●	●				●	H36
		2520 ^{R/L} -MT-15D	0.098	2.5	0.002	0.787	0.169	15°			●	●					●	H36
		3020 ^{R/L} -MT-15D	0.118	3.0	0.002	0.787	0.169	15°		●	●	●	●				●	H36
	Cut-Off Stability Oriented	GMM 2020 ^{R/L} -TK-8D	0.079	2.0	0.008	0.787	0.169	8°				●	●				●	H36
		2520 ^{R/L} -TK-8D	0.098	2.5	0.008	0.787	0.169	8°				●	●				●	H36
		3020 ^{R/L} -TK-8D	0.118	3.0	0.010	0.787	0.169	8°			●	●					●	H36
	Cut-Off / High Feed 2-Edge	GMM 2020 ^{R/L} -TMR-6D	0.079	2.0	0.008	0.169	0.059	6°								●		H36
		2520 ^{R/L} -TMR-6D	0.098	2.5	0.008	0.169	0.075	6°								●		H37
		3020 ^{R/L} -TMR-6D	0.118	3.0	0.010	0.169	0.091	6°								●		H37
	Cut-Off Stability Oriented 1-Edge	GMR 2-TK-8D	0.079	2.0	0.008	0.787	0.169	8°					●				●	H36
		3-TK-8D	0.118	3.0	0.010	0.787	0.169	8°				●	●				●	H36
		4-TK-8D	0.158	4.0	0.012	0.787	0.169	8°				●	●				●	H36
	Cut-Off Sharp Cutting Oriented 1-Edge	GM ^{R/L} 2.2-8D	0.087	2.2	0.007	0.787	0.169	8°	●	●			●	●			●	H36
		2.2-15D	0.087	2.2	0.000	0.787	0.169	15°	●	●			●	●			●	H36
		3-4D	0.118	3.0	0.008	0.787	0.169	4°	●	●	●		●	●			●	H36
4-4D		0.158	4.0	0.010	0.787	0.169	4°	●	●			●	●			●	H36	

* Corner-R (RE) varies based on grade

Inserts are sold in 10 piece boxes

Edge Prep. and Chipbreakers (CERACUT Plunge & Turn)

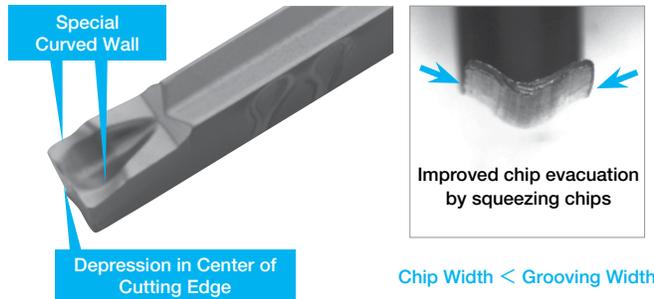
Name	MT Chipbreaker		TK Chipbreaker		TMR Chipbreaker	Without Chipbreaker (NB)	
Edge Preparation	Chamfered + Honed	Chamfered + Honed	Chamfered + Honed	Sharp Edge	Chamfered + Honed	Honed Cutting Edge	Sharp Edge
	Corner-R 0.002" 0.05mm	Sharp Edge	Corner-R 0.008"-0.012" 0.20-0.30mm	Corner-R 0.008"-0.012" 0.20-0.30mm	Corner-R 0.008" 0.20mm	Corner-R 0.002" 0.05mm	Sharp Edge
							
	CR9025 / PR915	PR930 / KW10	CR9025 / PR915	PR930 / KW10	PR1115	CR9025	PR930 / KW10

• Sharp Edge can reduce cutting resistance by 40%, compared with chamfered edge

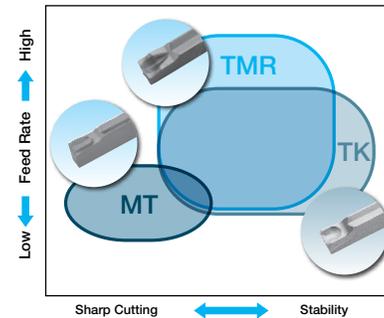
Name	Advantages
GMM-MT	Specific chipbreaker for cut-off operations requiring sharp cutting performance Minimizes the boss
GMM-NB	Cutting edge is flat with no chipbreaker. Good performance for brass, etc.
GMM-TK	Stable design with chipbreaker for cut-off. Large corner-R 2-edge for economical performance
GMM-TK	Same chipbreaker geometry as GMM-TK 1-edge. Wide application range.
GMM (Std.)	Mainly for deep grooving, but available for groove widening and traversing due to projection near side cutting edge. 1-edge and wide application range. Available for cut-off applications.

TMR Chipbreaker

Chipbreaker Advantages



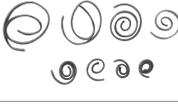
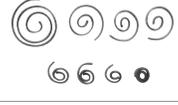
GMM Chipbreaker Map

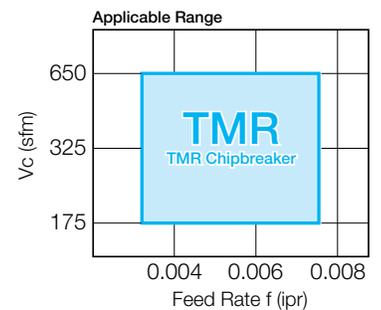


The TMR Chipbreaker Provides Stable Chip Control at High Feed Rates

Good chip control even when cutting speed (spindle revolution) is increased

(Cutting Conditions : 15CrMo4, Ø30, Constant Spindle Revolution)

Part Number	n=1060min ⁻¹ (Vc=325sfm)		n=2123min ⁻¹ (Vc=650sfm)	
	f=0.0008ipr	f=0.0047ipr	f=0.0008ipr	f=0.0047ipr
GMM 3020-TMR (Neutral)				
GMM 3020R-TMR-6D (Right-Hand)				



Recommended Cutting Conditions

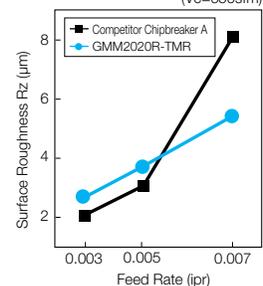
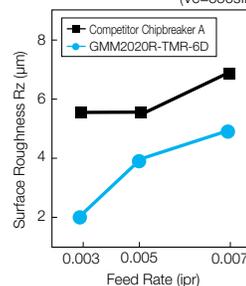
Workpiece Material	Vc (sfm)	Feed Rate (ipr)
Carbon Steel	200-650	0.003-0.007
Alloy Steel	200-500	
Stainless Steel	175-450	

Workpiece Surface Roughness

TMR Chipbreaker provides good surface roughness on the workpiece end face at high feed rate ranges.

• GMM2020R-TMR-6D (Vc=650sfm)

• GMM2020-TMR (Vc=650sfm)

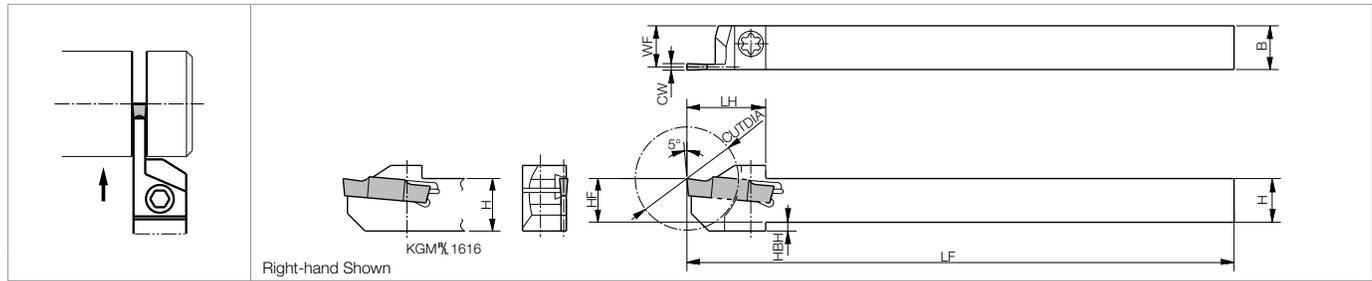


- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

CUT-OFF TOOLHOLDERS

KGM (Small Parts) - Will be phased out and removed from catalog. Switch to KGD H22

Insert Width : 0.079"~0.118" / 1.5mm~4.0mm



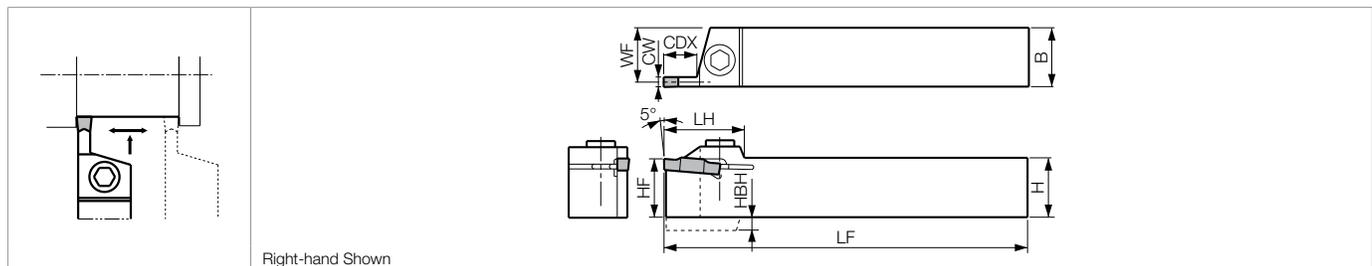
Toolholder Dimensions

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions							Insert Width CW		Spare Parts	
	R	L			CUTDIA	H	HF	HBH	B	LF	LH	WF	MIN	MAX	Clamp Screw	Wrench
KGM% 6-2-5	●	●	inch	0.787	0.375	0.375	0.079	0.375	5.000	0.750	0.342	0.079	0.118	SE-40120TR	LTW-15S
8-2-6	●	●		0.984	0.500	0.500	0.051	0.500	6.000	0.830	0.467	0.079	0.118		
KGM% 1010JX-1.5	●	●	mm	18	10	10	2	10	120	18.0	9.40	1.5	2.0	SE-40120TR	LTW-15S
1212JX-1.5	●	●		23	12	12	2	12	120	20.5	11.40	1.5	2.0		
KGM% 1010JX-2	●	●	mm	18	10	10	2	10	120	18.0	9.15	2.0	3.0	SE-40120TR	LTW-15S
1212JX-2	●	●		23	12	12	2	12	120	19.0	11.15	2.0	3.0		
1616JX-2	●	●	mm	30	16	16	-	16	120	24.5	15.15	2.0	3.0	SE-50125TR	LTW-20
KGM% 1212JX-2.5	●	●		23	12	12	2	12	120	20.5	11.00	2.4	3.0		
1616JX-2.5	●	●	mm	30	16	16	-	16	120	25.5	15.00	2.4	3.0	SE-50125TR	LTW-20
KGM% 1616JX-3	●	●		30	16	16	-	16	120	25.5	14.80	3.0	4.0		
KGM% 1212F-1.5-85	●		mm	23	12	12	2	12	85	19.0	11.40	1.5	2.0	SE-40120TR	LTW-15S
1212F-2-85	●			23	12	12	2	12	85	19.0	11.15	2.0	3.0		
1212F-2.5-85	●			23	12	12	2	12	85	19.0	11.00	2.4	3.0		

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table H34

KGM - Will be phased out and removed from catalog. Switch to KGD H22-H31

Insert Width : 0.750"~1.000" / 3mm~8mm



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Insert Width CW		Spare Parts				
	R	L		H	HF	HBH	B	LF	LH	WF	CDX	MIN	MAX	Clamp Screw	Wrench	Wrench	
KGM% 12-3	●		inch	0.750	0.750	-	0.750	5.000	1.070	0.702	0.354	0.118	0.157	-	HH5X16	-	LW-4
16-3	●			1.000	1.000	-	1.000	6.000	1.070	0.953	0.354	0.118	0.157		HH5X25		
KGM% 1212H-3	●		mm	12	12	4	12	100	27	10.8	9	3.0	3.0	SB-5TR	-	LTW-20	-
1616H-3	●			16	16	4	16	100	27	14.8	9	3.0	4.0				
2020K-3	●	●	mm	20	20	-	20	125	27	18.8	9	3.0	4.0	-	HH5X16	-	LW-4
2525M-3	●	●		25	25	-	25	150	27	23.8	9	3.0	4.0		HH5X25		
KGM% 2020K-4	●		mm	20	20	-	20	125	27	18.3	10	4.0	5.0	-	HH5X16	-	LW-4
2525M-4	●	●		25	25	-	25	150	27	23.3	10	4.0	5.0		HH5X25		
KGM% 2020K-5	●	△	mm	20	20	-	20	125	27	17.8	10	5.0	6.0	-	HH5X16	-	LW-4
2525M-5	●			25	25	-	25	150	27	22.8	10	5.0	6.0		HH5X25		
KGM% 2525M-8	●	●	mm	25	25	7.5	25	150	40	22.0	25	8.0	8.0	-	HH6X25	-	LW-5

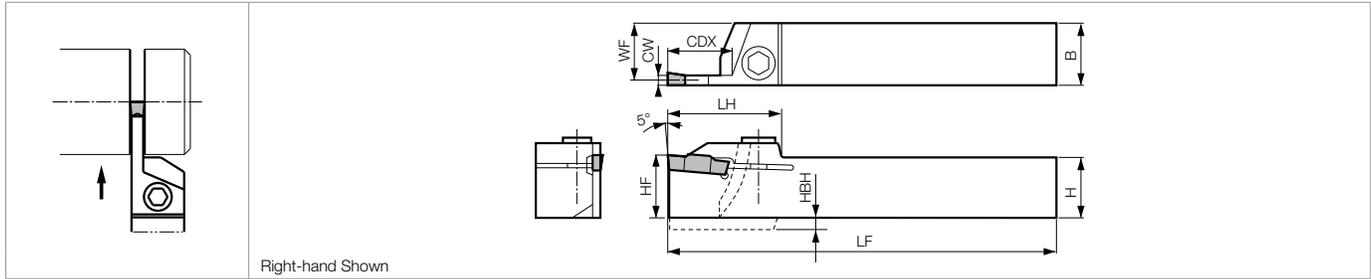
- Dimension CDX shows available grooving depth
- 4.0mm width insert can be installed in KGM% 1212H-3, but is not recommended due to the toolholder's rigidity

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table H34

CUT-OFF TOOLHOLDERS

KGM-T - Will be phased out and removed from catalog. Switch to KGD **H22-H31**

Insert Width : 0.078"~0.236" / 2.0mm~6.0mm



Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Insert Width CW		Spare Parts					
	R	L		H	HF	HBH	B	LF	LH	WF	CDX	MIN	MAX	Clamp Screw	Wrench	Wrench		
KGM% 12-2T	●	●	inch	0.75	0.75	-	0.75	5.0	1.30	0.717	0.669	0.078	0.118	-	HH5X16	-	LW-4	
16-2T	●	●		1.00	1.00	-	1.00	6.0		0.967					0.669			0.078	0.118	HH5X25
KGM% 12-3T	●	●		0.75	0.75	-	0.75	5.0	1.42	0.702	0.787	0.118	0.157	-	HH5X16	-	LW-4	
16-3T	●	●		1.00	1.00	-	1.00	6.0		0.953					0.787			
KGM% 12-4T	●	●		0.75	0.75	-	0.75	5.0	1.22	0.683	0.787	0.157	0.197	-	HH5X16	-	LW-4	
16-4T	●	●		1.00	1.00	-	1.00	6.0		0.933					0.984			
KGM% 16-5T	●	●		1.00	1.00	-	1.00	6.0	1.22	0.913	0.984	0.197	0.236	-	HH5X25	-	-	
KGM% 2012K-2T17	●	●		mm	20	20	-	12	125	33	11.15	17	2.0	3.0	SB-5TR	-	LTW-20	-
2020K-2T17	●	●			20	20	-	20	125		19.15				17	2.0	3.0	HH5X16	-	LW-4
2525M-2T17	●	●			25	25	-	25	150	24.15	17	2.0	3.0	HH5X25	-	LW-4		
KGM% 1616H-3T20	●	●			16	16	4	16	100	36	14.8	20	3.0	4.0	SB-5TR	-	LTW-20	-
2012K-3T20	●	●			20	20	-	20	125		10.8				20	3.0	4.0	HH5X16	-	LW-4
2020K-3T20	●	●	20		20	-	20	125	18.8	20	3.0	4.0	HH5X25	-	LW-4			
2525M-3T20	●	●	25		25	-	25	150	23.8	20	3.0	4.0	HH5X25	-	LW-4			
KGM% 2020K-4T20	●	●	20		20	-	20	125	36	18.3	20	4.0	5.0	-	HH5X16	-	LW-4	
2525M-4T20	●	●	25		25	-	25	150		23.3				25	4.0	5.0	HH5X25	-	LW-4
2525M-4T25	●	●	25		25	-	25	150	41	23.3	25	4.0	5.0	-	HH5X25	-	LW-4	
KGM% 2525M-5T25	●	●	25		25	-	25	150	42	22.8	25	5.0	6.0	-	HH5X25	-	LW-4	
3232P-5T25	●	●	32		32	-	32	170		29.8				25	5.0	6.0	-	HH5X25	-	LW-4
KGM% 2525M-6T30	●	●	25	25	-	25	150	45	22.4	30	6.0	6.0	-	HH5X25	-	LW-4		

- Dimension CDX shows the distance from the toolholder to the cutting edge. Refer to the table (H34) for the relationship between available grooving depth and cutting diameter
- When using GMG / GMM type 2-edge insert, set groove depth under 0.591"(15mm)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **H34**

Applicable Inserts

Application	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Full-R / Copying	Cut-Off / Deep Grooving	Cut-Off / Deep Grooving	Cut-Off / Deep Grooving	Cut-Off / Deep Grooving	Cut-Off / Deep Grooving
Ref. Page	G44	G44	G44	G44	G45	H34	H34	H34	H34	H34
Shape	MW	MS	MG			MT	NB	TK	TK	
Toolholder										
KGM% ...1.5	-	-	-	-	-	GMM1520...MT GMM2020...MT GMM1520%...MT GMM2020%...MT	GMM1520...NB GMM2020...NB	GMM2020...T... GMM2020%...T...	GMN2...TK GM%2...TK	-
KGM% ...-2- KGM% ...-2(T)	GMM2420...MW GMM3020...MW	GMG3020...MS GMM3020...MS	GMG2520...MG GMM3020...MG	GMG3020...R GMM3020...R	-	GMM2020...MT GMM2520...MT GMM3020...MT GMM2020%...MT GMM2520%...MT GMM3020%...MT	GMM2020...NB GMM2520...NB GMM3020...NB	GMM2020...T... GMM2520...T... GMM3020...T... GMM2020%...T... GMM2520%...T... GMM3020%...T...	GMN2...TK GMN3...TK GM%2...TK GM%3...TK	GMN2.2 GMN3 GM%2.2 GM%3
KGM% ...2.5	GMM2420...MW GMM3020...MW	GMG3020...MS GMM3020...MS	GMG2520...MG GMM3020...MG	GMG3020...R GMM3020...R	-	GMM2520...MT GMM3020...MT GMM2520%...MT GMM3020%...MT	GMM2520...NB GMM3020...NB	GMM2520...T... GMM3020...T... GMM2520%...T... GMM3020%...T...	GMN3...TK GM%3...TK	GMN3 GM%3
KGM% ...-3(T)	GMM3020...MW GMM4020...MW	GMG3020...MS GMM3020...MS GMM4020...MS	GMG3020...MG GMM3520...MG GMM4020...MG	GMG3020...R GMM3020...R GMM4020...R	-	GMM3020...MT GMM3020%...MT	GMM3020...NB	GMM3020...T... GMM3020%...T...	GMN3...TK GMN4...TK GM%3...TK GM%4...TK	GMN3 GMN4 GM%3 GM%4
KGM% ...-4(T)	GMM4020...MW GMM5020...MW	GMG4020...MS GMM4020...MS GMM5020...MS	GMG4020...MG GMM5020...MG	GMG4020...R GMM4020...R GMM5020...R	-	-	-	-	GMN4...TK GMN5...TK	GMN4 GMN5 GM%4
KGM% ...-5(T)	GMM5020...MW GMM6020...MW	GMG5020...MS GMM5020...MS GMM6020...MS	GMG5020...MG GMM6020...MG	GMG5020...R GMM5020...R GMM6020...R	GMGA6020...R	-	-	-	-	GMN5 GMN6
KGM% ...-6(T)	GMM6020...MW	GMG6020...MS GMM6020...MS	GMG6020...MG	GMG6020...R GMM6020...R	GMGA6020...R	-	-	-	-	GMN6
KGM% ...8	GMM8030...MW	-	GMM8030...MG	-	GMGA8030...R	-	-	-	-	-

Recommended Cutting Conditions **H52**

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

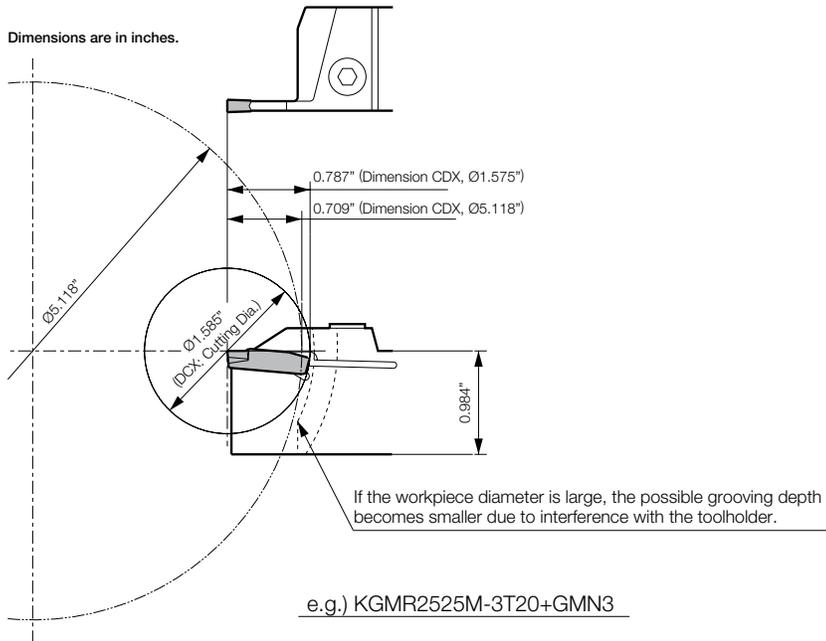


H37

RECOMMENDED CUTTING CONDITIONS

■ KGM • KGM-T Available Cutting Diameter

There is a limit to available grooving depth depending on the workpiece diameter



◆ KGM Available Cutting Diameter Table

Toolholders		DCX Cutting Diameter																
KGM %	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	-	10mm	14mm	16mm	32mm
	1010○-1.5...	-	-	-	-	-	-	-	-	20mm	25mm	32mm	40mm	60mm	∞	∞	∞	∞
	1212○-1.5...	-	-	-	-	-	25mm	26mm	28mm	32mm	36mm	40mm	60mm	100mm	∞	∞	∞	∞
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	-	10mm	14mm	16mm	32mm
	6-2-5	-	-	-	-	-	-	-	-	0.80"	1.00"	1.28"	1.60"	2.40"	∞	∞	∞	∞
	1010○-2...	-	-	-	-	-	-	-	-	20mm	25mm	32mm	40mm	60mm	∞	∞	∞	∞
	8-2-6	-	-	-	-	-	1.00"	1.04"	1.12"	2.00"	∞	∞	∞	∞	∞	∞	∞	∞
	1212○-2...	-	-	-	-	-	25mm	26mm	28mm	50mm	∞	∞	∞	∞	∞	∞	∞	∞
	1616○-2...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
	1010○-2.5...	-	-	-	-	-	-	-	-	20mm	25mm	32mm	40mm	60mm	∞	∞	∞	∞
	1212○-2.5...	-	-	-	-	-	25mm	26mm	28mm	32mm	36mm	40mm	60mm	100mm	∞	∞	∞	∞
	1616○-2.5...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
1616○-3...	32mm	40mm	50mm	60mm	80mm	100mm	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞	
Available Grooving Depth CDX (in)		0.64"	0.60"	0.56"	0.52"	0.50"	0.48"	0.44"	0.40"	0.36"	0.32"	0.28"	0.24"	0.20"	0.16"	0.12"	0.08"	0.04"
Available Grooving Depth CDX (mm)		16mm	15mm	14mm	13mm	12.5mm	12mm	11mm	10mm	9mm	8mm	7mm	6mm	5mm	4mm	3mm	2mm	1mm

◆ KGM-T Available Cutting Diameter Table (GMN, GM% When Using 1-edge Insert)

Toolholders		DCX Cutting Diameter												
KGM%	2012K-2T17	-	-	-	-	-	-	-	-	66mm	80mm	130mm	260mm	∞
	12-2T	-	-	-	-	-	-	-	-	2.64"	3.20"	5.20"	10.40"	
	2020K-2T17	-	-	-	-	-	-	-	-	66mm	80mm	130mm	260mm	
	16-2T	-	-	-	-	-	-	-	-	2.64"	3.20"	5.20"	10.40"	
	2525M-2T1710	-	-	-	-	-	-	-	-	66mm	80mm	130mm	260mm	
	1616H-3T20	-	-	-	-	-	40mm	54mm	70mm	100mm	180mm			
	2012K-3T20	-	-	-	-	-	40mm	90mm	130mm	240mm				
	12-3T	-	-	-	-	-	1.60"	3.60"	5.20"	9.60"				
	2020K-3T20	-	-	-	-	-	40mm	90mm	130mm	240mm				
	16-3T	-	-	-	-	-	1.60"	3.60"	5.20"	9.60"				
	2525M-3T20	-	-	-	-	-	40mm	90mm	130mm	240mm				
	12-4T	-	-	-	-	-	1.60"	3.60"	5.20"	9.60"				
	2020K-4T20	-	-	-	-	-	40mm	90mm	130mm	240mm				
	2525M-4T20	-	-	-	-	-	40mm	90mm	130mm	240mm	∞	∞	∞	
	16-4T	-	-	2.00"	5.60"	9.60"								
	2525M-4T25	-	-	50mm	140mm	240mm								
	16-5T	-	-	2.00"	5.60"	9.60"								
	2525M-5T25	-	-	50mm	140mm	240mm	∞	∞	∞	∞				
	3232P-5T25	-	-	50mm	280mm	600mm								
	2525M-6T30	100mm	300mm	∞	∞	∞								
Available Grooving Depth CDX (in)		1.20"	1.08"	1.00"	0.92"	0.88"	0.80"	0.76"	0.72"	0.68"	0.64"	0.60"	0.56"	<0.52"
Available Grooving Depth CDX (mm)		30mm	27mm	25mm	23mm	22mm	20mm	19mm	18mm	17mm	16mm	15mm	14mm	<13mm

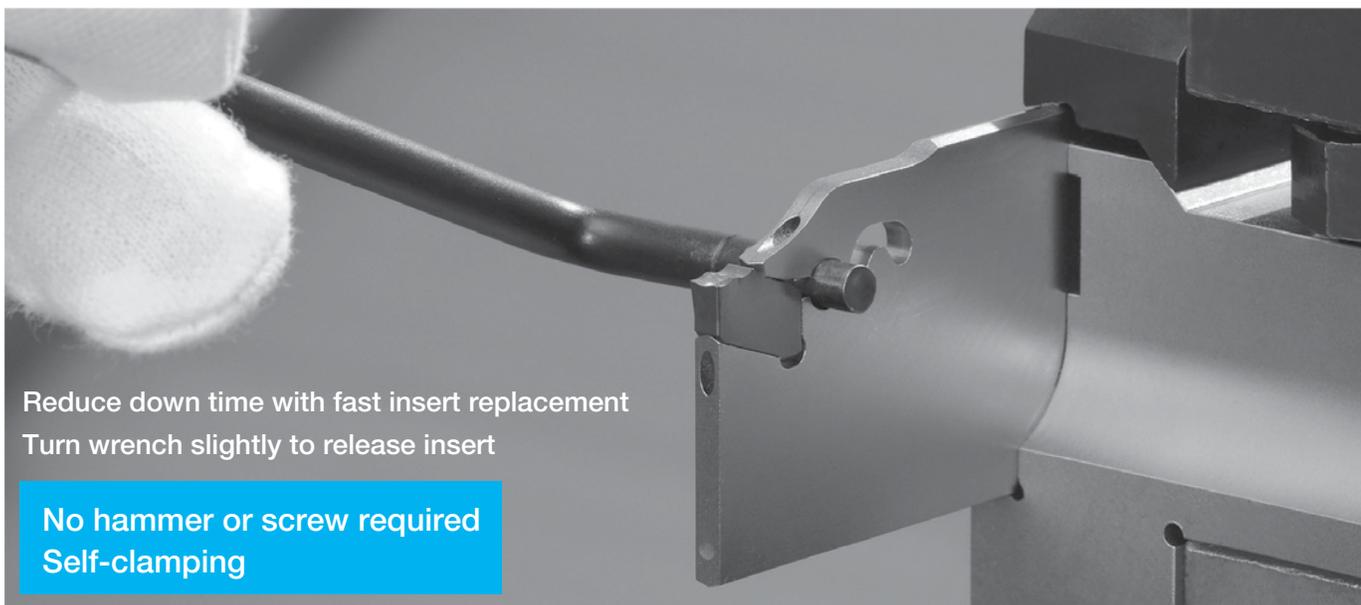
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KPK Series

High-Performance Cut-Off Solutions

Easy Insert Replacement Reduces Downtime
High-Performance, Long Tool Life and Stable Machining with Strong Clamping Mechanism

1 Easy Insert Replacement

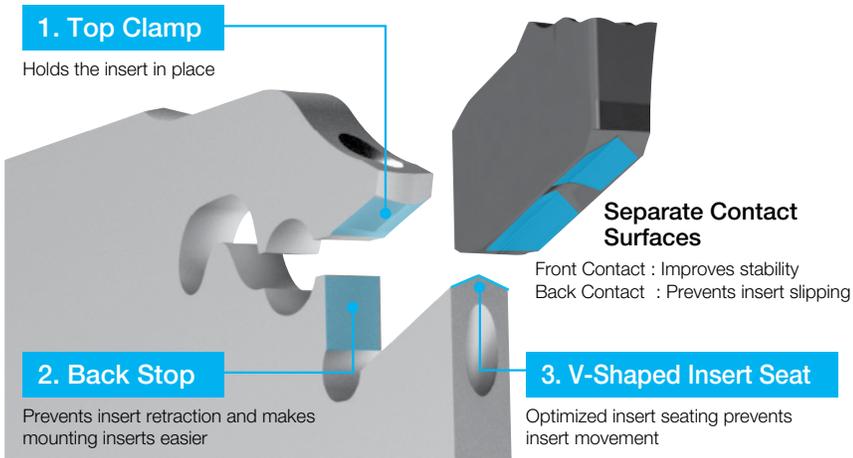


Reduce down time with fast insert replacement
Turn wrench slightly to release insert

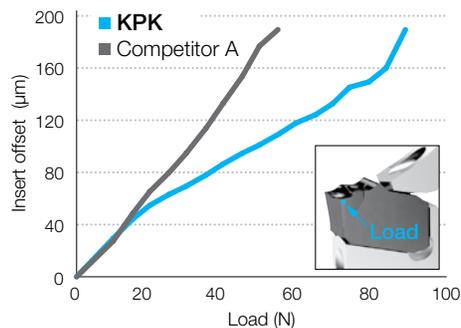
No hammer or screw required
Self-clamping

2 Firm Insert Clamp Ensures Added Safety and Security

The firmly secured insert uses three contact surfaces to eliminate sliding or chattering



Insert Deviation Comparison (Internal Evaluation)



3 Unique Chipbreaker Designs for Long Tool Life and Stable Machining

Advanced chipbreaker technology inherited from KGD lineup provides excellent chip control



PM Chipbreaker
General Purpose

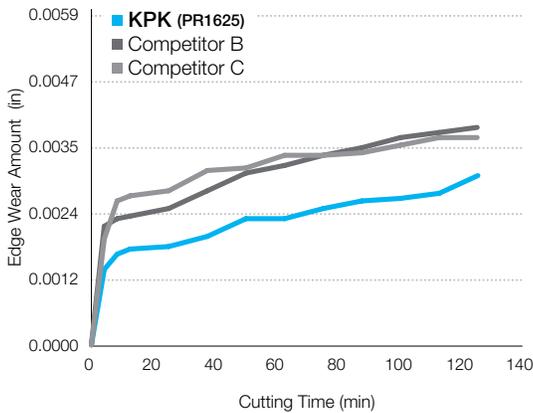
Insert Grades
Steel : PR1625
Stainless Steel : PR1535
Cast Iron and Aluminum : GW15



PH Chipbreaker
Tough Edge
High-Feed

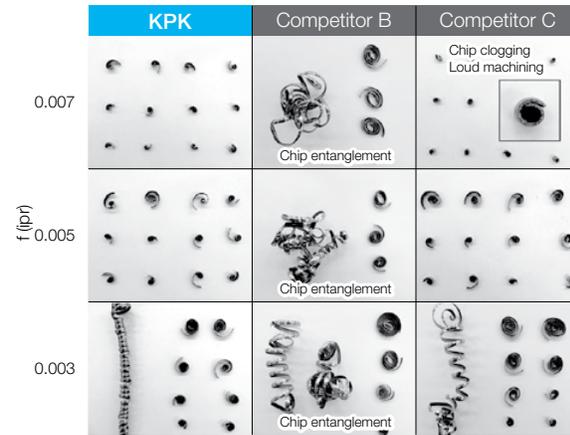
Insert Grades
Steel : PR1625
Stainless Steel : PR1535

Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions : n = 955 RPM (constant), Vc = ~ 490 sfm
 f = 0.005 ipr (~ 0.394" : f = 0.002 ipr) Wet (External Coolant)
 Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

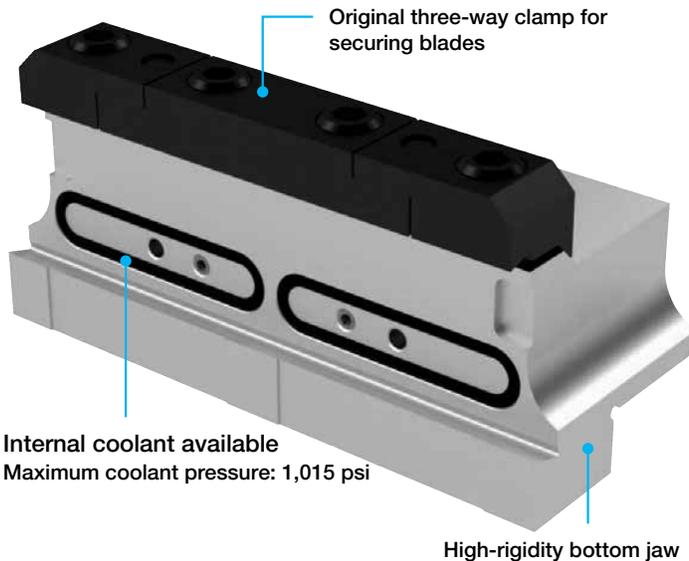
Chip Control Comparison (Internal Evaluation)



Cutting Conditions : n = RPM (constant) , Vc = ~ 390 sfm , Wet (External Coolant)
 Workpiece : 4131 (ø1.969") Cutting Width : 0.118" (3mm), PM Chipbreaker

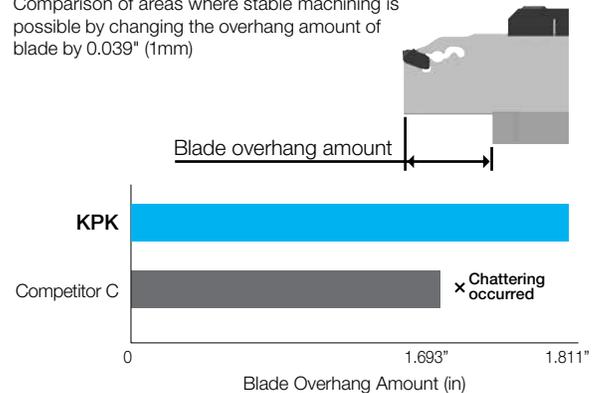
4 Rigid Tool Holder Block Prevents Chattering and Provides Internal Coolant

KPKTB-JCT



Chatter Resistance Comparison (Internal evaluation)

Comparison of areas where stable machining is possible by changing the overhang amount of blade by 0.039" (1mm)



Cutting Conditions : n = 650 RPM (Constant), Vc = ~ 330 sfm, f = 0.005 ipr
 Wet (Internal Coolant : Normal Pressure), Workpiece : 4137 (ø1.969")
 Cutting Width : 0.118" (3mm), PM Chipbreaker

KTKTB block is compatible with internal coolant with an optional internal connector. (~145 psi)

See Coolant Supply Method (Type C) H46

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

KPK CUT-OFF SYSTEM

PKM Inserts NEW

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

P	Carbon Steel / Alloy Steel	●	○	
M	Stainless Steel	○	●	
K	Cast Iron			●
N	Non-ferrous Metals			●

Insert Right-handed Insert Shown	Part Number	Dimensions (in)		RE	PSIR %	MEGACOAT NANO			Carbide	Ref. Page for Toolholder
		CW				PR1625	PR1535	GW15		
		inch	mm							
 General Purpose	PKM 20N-020PM	0.079	2.0	0.008	-	●	●	●	H43	
	30N-025PM	0.118	3.0	0.010		●	●	●		
	40N-030PM	0.157	4.0	0.012		●	●	●		
 Tough Edge	PKM 20N-020PH	0.079	2.0	0.008	-	●	●		H43	
	30N-030PH	0.118	3.0	0.012		●	●			
	40N-030PH	0.157	4.0	0.012		●	●			
 With Lead Angle	PKM 20 ^{R/L} -020PM-6D	0.079	2.0	0.008	6°	●	●	●	H43	
	30 ^{R/L} -025PM-6D	0.118	3.0	0.010		●	●	●		
	40 ^{R/L} -030PM-6D	0.157	4.0	0.012		●	●	●		

Recommended Cutting Conditions

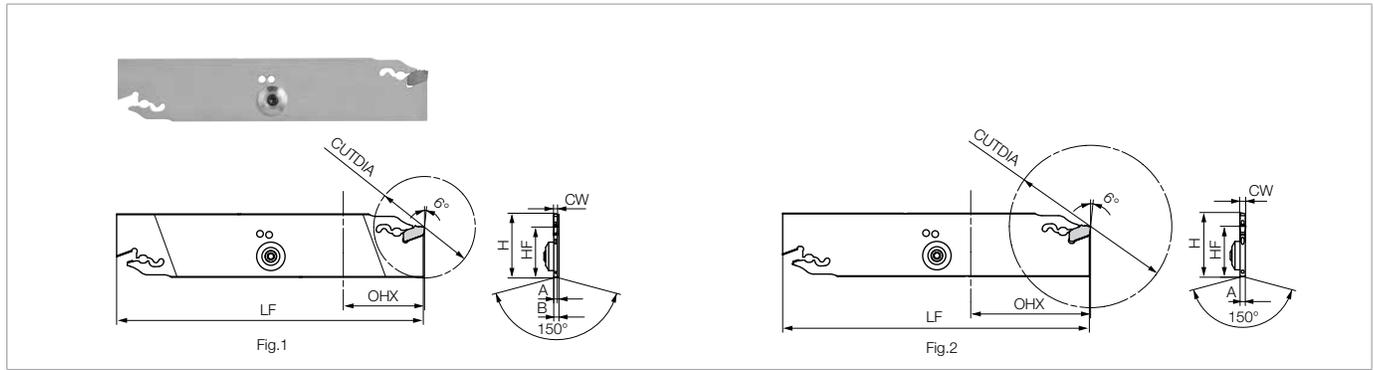
Workpiece Material	Recommended Grade (Vc sfrm)			PM	PH		Notes
	MEGACOAT NANO		Carbide	Width (CW)			
	PR1625	PR1535	GW15	0.079"~0.157" (2.00mm~4.00mm)	0.079" (2.00mm)	0.118"~0.157" (3.00mm~4.00mm)	
	Feed Rate (ipr)						
Carbon Steel	★ 260 ~ 720	☆ 260 ~ 720	-	0.003 ~ 0.007	0.004 ~ 0.009	0.006 ~ 0.011	Wet
Alloy Steel	★ 230 ~ 660	☆ 230 ~ 660	-				
Stainless Steel	☆ 200 ~ 490	★ 200 ~ 490	-	0.002 ~ 0.005	0.002 ~ 0.005	0.003 ~ 0.006	
Cast Iron	-	-	★ 160 ~ 330	0.003 ~ 0.007	-	-	
Aluminum	-	-	★ 660 ~ 1,480	0.003 ~ 0.007	-	-	
Brass	-	-	★ 330 ~ 660	0.003 ~ 0.007	-	-	

Reduce feed to 1/2 ~ 1/3 when nearing the center of the workpiece.

★ : 1st Recommendation ☆ : 2nd Recommendation

KPKB-JCT (Jet Coolant-Through) NEW

Coolant Piping Parts H47 Pressure 1,015 psi



Blade Dimensions (Metric Sizes)

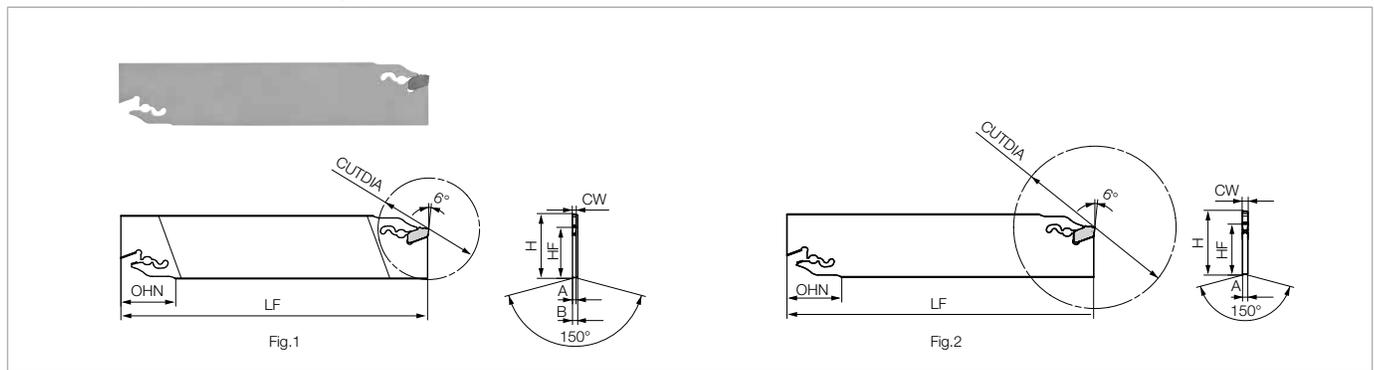
Part Number	Stock	Cut-Off Dia.	Dimensions (mm)						Insert Width	Drawing	Spare Parts				Applicable Inserts H42	Applicable Blocks H44					
			CUTDIA	OHX*1	H*2	HF	B	LF			A	CW	Insert Wrench	Coolant Plug			Screw	Wrench			
KPKB 26-2JCT	●	50	40	26	21.4	2.6	110	1.8	2.0	Fig.1	LPW-5	CCP-4	SB-4065TR	FT-15	PKM20...	KPKTB00-26JCT					
26-3JCT	●	75																			
26-4JCT	●	80																			
KPKB 32-2JCT	●	50	59	32	25.0	2.6	150	1.8	2.0	Fig.1							Coolant Plug Screw Tightening Torque 3.0 Nm			PKM20...	KPKTB00-32JCT
32-3JCT	●	100																			
32-4JCT	●	100																			

See Page H45 for insert mounting and removal instructions.

When using internal coolant with KTKTB, KTKTBF type tool holder blocks, coolant supply piping (CCN -5) sold separately.

*1 OHX: Maximum overhang length while using internal coolant *2 H: Length between virtual apex

KPKB (Not Coolant-Through) NEW



Blade Dimensions (Metric Sizes)

Part Number	Stock	Cut-Off Dia.	Dimensions (mm)						Insert Width	Drawing	Spare Parts	Applicable Inserts H42	Applicable Blocks H44					
			CUTDIA	OHN	H*2	HF	B	LF						A	CW			
KPKB 26-2	●	50	25	26	21.4	-	110	1.8	2.0	Fig.2	LPW-5		PKM20...	KPKTB00-26JCT				
26-3	●	75																
26-4	●	80																
KPKB 32-2	●	50	27	32	25.0	-	150	1.8	2.0	Fig.1					Coolant Plug Screw Tightening Torque 3.0 Nm		PKM20...	KPKTB00-32JCT
32-3	●	100																
32-4	●	100																

See Page H45 for insert mounting and removal instructions.

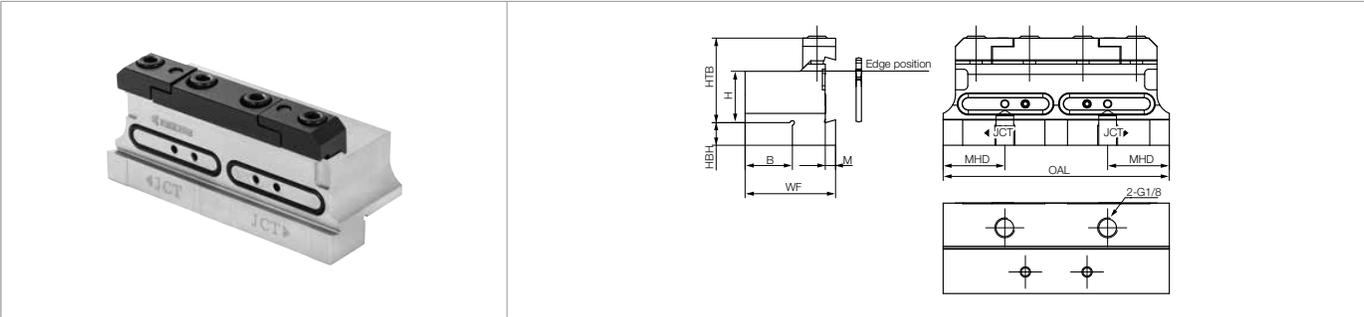
*2 H: Length between virtual apex

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

TOOL BLOCKS (BLADE HOLDER)

KPKTB-JCT (Jet Coolant-Through) NEW

Coolant Piping Parts H47 Pressure 1,015 psi



● Toolblock Dimensions (Metric Sizes)

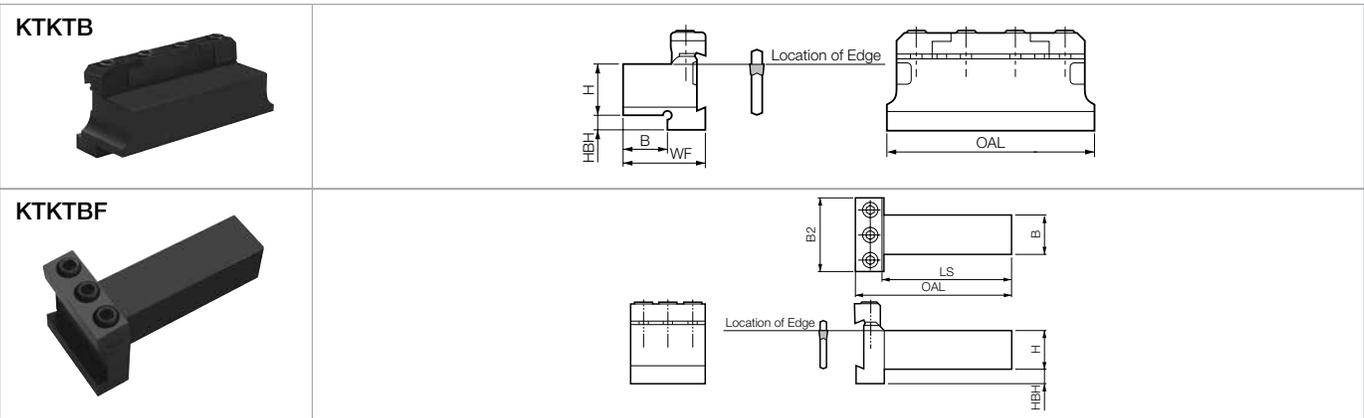
Part Number	Stock	Dimensions (mm)								Spare Parts						Applicable Blades ● H43, H49 ● G137
		H	HTB	HTH	B	WF	M	MHD	OAL	Clamp Set Switchblade type	Screw	Wrench	O-ring	Plug 1	Plug 2	
KPKTB 20-26JCT	●	20	33	12.4	19	39	4	23.5	86	BCS-2	HH6x16	LW-5	GR-020	HS3x4	HSG1/8X8.0	KPKB26-○JCT KTKB26-○
20-32JCT	●	20	41	16		40	5	25	100	BCS-3			GR-026	HS4x4		KPKB32-○JCT KTKB32-○
25-32JCT	●	25		11	23	44	3.4	30	110	BCS-4			GR-029				KFTB%.....-4S KFTB%.....-5S
26-4JCT	●	25	11	23	44	3.4	30	110	BCS-4	GR-029			KFTB%.....-4S KFTB%.....-5S			

Includes only one HSG1/8X8.0 plug.

KPKTB-JCT type block is also compatible with conventional KTKB type blades.

When using internal coolant, the coolant may appear to leak slightly, but this should not affect machining performance. (If the O-ring is damaged, order a new one separately.)

■ KTKTB / KTKTBF (Separate Toolblock Holder / Perpendicular Type)



● Toolblock Dimensions

Part Number	Stock	Unit	Dimensions						Spare Parts				Applicable Blade	
			H	HBH	B	B2	OAL	LS	Clamp Set		Screw	Wrench	Cut-Off	Face Grooving
								Separate Type		Integral Type				
KTKTB 19-19	●	Inch	0.75	0.19	0.720	1.31	2.99	-	-	BCS-1	HH5X25	LW-4	KTKB19-OS KTKB19-1SS	-
19-26	●		0.75	0.39	0.720	1.39	3.39	-	BCS-2	-	HH6X30	LW-5	* KPKB26-○ (JCT) KTKB26-OS KTKB26-1SS	-
25.4-32	●		1.00	0.30	0.905	1.65	4.33	-	BCS-4	-	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S
KTKTB 16-19	●	mm	16	4	15.5	29.5	76	-	-	BCS-1	HH5X25	LW-4	KTKB19-OS KTKB19-1SS	-
20-19	●		20	4	19	34	76	-	-	BCS-1	HH5X25	LW-4	KTKB19-OS KTKB19-1SS	-
16-26	●		16	13	15.5	31.5	86	-	-	BCS-2	HH6X30	LW-5	* KPKB26-○ (JCT) KTKB26-OS KTKB26-1SS	-
20-26	●		20	9	19	36	86	-	-	BCS-2	HH6X30	LW-5	* KPKB26-○ (JCT) KTKB26-OS KTKB26-1SS	-
20-32	●		20	13	19	38	100	-	-	BCS-3	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S
25-32	●		25	8	23	42	110	-	-	BCS-3	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S
32-32	●		32	5	29	48	110	-	-	BCS-4	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S
KTKTBF 25-32	●	mm	25	9.5	25	48	102	84.5	-	BCS-5	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S
32-32	●		32	2.5	32	48	117	99.5	-	BCS-5	HH6X30	LW-5	* KPKB32-○ (JCT) KTKB32-OS KTKB32-1SS KTKB%32-OS	KFTB%.....-4S KFTB%.....-5S

* KPKB-JCT Blades can be used with internal coolant by utilizing compatible coolant piping (CCN-5). See Page H47

How to Mount and Remove Inserts from Blade

1. Insert provided wrench and turn upwards as shown in (Fig. 1)
2. Slide insert into the blade's insert pocket from the front and push in until the back of the insert contacts the blade's back stop surface. (Fig. 2)

Completely eliminate chips from the insert pocket and the wrench insertion area by using compressed air.
Check to make sure the insert is straight and not tilted.

When removing the insert, follow the same procedure as shown in Fig. 2



Fig. 1 Wrench Usage

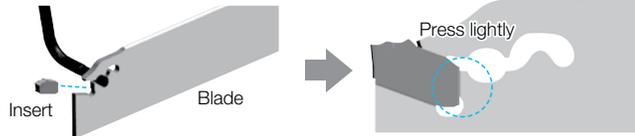
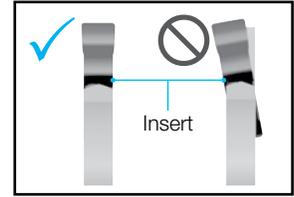
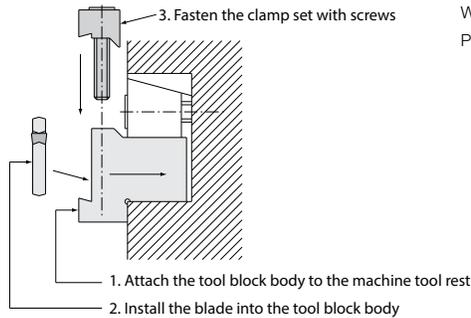


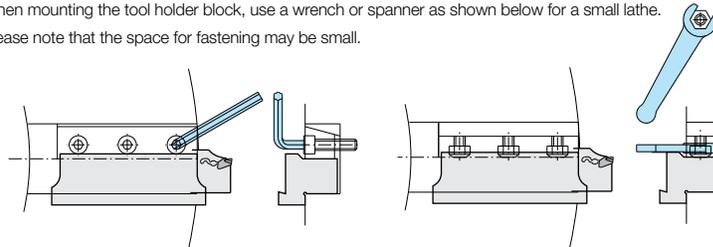
Fig. 2 Mounting Method



Tool Block and Blade Installation Guide

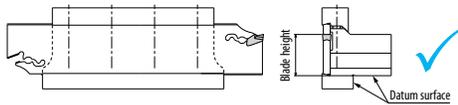


When mounting the tool holder block, use a wrench or spanner as shown below for a small lathe. Please note that the space for fastening may be small.

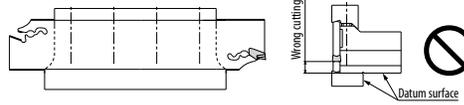


How to Install the Tool Block and Blade

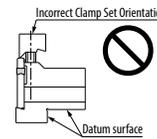
Correct blade installation



Incorrect blade installation



Incorrect Clamp Set Orientation



If the clamp set is mounted in the reverse direction, a large gap is created between the tool holder block main body and the clamp set as shown in the left figure. If you continue to use the product, the blade may break off. Reinstall in the correct orientation.

Lead Angle Direction and Usage

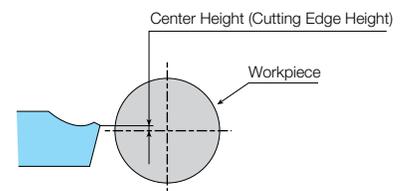
1. If there is no restriction on the finished shape, use an insert without lead angle.
2. Insert with lead angle is recommended to prevent remaining boss.
3. If you want to make the remaining boss smaller when machining small or thin parts, use insert with lead angle.

	N (Neutral)	R (Right-hand)	L (Left-hand)
Handed insert with lead angle			
	<ul style="list-style-type: none"> • Inserts with lead angle (PSIR^{R/L}) reduce burrs in cut-off machining. • The larger the lead angle (PSIR^{R/L}), the smaller the cutting force. The feed also needs to be lower. 		

	Right-hand (R) Lead Neutral	Neutral	Right-hand (R) Lead Neutral	Neutral
Solid Workpiece				
Hollow Workpiece (Pipe)				

Machining Precautions

1. Set cutting edge height 0.004" (0.1mm) above core height.
 2. Machining with ample supply of coolant is recommended
 3. Machine at constant speeds to gain stable tool life
 4. Make the cut-off as close as possible to the chuck
 5. To prevent impacts, reduce feed rate by 1/2 ~ 1/3 when nearing the center of the workpiece
- Excessive use of the insert may cause chipping or damage to the holder

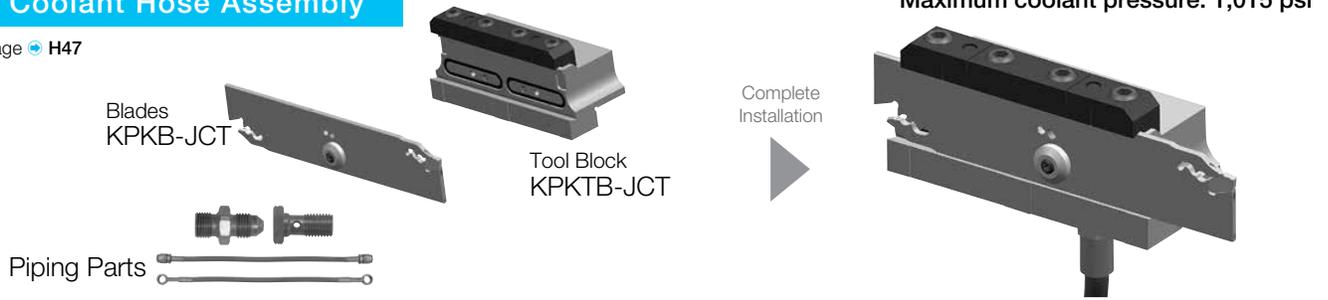


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Internal Coolant Connection Methods (Method will be determined by machine specifications and requirements)

A : Coolant Hose Assembly

See Page [H47](#)



B : VDI Holder Assembly

(Internal coolant type)

Maximum coolant pressure: 1,015 psi



C: Coolant Pipe Assembly

See Page [H47](#)

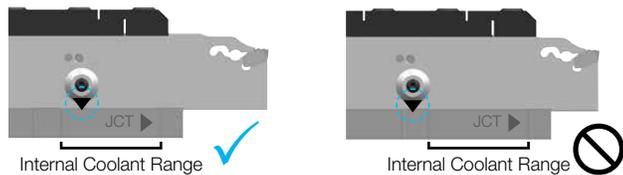
Maximum coolant pressure: 145 psi



Precautions

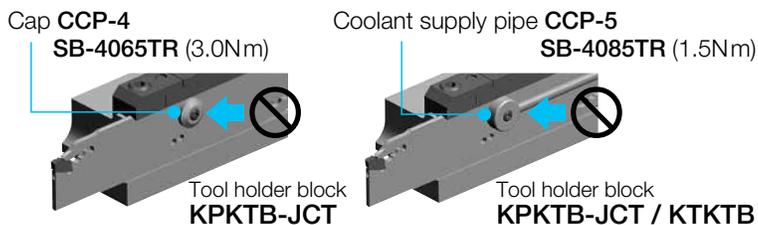
When mounting KPKB-JCT blade

When using internal coolant, keep the arrow (▼) on the blade within the range marked on the tool holder block.



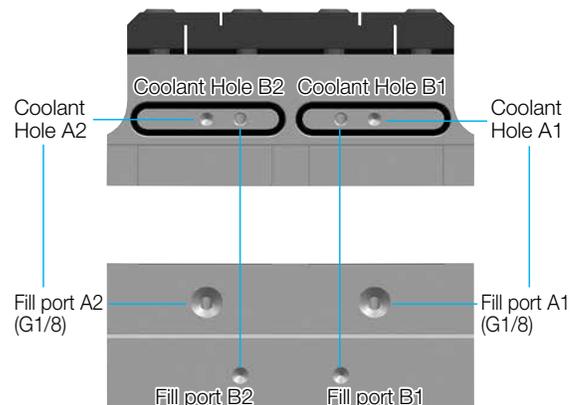
When the cap and coolant supply pipe are mounted

Coolant cannot be supplied correctly if it is mounted in the wrong position.



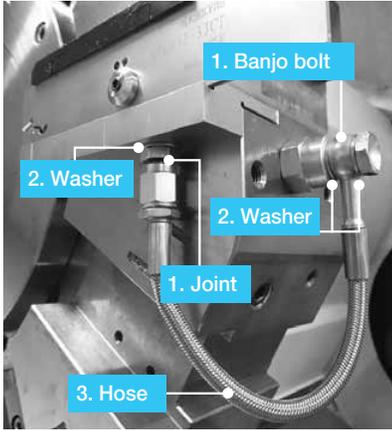
When using a tool block

When using the discharge port B1 (B2), use a sealant for the filler cap (HSG 1/8 X 8.0) of the accessory part of the coolant supply port A1 (A2).



A : Coolant Hose Assembly

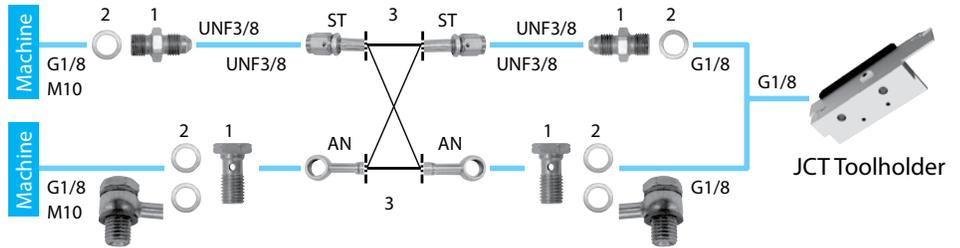
Connection Method and Piping Parts



Easy to use with high-pressure hose and joint

Can be used for internal coolant at normal pressure without a high pressure pump unit
Banjo bolts (for angled hoses) are also available.

<Piping Installation Guide>



Depending on machine specifications and piping methods, **1. Joint/Banjo bolt x2** **2. Washer x2-4** **3. Hose x1**

1. Joint / Banjo Bolt (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Stock	Thread Standard	
			Toolholder	Machine Connection Side
	J-G1/8-UNF3/8	●	G1/8	
	J-M10X1.5-UNF3/8	●	M10X1.5	
Banjo Bolt (for Angled Hoses)	BB-G1/8	●	G1/8	
	BB-M10X1.5	●	M10X1.5	

2. Washer (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Stock
	WS-10	●

*If you are using a banjo bolt, two washers are needed.

3. Hose (Sold Separately)

Pressure Resistance: ~ 4,350 psi

Shape	Part Number	Stock	Thread Standard		Dimensions (mm)
			Toolholder	Machine Connection Side	L
Straight/Straight	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
Straight/Angled	HS-ST-AN-200	●	UNF3/8	-	200
	HS-ST-AN-250	●			250
Angled/Angled	HS-AN-AN-200	●	-	-	200
	HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

C: Coolant Pipe Assembly

Piping Parts

Coolant Supply Pipe (Sold Separately)

Pressure Resistance: 145 psi

Shape	Part Number	Stock	Dimensions (mm)				Spare Parts (Screw)
			A	B	C	D	
	CCN-5	●	190	16	5	6	SB-4085TR

Use wrench (FT -15) supplied with the blade when connecting.

CUT-OFF INSERTS

TKN / TK^{RL}

Classification of Usage		P	Carbon Steel / Alloy Steel	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
●	Light Interruption / 1st Choice	M	Stainless Steel		○	●														
○	Light Interruption / 2nd Choice	K	Cast Iron																	
●	Continuous / 1st Choice	N	Non-ferrous Metals																	
○	Continuous / 2nd Choice																			

Insert Right-handed Insert Shown	Part Number	Dimensions (in)			Angle (°)	Cermet		CVD Coated Carbide CR9025	MEGACOAT NANO PR1535	PVD Coated Carbide		Carbide KW10	Ref. Page for Toolholder										
		CW		RE		PSIR ^{RL}	TN620			TN90	PR660			PR930									
		inch	mm																				
Neutral 	TKN 1.6	0.063	1.6	0.006	-			●	●		●	●	H49										
	2	0.087	2.2	0.008		●	●	●	●		●	●	H49										
	2.4	0.094	2.4	0.008		●	●	●	●		●	●	H50										
	3	0.122	3.1	0.010		●	●	●	●		●	●	H49										
	4	0.161	4.1	0.012		●	●	●	●		●	●	H50										
	4.8	0.189	4.8	0.012				●	●														
	5	0.201	5.1	0.012				●	●		●	●											
	6	0.252	6.4	0.014				●	●				●										
	8	0.315	8.0	0.016				●	●														
	9	0.378	9.6	0.018				●	●						H49								
Low Feed 	TKN 1.6-P	0.063	1.6	0.008	-			●	●			●	H49										
	2-P	0.087	2.2	0.008		●	●	●	●		●	●	H50										
	3-P	0.122	3.1	0.010		●	●	●	●		●	●	H50										
With Lead Angle 	TK ^{RL} 1.6	0.063	1.6	0.006	8°	R	L	R	L	R	L	R	L	R	L	R	L	R	L	H49			
	2	0.087	2.2	0.008		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H49	
	2.4	0.094	2.4	0.008		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H50	
	3	0.122	3.1	0.010		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H50	
	4	0.161	4.1	0.012		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H50	
	5	0.201	5.1	0.012		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H50	
	TK ^{RL} 1.6-P	0.063	1.6	0.008		8°				●												H49	
	2-P	0.087	2.2	0.008			●	●	●	●		●	●										H50
	3-P	0.122	3.1	0.010			●	●	●	●		●	●										H50

Recommended Cutting Conditions H53

Cut-Off Tools

Name	Chipbreaker	Advantages
General Cut-Off	Standard (No Indication) 	General cut-off type for feed rates over 0.004ipr Superior chip evacuation
Low Feed Cut-Off	P 	Chipbreaker specially designed for low feed machining on automatic lathes, etc. Chips are controlled at feed rates between 0.0012~0.0032ipr

Insert's Edge Shape (CERACUT Cut-Off)

Edge Preparation	Chamfered + Honed	Sharp Edge	Honed Cutting Edge
			
Standard Chipbreaker	TN90 CR9025 / PR660	PR1535 PR930 / KW10	-
P-Chipbreaker	-	-	TN620 / TN90 / CR9025 / PR1535 PR660 / PR930 / KW10

• Sharp edge can reduce cutting resistance by 40%, compared with chamfered edge.

TKN / TK^{RL} Setup

1. Tap the insert lightly with a plastic hammer to push it tight enough that it cannot be removed by hand. (Fig.1)
2. Remove the insert with the supplied wrench. (Fig.2)

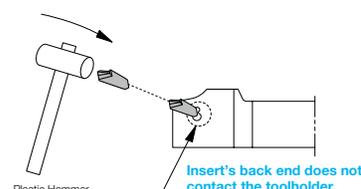


Fig. 1 How to Attach Inserts

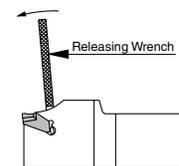
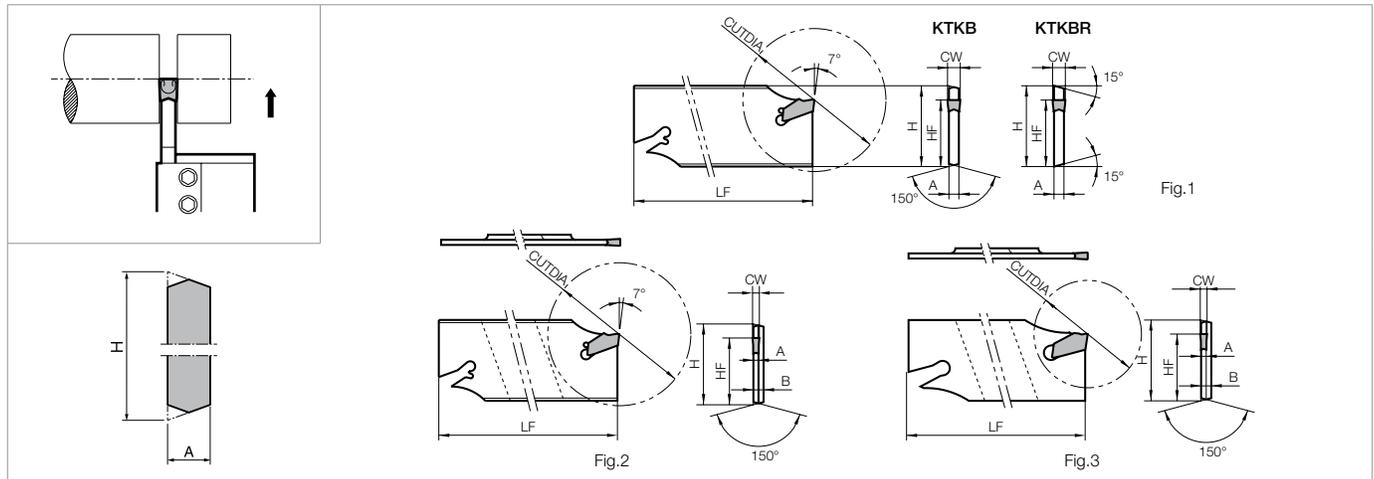


Fig. 2 How to Detach Inserts

Inserts are sold in 10 piece boxes

■ KTKB-SS / KTKB-S



● Blade Dimensions

Part Number	Stock	Cut-Off Dia.	Dimensions (mm)					Insert Width	Drawing	Applicable Inserts H48				Applicable Blocks H44
			CUTDIA	*H	HF	B	LF			A	CW			
KTKB 19-1SS	●	32	19	15.7	2.4	86	1.2	1.6	Fig. 3	TKN1.6	TKN1.6-P	TK%L 1.6	TK%L 1.6-P	KTKTB 16-19 20-19
KTKB 26-1SS	●	35	26	21.4	2.4	110	1.2	1.6	Fig. 3	TKN1.6	TKN1.6-P	TK%L 1.6	TK%L 1.6-P	KTKTB 16-26 20-26 KPKTB 20-26JCT
KTKB 32-1SS	●	35	32	25	2.4	150	1.2	1.6	Fig. 3	TKN1.6	TKN1.6-P	TK%L 1.6	TK%L 1.6-P	KTKTB 20-32 25-32 32-32 KTKTBF 25-32 32-32 KPKTB 20-32JCT 25-32JCT 32-32JCT
KTKB 19-2S	●	40	19	15.7	-	86	1.8	2.2 2.4	Fig. 1	TKN2 TKN2.4	TKN2-P	TK%L 2 TK%L 2.4	TK%L 2-P	KTKTB 16-19 20-19
KTKB 26-2S	●	50	26	21.4	-	110	1.8	2.2 2.4		TKN2 TKN2.4	TKN2-P	TK%L 2 TK%L 2.4	TK%L 2-P	KTKTB 16-26 20-26 KPKTB 20-26JCT
KTKB 26-3S	●	75					2.6	3.1		TKN3	TKN3-P	TK%L 3	TK%L 3-P	
KTKB 26-4S	●	80					3.4	4.1		TKN4	-	TK%L 4	-	
KTKB 26-5S	●	80					4.2	4.8 5.1		TKN4.8 TKN5	-	TK%L 5	-	
KTKB 32-2S	●	50	32	25	-	150	1.8	2.2 2.4	Fig. 2	TKN2 TKN2.4	TKN2-P	TK%L 2 TK%L 2.4	TK%L 2-P	KTKTB 20-32 25-32 32-32 KTKTBF 25-32 32-32 KPKTB 20-32JCT 25-32JCT 32-32JCT
KTKB 32-3S	●	100					2.6	3.1		Fig. 1	TKN3	TKN3-P	TK%L 3		TK%L 3-P
KTKB 32-4S	●	100					3.4	4.1	TKN4		-	TK%L 4	-	
KTKB 32-5S	●	120					4.2	4.8 5.1	TKN4.8 TKN5	-	TK%L 5	-		
KTKB 32-6S	●	120					5.4	6.4	TKN6	-	-	-		
KTKB%L 32-8S	●	120					6.8	8.0	TKN8	-	-	-		
KTKBR 32-9S	●	120	8.0	9.6	TKN9	-	-	-						

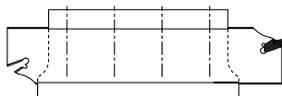
Note) 1. "-SS" means hard coated
2. Releasing wrench is "LTK-5"

* Dimension H shows virtual apex distance.

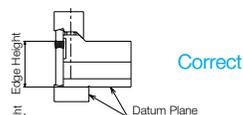
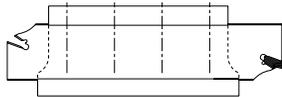
Recommended Cutting Conditions **H53**

◆ Toolblock and Blade Installation

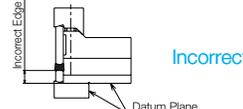
Correct Way



Incorrect Way

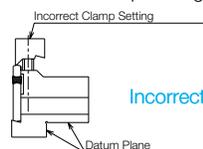


Correct



Incorrect

Incorrect Clamp Setting



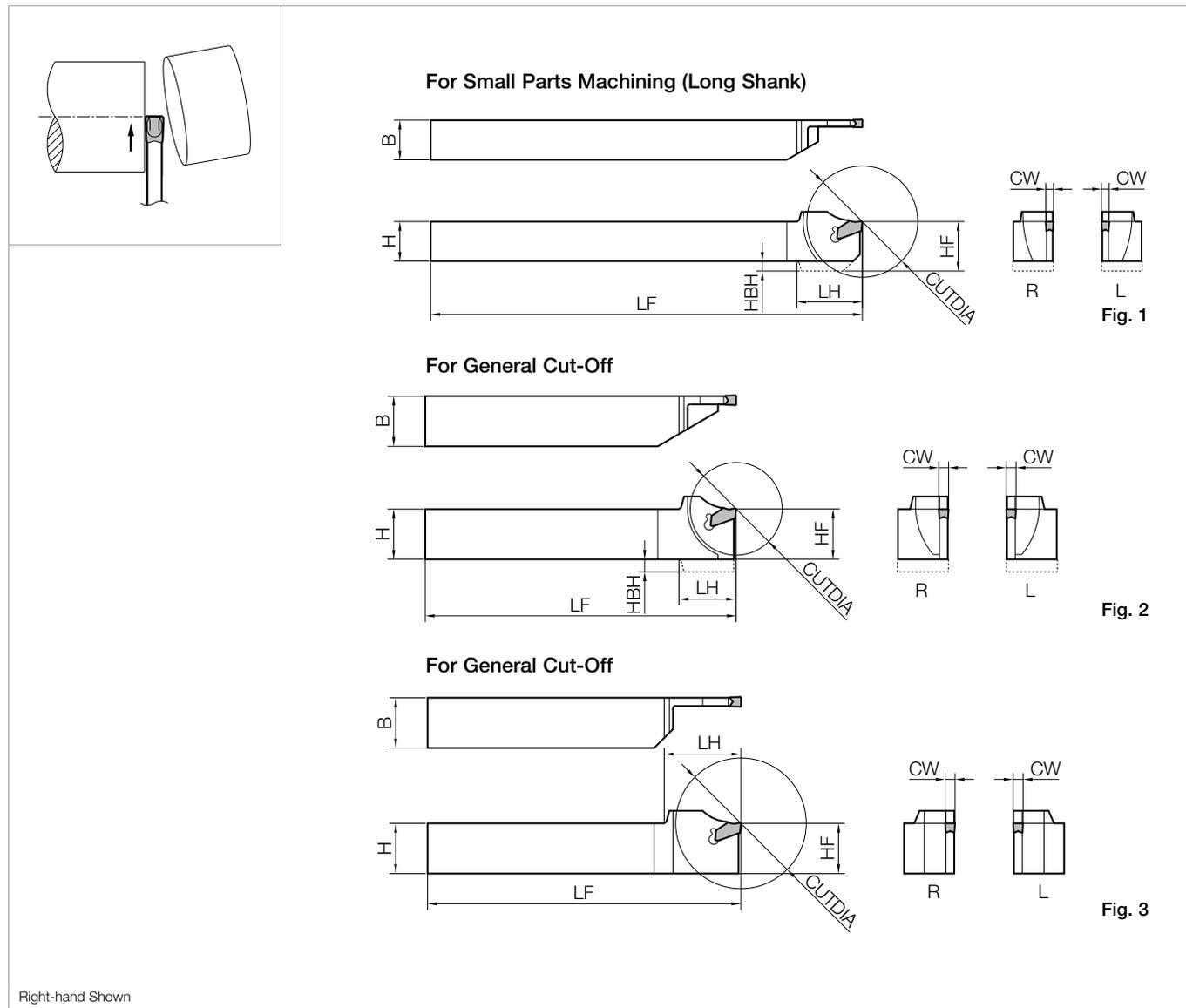
Incorrect

If the clamp element is mounted backward, a large gap will occur between the clamp and the toolblock, and the blade may come off during machining. Be careful when installing the clamp for safety.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

CUT-OFF TOOLHOLDERS (INTEGRAL SHANK)

KTKH-S



Toolholder Dimensions for Small Parts Machining (Long Shank Type)

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions (in)						Insert Width	Drawing	Spare Parts Supplied Wrench
	R	L			CUTDIA	H	HF	HBH	B	LF				LH	CW
KTKH% 8-1.6-6S	●	●	inch	1.100	0.500	0.500	0.000	0.500	6.000	0.670	0.063	Fig.1	LTK-5
6-2-5S	●	●		1.100	0.375	0.375	0.200	0.375	5.000	0.690	0.087		
8-2-6S	●	●		1.100	0.500	0.500	0.160	0.500	6.000	0.700	0.094		

Recommended Cutting Conditions ● H53

CUT-OFF TOOLHOLDERS (INTEGRAL SHANK)

● Toolholder Dimensions for General Cut-Off

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions						Insert Width	Drawing	Spare Parts Supplied Wrench	
	R	L			CUTDIA	H	HF	HBH	B	LF				LH	CW
KTKH% 12-2S	●		inch	1.400	0.750	0.750	0.000	0.750	5.000	0.870	0.087 0.094	Fig.2	LTK-5	
	●	●		2.000	0.750	0.750		0.750	5.000	1.190	0.122			
	●	□		2.000	1.000	1.000		1.000	6.000	1.210	0.122	Fig.3		
	●			2.300	0.750	0.750	-	0.750	5.000	1.350	0.161			
	●			2.600	1.000	1.000		1.000	6.000	1.360	0.161			
	●	□		3.000	1.000	1.000		1.000	6.000	1.560	0.189 0.201			
KTKH% 1010F-2S	●	●	mm	28	10	10	5	10	80	18.6	2.2 2.4	Fig.2		LTK-5
	●	●		31	12	12	4	12	100	19.8				
	●	●		31	16	16	-	12	100	19.8				
	●	●		31	16	16	-	16	100	19.8				
	●	●		36	20	20	-	12	125	22.8				
	●	●		36	20	20	-	20	125	22.8	3.1	Fig.2		
	●	●		35	16	16	4	12	100	21.7				
	●	●		35	16	16	4	16	100	21.7				
	●	●		40	20	20	-	12	125	25.3				
	●	●		51	20	20	-	20	125	31.0				
	●	●		52	25	25	-	25	150	31.5	4.1	Fig.3		
	●	●		43	20	20	-	12	125	26.3				
	●	●		59	20	20	-	20	125	35.0				
	●	●		66	25	25	-	25	150	38.0	4.8, 5.1	Fig.3		
	●	●		77	25	25	-	25	150	43.5				
●	●	77	25	25	-	25	150	43.5						
KTKH% 2020K-3T17S	●	●	mm	33	20	20	-	20	125	21.8	3.1	Fig.2	LTK-5	
	●	●		43	25	25	-	25	150	26.8				
	●	●		44	20	20	-	20	125	26.8				
	●	●		44	25	25	-	25	150	26.8				

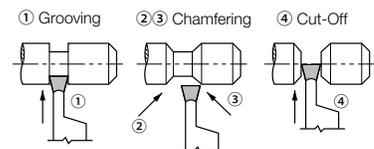
Recommended Cutting Conditions ● H53

● Applicable Inserts

Ref. Page	● H48			
Shape	● H48			
Toolholder	Low Feed	With Lead Angle	Low Feed / Lead-Angle	
KTKH% ...-1.6...	TKN1.6	TKN1.6-P	TK% 1.6	TK% 1.6-P
KTKH% ...-2...	TKN2 TKN2.4	TKN2-P	TK% 2 TK% 2.4	TK% 2-P
KTKH% ...-3...	TKN3	TKN3-P	TK% 3	TK% 3-P
KTKH% ...-4...	TKN4	-	TK% 4	-
KTKH% ...-5...	TKN4.8 TKN5	-	TK% 5	-

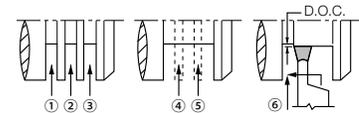
◆ Usage Example of Cut-Off

1. Cut-Off after chamfering



2. Wide Grooving

- ① ~ ⑤ Groove Widening
 - ⑥ Traverse Finishing
- (Value of ap shall be under the value of Corner-R)



In order to maintain equal wear on both corners

RECOMMENDED CUTTING CONDITIONS

TKF12

Workpiece Material	Recommended Grade (Vc sfm)							TKF12						Notes
								Width (CW)						
	MEGACOAT NANO		MEGA COAT	PVD Coated Carbide	DLC	Carbide	0.020" (0.50mm)	0.028" (0.70mm)	0.039" (1.00mm)	0.049" (1.25mm)	0.059" (1.50mm)	0.079" (2.00mm)		
	PR1725	PR1425	PR1535	PR1225	PR1025	PDL025	KW10	Feed Rate (ipr)						
Carbon Steel	★ 230-560 (160-460)	☆ 225-550 (175-450)	☆ 230-500 (160-400)	☆ 225-500 (175-400)	☆ 200-425	-	-	0.0004-0.0008	0.0004-0.0012	0.0004-0.0016 (0.0004-0.0020)	0.0004-0.0016	0.0004-0.0016 (0.0008-0.0039)	0.0004-0.0016 (0.0008-0.0039)	
Alloy Steel	★ 230-560 (160-460)	☆ 225-550 (175-450)	☆ 230-500 (160-400)	☆ 225-500 (175-400)	☆ 200-425	-	-	0.0004-0.0008	0.0004-0.0012	0.0004-0.0016 (0.0004-0.0020)	0.0004-0.0016	0.0004-0.0016 (0.0008-0.0039)	0.0004-0.0016 (0.0008-0.0039)	
Stainless Steel	☆ 200-460 (130-390)	☆ 200-450 (125-400)	★ 200-400 (130-330)	☆ 200-400 (125-325)	☆ 175-325	-	-	0.0002-0.0006	0.0004-0.0008	0.0004-0.0008 (0.0004-0.0012)	0.0004-0.0008	0.0004-0.0008 (0.0004-0.0020)	0.0004-0.0008 (0.0004-0.0020)	
Cast Iron	-	-	-	-	-	-	★ 175-325	0.0004-0.0012	0.0004-0.0016	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	
Aluminum	-	-	-	-	-	★ 660-1640	☆ 650-1475	0.0004-0.0012	0.0004-0.0016	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	0.0004-0.0020	
Brass	-	-	-	-	-	-	★ 325-650	0.0004-0.0012	0.0004-0.0016	0.0004-0.0024	0.0004-0.0024	0.0004-0.0024	0.0004-0.0024	

Values in parentheses () are cutting conditions for tough edge inserts style TKF..T..

★ : 1st Recommendation ☆ : 2nd Recommendation

TKF16

Workpiece Material	Recommended Grade (Vc sfm)							TKF16		Notes
								Width (CW)		
	MEGACOAT NANO		MEGA COAT	PVD Coated Carbide	DLC	Carbide	0.059" (1.50mm)	0.079" (2.00mm)		
	PR1725	PR1425	PR1535	PR1225	PR1025	PDL025	KW10	Feed Rate (ipr)		
Carbon Steel	★ 230-560 (160-460)	☆ 225-550 (175-450)	☆ 230-500 (160-400)	☆ 225-500 (175-400)	☆ 200-425	-	-	0.0008-0.0028 (0.0008-0.0039)	0.0008-0.0028 (0.0008-0.0039)	
Alloy Steel	★ 230-560 (160-460)	☆ 225-550 (175-450)	☆ 230-500 (160-400)	☆ 225-500 (175-400)	☆ 200-425	-	-	0.0008-0.0028 (0.0008-0.0039)	0.0008-0.0028 (0.0008-0.0039)	
Stainless Steel	☆ 200-460 (130-390)	☆ 200-450 (125-400)	★ 200-400 (130-330)	☆ 200-400 (125-325)	☆ 175-325	-	-	0.0004-0.0016 (0.0004-0.0020)	0.0004-0.0016 (0.0004-0.0020)	
Cast Iron	-	-	-	-	-	-	★ 175-325	0.0008-0.0032	0.0008-0.0032	
Aluminum	-	-	-	-	-	★ 660-1640	☆ 650-1475	0.0008-0.0032	0.0008-0.0032	
Brass	-	-	-	-	-	-	★ 325-650	0.0008-0.0039	0.0008-0.0039	

Values in parentheses () are cutting conditions for tough edge inserts style TKF..T..

★ : 1st Recommendation ☆ : 2nd Recommendation

GMM-MT / GMM-TK / GMM-NB

Workpiece Material	Recommended Grade (Vc sfm)				Width (CW)				Notes
	CVD Coated Carbide	PVD Coated Carbide		Carbide	0.059" (1.5mm)	0.079"-0.098" (2.0mm-2.5mm)	0.118" (3.0mm)	0.158" (4.0mm)	
	CR9025	PR915	PR930	KW10	Feed Rate (ipr)				
Carbon Steel	☆ 250-600	★ 200-500	☆ 200-425	-	0.0004-0.0016	0.0008-0.0059	0.0012-0.0079	0.0032-0.0118	
Alloy Steel	☆ 225-500	★ 200-500	☆ 200-425	-	0.0004-0.0016	0.0008-0.0059	0.0012-0.0079	0.0032-0.0118	
Stainless Steel	☆ 200-450	★ 175-450	☆ 175-400	-	0.0004-0.0012	0.0008-0.0039	0.0012-0.0059	0.0032-0.0098	
Cast Iron	-	-	-	★ 175-325	0.0004-0.0020	0.0020-0.0047	0.0039-0.0098	0.0039-0.0118	
Aluminum	-	-	-	★ 650-1475	0.0004-0.0020	0.0020-0.0039	0.0020-0.0079	0.0020-0.0098	
Brass	-	-	-	★ 325-650	0.0004-0.0020	0.0020-0.0039	0.0020-0.0059	0.0020-0.0079	

• When using PR930, decrease the feed rate by 20%

★ : 1st Recommendation ☆ : 2nd Recommendation

GMM-TMR (PR1115)

Workpiece Material	Vc (sfm)	Notes
Carbon Steel	200-650	Wet
Alloy Steel	225-500	
Stainless Steel	175-450	

RECOMMENDED CUTTING CONDITIONS

PKM

Workpiece Material	Recommended Grade (Vc sfm)			PM	PH		Notes
	MEGACOAT NANO		Carbide	Width (CW)			
	PR1625	PR1535	GW15	0.079"~0.157" (2.00mm~4.00mm)	0.079" (2.00mm)	0.118"~0.157" (3.00mm~4.00mm)	
				Feed Rate (ipr)			
Carbon Steel	★ 260 ~ 720	☆ 260 ~ 720	-	0.003 ~ 0.007	0.004 ~ 0.009	0.006 ~ 0.011	Wet
Alloy Steel	★ 230 ~ 660	☆ 230 ~ 660	-				
Stainless Steel	☆ 200 ~ 490	★ 200 ~ 490	-	0.002 ~ 0.005	0.002 ~ 0.005	0.003 ~ 0.006	
Cast Iron	-	-	★ 160 ~ 330	0.003 ~ 0.007	-	-	
Aluminum	-	-	★ 660 ~ 1,480	0.003 ~ 0.007	-	-	
Brass	-	-	★ 330 ~ 660	0.003 ~ 0.007	-	-	

Reduce feed to 1/2 ~ 1/3 when nearing the center of the workpiece.

★ : 1st Recommendation ☆ : 2nd Recommendation

TKN / TK^{RL}

Workpiece Material	Recommended Grade (Vc sfm)							Width (CW)					Notes
	Cermet		CVD Coated Carbide	MEGACOAT NANO	PVD Coated Carbide		Carbide	1.6mm	2.0~2.4mm	3.1mm	4.1mm	4.8~9.6mm	
	TN620	TN90	CR9025	PR1535	PR660	PR930	KW10	Feed Rate (ipr)					
Carbon Steel	☆ 200-660	☆ 400-650	★ 250-600	☆ 200-490	☆ 200-425	☆ 200-425	-	0.0008-0.0032	0.0016-0.0071	0.0020-0.0098	0.0032-0.0118	0.0059-0.0157	Wet
Alloy Steel	☆ 200-530	☆ 325-525	★ 225-500	☆ 200-490	☆ 200-425	☆ 200-425	-	0.0008-0.0032	0.0016-0.0071	0.0020-0.0098	0.0032-0.0118	0.0059-0.0157	
Stainless Steel	☆ 200-490	☆ 250-500	☆ 200-450	★ 160-390	☆ 175-400	☆ 200-450	-	0.0008-0.0012	0.0016-0.0047	0.0020-0.0071	0.0032-0.0098	0.0039-0.0118	
Cast Iron			-				★ 175-325	0.0008-0.0032	0.0020-0.0047	0.0039-0.0098	0.0039-0.0118	0.0059-0.0138	
Aluminum			-				★ 325-1475	0.0008-0.0039	0.0020-0.0039	0.0020-0.0079	0.0020-0.0098	0.0039-0.0787	
Brass			-				★ 325-650	0.0008-0.0039	0.0020-0.0039	0.0020-0.0059	0.0020-0.0079	0.0039-0.0787	

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
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SPARE PARTS	P
TECHNICAL	R
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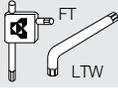
ALTERNATIVE CUT-OFF TOOLHOLDER REFERENCE

Swiss Style Length Toolholder Reference Table (KTKF / KGM)

Conventional Toolholder				Alternative Toolholder				
Part Number	Overall Length (mm)	Spare Parts		Part Number	Overall Length (mm)	Notes	Reference Page	
		Clamp Screw	Wrench					
								
KTKF% 1010K-12	125	SB-4590TRWN	LTW-10S	KTKF% 1010JX-12	120	H8		
KTKF% 1212M-12	150			KTKF% 1212JX-12	120			
KTKF% 1616M-12	150			KTKF% 1616JX-12	120			
KTKF% 1010K-16	125			KTKF% 1010JX-16	120			
KTKF% 1212M-16	150			KTKF% 1212JX-16	120			
KTKF% 1616M-16	150			KTKF% 1616JX-16	120			
KGM% 0810K-1.5-125	125	SE-40120TR	LTW-15S	-	-	No Replacement	H36	
KGM% 1010K-1.5-125	125			KGM% 1010JX-1.5	120			
KGM% 1212M-1.5-150	150			KGM% 1212JX-1.5	120			
KGM% 0810K-2-125	125	SE-40120TR	LTW-15S	-	-	No Replacement		
KGM% 1010K-2-125	125			KGM% 1010JX-2	120			
KGM% 1212M-2-150	150			KGM% 1212JX-2	120			
KGM% 1616M-2-150	150	SE-50125TR	LTW-20	KGM% 1616JX-2	120			
KGM% 1010K-2.5-125	125	SE-40120TR	LTW-15S	-	-			No Replacement
KGM% 1212M-2.5-150	150			KGM% 1212JX-2.5	120			
KGM% 1616M-2.5-150	150	SE-50125TR	LTW-20	KGM% 1616JX-2.5	120			
KGM% 1616M-3-150	150	SE-50125TR	LTW-20	KGM% 1616JX-3	120			

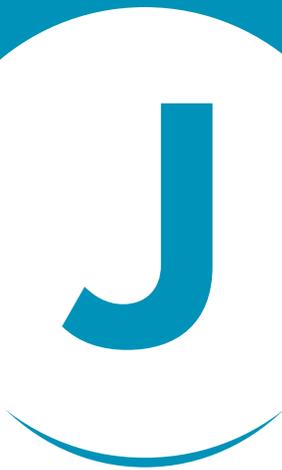
Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

Swiss Style Length Toolholder Reference Table (KTKH-B / KTKH-S)

Conventional Toolholder					Alternative Toolholder			
Part Number	Cut-Off Diameter (mm)	Spare Parts			Part Number	Cut-Off Diameter (mm)	Notes	Reference Page
		Releasing Wrench	Clamp Screw	Wrench				
								
KTKH% 0808K-1.6-125B	Ø10	-	SE-40120TR	FT-15	-	-	No Replacement	H36
KTKH% 1010K-1.6-125B	Ø20				KGM% 1010JX-1.5	Ø20		
KTKH% 1212M-1.6-150B	Ø25				KGM% 1212JX-1.5	Ø25		
KTKH% 1414M-1.6-150B	Ø26	-	SE-40120TR	FT-15	-	-	No Replacement	
KTKH% 1010K-2-125B	Ø20				KGM% 1010JX-2	Ø20		
KTKH% 1212M-2-150B	Ø25				KGM% 1212JX-2	Ø25		
KTKH% 1616M-2-150B	Ø32	-	SE-50125TR	LTW-20	KGM% 1616JX-2	Ø32		
KTKH% 1616M-3-150B	Ø32				KGM% 1616JX-3	Ø32		
KTKHR 1010K-2-125S	Ø30	LTK-5	-	-	KGMR 1010JX-2	Ø20	Small Machining Dia.	
KTKH% 1212M-2-150S	Ø30				KGM% 1212JX-2	Ø25	Small Machining Dia.	
KTKH% 1616M-2-150S	Ø36				KGM% 1616JX-2	Ø32	Small Machining Dia.	
KTKH% 1616M-3-150S	Ø45				KGM% 1616JX-3	Ø32	Small Machining Dia.	

Note) The corresponding alternative toolholder may be different from the conventional toolholder in insert clamping system or insert size. Make sure of their specifications by referring to the catalog or other documents.

THREADING



J1 - J54

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■ Tooling Application (External)

Thread Types	Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Pipe	30° Trapezoidal	
	M	UN, UNC UNF, UNEF	G (PF)	W	R (PT) (BSPT)	NPT	Tr	
Thread Shape								
Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm	
Toolholder Shape	Full Profile							
	Partial Profile							
KTN ⚙️ J20 (KTN-JCT) ⚙️ J21 	Full Profile	0.50~5.00 (0.50~3.00) ⚙️ J6	24~8 (24~8) ⚙️ J8	19~11 (19~11) ⚙️ J10	16~11 (16~11) ⚙️ J10	28~11 (28~11) ⚙️ J12	18.0~11.5 (18.0~11.5) ⚙️ J14	-
	Partial Profile	0.50~5.00 (0.50~3.00) ⚙️ J16	48~5 (48~8) ⚙️ J16	28~11 (28~11) ⚙️ J18	40~5 (40~8) ⚙️ J18	28~11 (28~11) ⚙️ J18	-	2.00~5.00 (2.00~3.00) ⚙️ J18
KTNS ⚙️ J20 	Full Profile	0.50~3.00 ⚙️ J6	24~8 ⚙️ J8	19~11 ⚙️ J10	16~11 ⚙️ J10	28~11 ⚙️ J12	18.0~11.5 ⚙️ J14	-
	Partial Profile	0.50~3.00 ⚙️ J16	48~8 ⚙️ J16	28~11 ⚙️ J18	40~8 ⚙️ J18	28~11 ⚙️ J18	-	2.00~3.00 ⚙️ J18
KTT ⚙️ J30 	Full Profile	1.00~2.00 ⚙️ J30	-	-	-	-	-	-
	Partial Profile	0.50~3.50 ⚙️ J30	56~8 ⚙️ J30	28~11 ⚙️ J30	24~7 ⚙️ J30	28~11 ⚙️ J30	-	-
KTTX ⚙️ J28 S-KTTX ⚙️ J28 	Partial Profile	0.50~2.00 ⚙️ J29	56~14 ⚙️ J29	28~11 ⚙️ J29	24~11 ⚙️ J29	28~11 ⚙️ J29	-	-
	Partial Profile	0.20~1.50 ⚙️ J26	64~18 ⚙️ J26	28~19 ⚙️ J26	40~16 ⚙️ J26	28~19 ⚙️ J26	-	-
KTKF ⚙️ J26 (Goose-neck Holders) 	Partial Profile	0.20~1.50 ⚙️ J26	64~18 ⚙️ J26	28~19 ⚙️ J26	40~16 ⚙️ J26	28~19 ⚙️ J26	-	-
	Partial Profile	0.70~4.00 ⚙️ J25	44~5 ⚙️ J25	-	-	-	-	-
STVP ⚙️ J23 	Partial Profile	0.50~4.00 ⚙️ J23	72~6 ⚙️ J23	-	-	-	-	-

- Threading Inserts Identification System
Full Profile See Page ⚙️ **J6**
Partial Profile See Page ⚙️ **J16**
- Pitch in parentheses () applies to the KTN-JCT

■ Tooling Application (Internal)

Thread Types	Metric	Unified	Parallel Pipe	Whitworth	Tapered Pipe	American National Pipe	30° Trapezoidal		
	M	UN, UNC UNF, UNEF	G (PF) Rp (PS)	W	Rc (PT) (BSPT)	NPT	Tr		
Thread Shape									
Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm		
Toolholder Shape									
EZT J32		Partial Profile	0.50~1.75 J32	36~16 J32	28~19 J32	24~18 J32	28~19 J32	18~14 J32	-
VNT J36		Partial Profile	0.75~1.50 J36	28~18 J36	-	-	-	-	-
SIN J22		Full Profile	0.50~5.00 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15	-
		Partial Profile	0.50~5.00 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	-	2.00~5.00 J19
CIN J22		Full Profile	1.00~5.00 J7	24~8 J9	19~11 J11	16~11 J11	28~11 J13	18~11.5 J15	-
		Partial Profile	0.50~5.00 J17	48~5 J17	28~11 J19	40~5 J19	28~11 J19	-	2.00~5.00 J19
KITG J31		Partial Profile	0.50~3.00 J31	48~8 J31	28~11 J31	24~8 J31	28~11 J31	-	-
STWP J37		Partial Profile	0.75~3.50 J37	28~8 J37	-	-	-	-	-
A-KKC J25		Partial Profile	2.50~3.50 J25	44~5 J25	-	-	-	-	-

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

TQ Chipbreaker

Advanced Productivity with Chip Control Improvements
Prolonged Tool Life with Newly Added Grades

1 Stable Chip Control

Stable Chip Control with Asymmetrical Chipbreaker Design

Chipbreaker Geometry

Stable chip control regardless of cutting direction

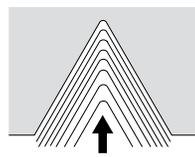


For Radial Infeed
Asymmetric dot design controls chip-flow direction

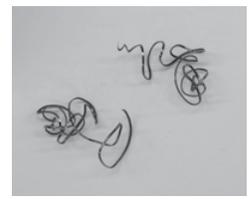
For Flank Infeed / Flank Compound Infeed
Breaks chips easily with shallow chipbreaker depth

Chip Control Comparison (Internal Evaluation)

Radial Infeed

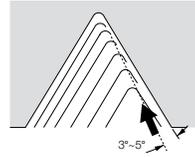


TQ Chipbreaker



Competitor A

Flank Compound Infeed



TQ Chipbreaker



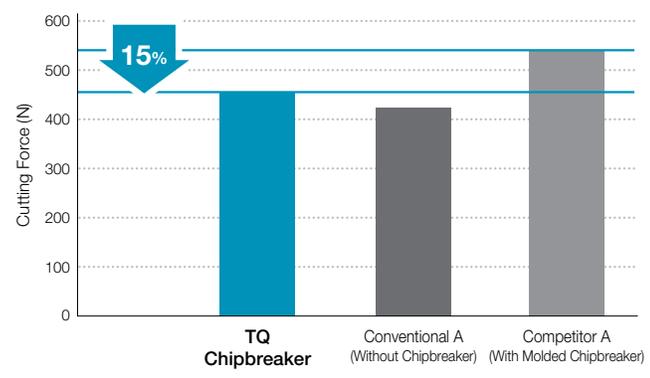
Competitor A

Cutting Conditions: $V_c = 490$ sfm, D.O.C. = 0.005" (4th pass), $L = 0.984$ ", Wet, 16ER150ISO type, M45 x TP1.5 Workpiece Material: 4115

2 Low Cutting Force and Resists Vibration

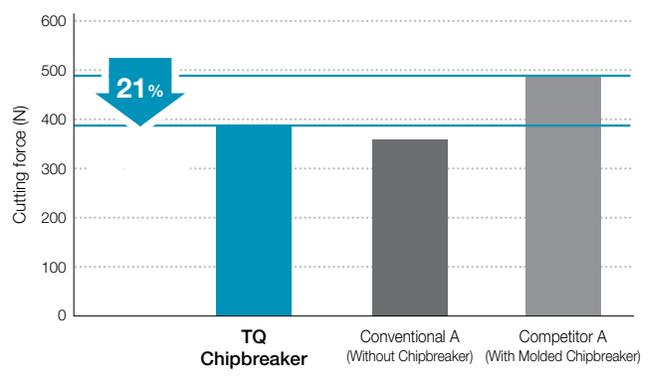
Strong Edge and Low Cutting Forces

Cutting Force Comparison with Radial Infeed (Internal Evaluation)



Cutting Conditions: $V_c = 490$ sfm, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 x TP1.5 Workpiece Material: 4115

Cutting Force Comparison with Flank Compound Infeed (Internal Evaluation)



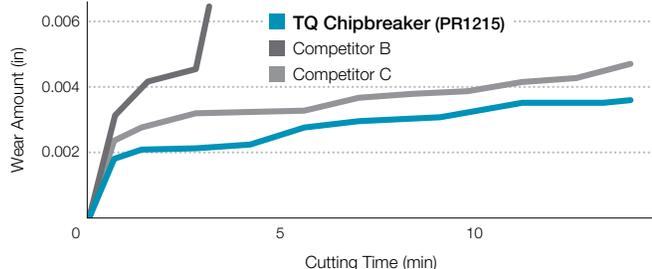
Cutting Conditions: $V_c = 490$ sfm, Adjusted Angle 5°, Wet, 16ER150ISO type
Cutting force is average of total passes (6 passes), M35 x TP1.5 Workpiece Material: 4115

3 Improved Tool Life with Newly Added Grades

PR1215 for Steel Machining
PR1515 / PR1535 (Stability Oriented) for Stainless Steel Machining

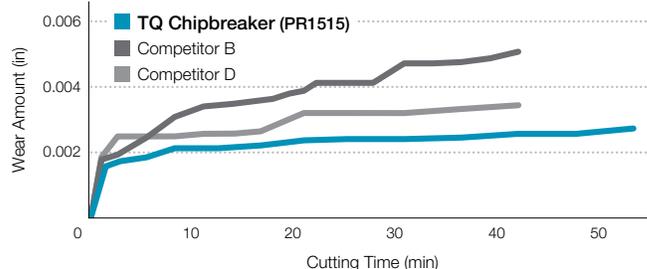
Wear Resistance Comparison (Internal Evaluation)

Workpiece Material : 4137



Cutting Conditions: Vc = 490 sfm, TP = 1.5 mm, No. of Passes = 6, Wet, 16ER150ISO type Radial Infeed

Workpiece Material : 304



Cutting Conditions: Vc = 330 sfm, TP = 1.5 mm, No. of Passes = 8, Wet, 16ER150ISO type Radial Infeed

KTKF J26

"JX" Toolholders (Overall Length 4.75") Are Available!

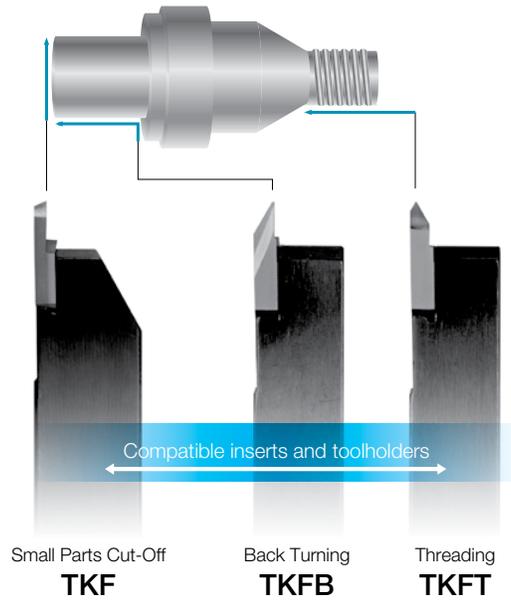


For Threading

TKFT

- Applicable for various types of threading

Metric (M)	Parallel Pipe [G(PF)]
Unified (UN)	Tapered Pipe [R(PT), (BSPT)]



Threading Insert Features

Full Profile and Partial Profile

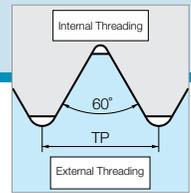
	Shape	Function	Advantages
Full Profile			① Burr-free thread surface; high quality (smooth feeling) ② Leave the workpiece diameter slightly oversized for full topping ③ Every pitch size requires a specific insert
Partial Profile			① Threads crest tends to be sharp edged ② Thread's O.D. or I.D. needs to be finished to the size before threading ③ One insert can machine various pitch sizes

Thread Precision

Thread Type		Thread Precision		
		Tight		Loose
Metric	External Threading	4h (1st Class)	6g (2nd Class)	8g (3rd Class)
	Internal Threading	5h (1st Class)	6h (2nd Class)	7h (3rd Class)
Unified	External Threading	3A	2A	1A
	Internal Threading	3B	2B	1B
Applicable Accuracy with Wiper Edge		**X	✓	✓

* Not recommended if tight thread precision is required

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**



External Threading Inserts

Metric (M)

60° Full Profile

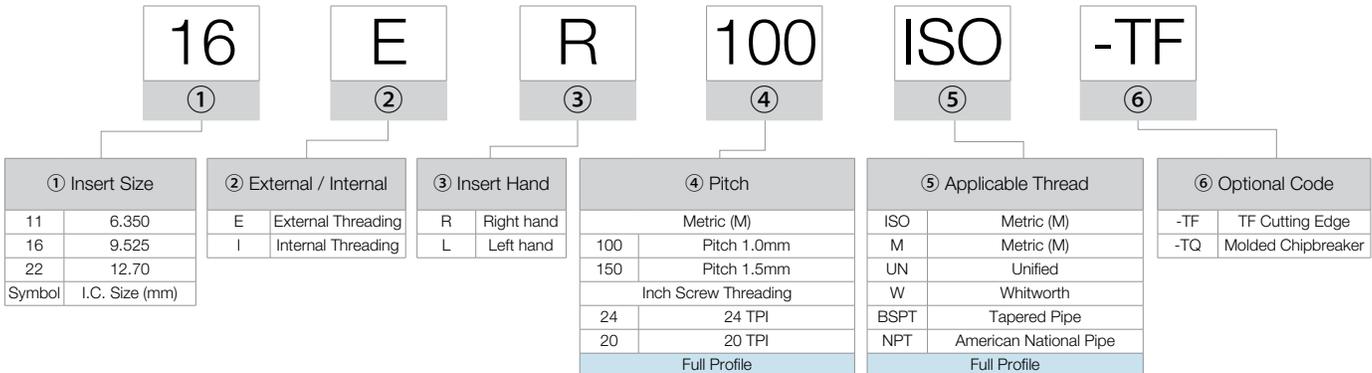
Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P		M		K		N		C		M		P		Ref. Page for D.O.C. & Number of Passes			
						Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous		Cermet	MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide		
Insert		Part Number	Previous Part Number	Applicable Thread		Dimensions (mm)		Angle	TC60		PR1215		PR1515		PR1535		PR1115		GW15				
Right-handed Insert Shown				M	Pitch	RE	PDX	PNA	R	L	R	L	R	L	R	L	R	L	R	L			
	16ER 100ISO-TF 125ISO-TF 150ISO-TF 175ISO-TF 200ISO-TF 250ISO-TF 300ISO-TF	-	1.00	0.12	0.80	60°																	
			1.25	0.15	0.90																		
			1.50	0.19	1.00																		
			1.75	0.22	1.60																		
			2.00	0.25	1.50																		
			2.50	0.33	1.60																		
			3.00	0.41	1.60																		
				16E% 050ISO 075ISO 100ISO 125ISO 150ISO 175ISO 200ISO 250ISO	TNN32E% 050M 075M 100M 125M 150M 175M 200M 250M		0.50	0.06	0.40	60°													
0.75	0.09	0.53																					
1.00	0.12	0.80																					
1.25	0.15	0.90																					
1.50	0.19	1.00																					
1.75	0.22	1.50																					
2.00	0.25	1.50																					
2.50	0.32	1.60																					
3.00	0.41	2.10																					
	22ER 300ISO 350ISO 400ISO 450ISO 500ISO	TNN43ER 300M 350M 400M 450M 500M				3.00	0.48	2.10	60°														
			3.50	0.55	2.80																		
			4.00	0.62	2.80																		
			4.50	0.70	2.80																		
			5.00	0.70	2.80																		
	16ER 100ISO-TQ 125ISO-TQ 150ISO-TQ 200ISO-TQ	-	1.00	0.12	0.80	60°																	
			1.25	0.15	0.90																		
			1.50	0.19	1.00																		
			2.00	0.25	1.50																		

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTRN...-16(JCT) / KTNSR...-16	J20-J21
16EL...	KTNL...-16	
22ER...	KTRN...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading Insert Identification System (Full Profile) J6- J15



TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

Internal Threading Inserts

Metric (M)

60° Full Profile

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous		Ref. Page for D.O.C. & Number of Passes					
Insert						Applicable Thread	Dimensions (mm)			Angle	Cermet		MEGACOAT / MEGACOAT NANO			PVD Coated Carbide	Carbide			
Right-handed Insert Shown					M	RE	PDX	PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15						
					Pitch				R	L	R	L	R	L	R	L				
					mm															
	11IR	100ISO-TF	-	1.00	0.07	0.80	60°													
				1.25	0.08	1.10														
				1.50	0.11	1.10														
				1.75	0.12	1.10														
	16IR	100ISO-TF	-	1.00	0.07	0.80	60°													
				1.25	0.08	1.10														
				1.50	0.11	1.10														
				1.75	0.12	1.10														
				2.00	0.14	1.50														
				2.50	0.17	1.50														
	111%	050ISO	TNN221%	050M	0.50	0.03	0.55	60°	●					●		●				
					0.75	0.05	0.68		●					●		●				
					1.00	0.07	0.80		●							●	●			
					1.25	0.08	1.10		●									●		
					1.50	0.11	1.10		●									●	●	
					1.75	0.12	1.10		●											
161%		100ISO	TNN321%	100M	1.00	0.07	0.80	60°	●							●	●			
					1.25	0.08	1.10		●											
					1.50	0.11	1.10		●									●	●	
					1.75	0.12	1.10		●											
22IR	300ISO	TNN43IR	300M	3.00	0.19	1.80	60°	●												
				3.50	0.23	2.10		●												
				4.00	0.26	2.80		●												
				4.50	0.30	2.80		●												
				5.00	0.34	2.80		●												
NEW 16IR	100ISO-TQ	-	-	1.00	0.07	0.80	60°		●	●	●									
				1.25	0.08	1.10			●	●	●									
				1.50	0.11	1.10			●	●	●									
				2.00	0.14	1.50			●	●	●									

Applicable Toolholders

Recommended Cutting Conditions J38

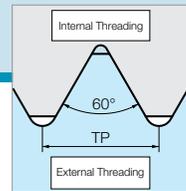
Part Number	Applicable Toolholders	Ref. Page for Toolholder	Part Number	Applicable Toolholders	Ref. Page for Toolholder
11IR...	SINR...-11E SINR...-11	J22	16IR...	SINR...-16 CINR...-16	J22
11IL...	SINL...-11E SINL...-11		16IL...	SINL...-16 CINL...-16	
		22IR...	SINR...-22 CINR...-22		

Applicable Thread	M: Metric	R, Rc, (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes. All other grade Inserts are sold in 5 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

THREADING INSERTS



External Threading Inserts

Unified (UN)

60° Full Profile

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P Carbon Steel / Alloy Steel		M Stainless Steel		K Cast Iron		N Non-ferrous		Cermets	MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes	
						●	○	●	○	●	○	●	○		●	○	●	○	●	○			
Insert		Part Number	Previous Part Number	Applicable Thread	Dimensions (in)	Angle	RE	PDX	PNA	TC60		PR1215		PR1515		PR1535		PR1115		GW15			
Right-handed Insert Shown										UN, UNF	Pitch	TPI	R	L	R	L	R	L	R		L	R	L
		16ER 24UN-TF	-	24	0.0047	0.0315	60°																
		20UN-TF		20	0.0059	0.0394																	
		18UN-TF		18	0.0071	0.0394																	
		16UN-TF		16	0.0079	0.0433																	
		14UN-TF		14	0.0091	0.0591																	
		13UN-TF		13	0.0098	0.0591																	
		12UN-TF		12	0.0106	0.0591																	
		10UN-TF		10	0.0134	0.0591																	
		08UN-TF		8	0.0169	0.0689																	
		16E% 24UN	TNN32ER 24UN	24	0.0051	0.0315	60°																
		20UN	20UN	20	0.0063	0.0394																	
		16UN	16UN	16	0.0079	0.0433																	
		14UN	14UN	14	0.0091	0.0591																	
		12UN	12UN	12	0.0106	0.0591																	
		22ER 08UN	TNN43ER 08UN	8	0.0169	0.0827																	
		16ER 24UN-TQ	-	24	0.0047	0.0315	60°																
		20UN-TQ		20	0.0059	0.0394																	
		18UN-TQ		18	0.0071	0.0394																	
		16UN-TQ		16	0.0079	0.0433																	
		14UN-TQ		14	0.0091	0.0591																	
		13UN-TQ		13	0.0098	0.0591																	
		12UN-TQ		12	0.0106	0.0591																	
		10UN-TQ		10	0.0134	0.0591																	
		08UN-TQ		8	0.0169	0.0689																	

Recommended Cutting Conditions J38

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21
22ER...	KTNR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

Internal Threading Inserts

Unified (UN)

60° Full Profile

Part Number		IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P	Carbon Steel / Alloy Steel									Ref. Page for D.O.C. & Number of Passes						
Part Number	Previous Part Number	IC	S	D1		M	Stainless Steel		●	○												
16IR	TNN32IR	0.375	0.145	0.157		K	Cast Iron															
22IR	TNN43IR	0.500	0.193	0.191		N	Non-ferrous															
Insert Right-handed Insert Shown	Part Number	Previous Part Number	Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide						
			UN, UNF	Pitch	RE	PDX	PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15									
			TPI	R	L	R	L	R	L	R	L	R	L	R	L							
Full Profile		-	16IR 24UN-TF	24	0.0024	0.0315	60°															
			20UN-TF	20	0.0031	0.0394																
			18UN-TF	18	0.0035	0.0394																
			16UN-TF	16	0.0039	0.0433																
			14UN-TF	14	0.0047	0.0591																
			13UN-TF	13	0.0051	0.0591																
			12UN-TF	12	0.0055	0.0591																
			10UN-TF	10	0.0067	0.0591																
			08UN-TF	8	0.0083	0.0709																
		TNN32IR 24UN	16IR 24UN	24	0.0020	0.0315	60°	●														
			20UN	20	0.0028	0.0394		●														
			18UN	18	0.0035	0.0394		●														
			16UN	16	0.0039	0.0433		●														
			14UN	14	0.0047	0.0591		●														
			12UN	12	0.0055	0.0591		●														
		TNN43IR 08UN	22IR 08UN	9	0.0055	0.0591	60°	●														
			16IR 24UN-TQ	24	0.0024	0.0315			●	●	●											
			20UN-TQ	20	0.0031	0.0394			●	●	●											
			18UN-TQ	18	0.0035	0.0394				●	●	●										
			16UN-TQ	16	0.0039	0.0433				●	●	●										
			14UN-TQ	14	0.0047	0.0591				●	●	●										
			13UN-TQ	13	0.0051	0.0591				●	●	●										
			12UN-TQ	12	0.0055	0.0591				●	●	●										
			10UN-TQ	10	0.0067	0.0591				●	●	●										
08UN-TQ	8	0.0083	0.0709			●	●	●														

Recommended Cutting Conditions **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16 CINR...-16	J22
22IR...	SINR...-22 CINR...-22	

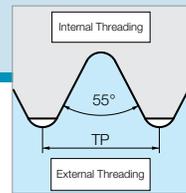
Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

THREADING INSERTS



External Threading Inserts

Parallel Pipe [G (PF)], Whitworth (W)

55° Full Profile

(in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P Carbon Steel / Alloy Steel		M Stainless Steel		K Cast Iron		N Non-ferrous		Cermets	MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes					
						RE	PDX	Angle	TC60	PR1215	PR1515	PR1535	PR1115		GW15											
						RE	PDX	PNA	R	L	R	L	R		L	R	L									
Insert Right-handed Insert Shown		Part Number		Previous Part Number		Applicable Thread G (PF) W Pitch TPI		Dimensions (in)		Angle		Cermets		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes						
Full Profile			16ER 19W-TF		-	19	-	0.0063	0.0394	55°									●							
			16W-TF			-	16	0.0075	0.0433												●					
			14W-TF			14	14	0.0091	0.0591														●			
			11W-TF			11	11	0.0118	0.0591														●			
			16ER 19W		TNN32ER 19W	19	-	0.0063	0.0394	55°	●											J40				
			14W			14	14	0.0091	0.0591																	
			11W			11	11	0.0118	0.0591																	
			16ER 19W-TQ		-	19	-	0.0063	0.0394	55°			●	●	●							J38				
			14W-TQ			14	14	0.0091	0.0591						●	●	●									
			11W-TQ			11	11	0.0118	0.0591								●	●	●							

Recommended Cutting Conditions J38

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

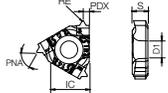
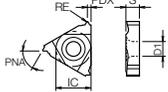
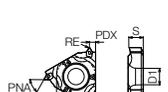
TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

Internal Threading Inserts

Parallel Pipe [G (PF)], Whitworth (W)

55° Full Profile

Part Number		Previous Part Number	IC	S	D1	Usage Classification		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes	
16IR		TNN32IR	0.375	0.145	0.157	G (PF)	W	RE	PDX	PNA	TC60		PR1215		PR1515		PR1535			
Insert		Part Number	Previous Part Number	Pitch							R		L		R		L			R		L
Right-handed Insert Shown				TPI																
 	16IR 19W-TF				19	-	0.0063	0.0394	55°											
	16W-TF				-	16	0.0075	0.0433												
	14W-TF				14	14	0.0091	0.0591												
	11W-TF				11	11	0.0118	0.0591												
 	16IR 14W		TNN32IR 14W		14	14	0.0091	0.0591	55°											
	11W		11W		11	11	0.0118	0.0591												
  <p>Molded Chipbreaker</p>	16IR 14W-TQ				14	14	0.0091	0.0591	55°											
	11W-TQ				11	11	0.0118	0.0591												

Recommended Cutting Conditions **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16	J22

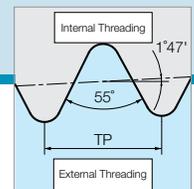
Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

THREADING INSERTS



External Threading Insert

Tapered Pipe [R(PT), (BSPT)]

55° Full Profile

(in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P Carbon Steel / Alloy Steel		M Stainless Steel		K Cast Iron		N Non-ferrous		Cermets	MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes																																													
						RE	PDX	RE	PDX	RE	PDX	RE	PDX		RE	PDX	RE	PDX	RE	PDX			RE	PDX																																											
16ER	TNN32ER	0.375	0.145	0.157																																																															
Insert Right-handed Insert Shown		Part Number		Previous Part Number		Applicable Thread		Dimensions (in)		Angle		Cermets		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes																																														
						R (PT) (BSPT)		RE		PDX		PNA		TC60		PR1215 PR1515 PR1535 PR1115						GW15																																													
						Pitch																																																													
						TPI																																																													
Full Profile			PNA	IC	RE	PDX	S	D1	28	0.0039	0.0315	55°																																																							
																							16ER 28BSPT-TF		-	28	0.0039	0.0315	55°																																						
																							19BSPT-TF																							-	19	0.0063	0.0394	55°																	
																							14BSPT-TF																																												-
	11BSPT-TF	-	11	0.0114	0.0630	55°																																																													
	16ER 28BSPT																						TNN32ER 28PT	28	0.0039	0.0315	55°																																								
	19BSPT																																												TNN32ER 28PT	19	0.0063	0.0394	55°																		
	14BSPT																																																																		TNN32ER 28PT
	11BSPT	TNN32ER 28PT	11	0.0114	0.0630	55°																																																													
	16ER 19BSPT-TQ																						-	19	0.0063	0.0394	55°																																								
	14BSPT-TQ																																												-	14	0.0087	0.0630	55°																		
	11BSPT-TQ																																																																		-
NEW	Molded Chipbreaker	PNA	IC	RE	PDX	S	D1	19	0.0063	0.0394	55°																																																								
14BSPT-TQ																							-	14	0.0087	0.0630	55°																																								
11BSPT-TQ																																													-	11	0.0114	0.0630	55°																		

Recommended Cutting Conditions **J38**

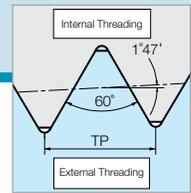
Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes.

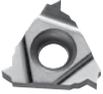
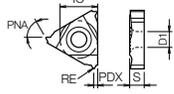
All other grade Inserts are sold in 5 piece boxes.



External Threading Insert

American National Pipe [NPT]

60° Full Profile

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P									Ref. Page for D.O.C. & Number of Passes					
Insert Right-handed Insert Shown						Applicable Thread	Dimensions (in)	Angle	Cermet	MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide				
					NPT	RE	PDX	PNA	TC60	PR1215		PR1515		PR1535		PR1115		GW15		
					Pitch TPI					R	L	R	L	R	L	R	L		R	L
16ER	TNN32ER	0.375	0.145	0.157																
Full Profile 		18NPT	TNN32ER 18NPT	18.0	0.0016	0.0354														
		14NPT	14NPT	14.0	0.0020	0.0591	60°													● J40
		11.5NPT	11.5NPT	11.5	0.0024	0.0591														

Recommended Cutting Conditions ● **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	● J20-J21

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

TC60 Threading Inserts sold in 10 piece boxes.

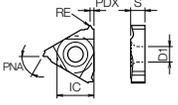
All other grade Inserts are sold in 5 piece boxes.

Internal Threading Insert

American National Pipe [NPT]

60° Full Profile

(in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P Carbon Steel / Alloy Steel		M Stainless Steel		K Cast Iron		N Non-ferrous		Ref. Page for D.O.C. & Number of Passes									
16IR	TNN32IR	0.375	0.145	0.157		Applicable Thread	Dimensions (in)	Angle	Cermet	MEGACOAT / MEGACOAT NANO					PVD Coated Carbide	Carbide							
Insert Right-handed Insert Shown					Part Number	Previous Part Number	NPT	RE	PDX	PNA	TC60	PR1215		PR1515		PR1535		PR1115		GW15			
Full Profile			16IR 18NPT		TNN32IR 18NPT		18.0	0.0016	0.0354	60°	●							●	●				
			14NPT		14NPT		14.0	0.0020	0.0591	60°	●									●	●		
			11.5NPT		11.5NPT		11.5	0.0024	0.0591	60°	●										●	●	

Recommended Cutting Conditions **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16 CINR...-16	J22

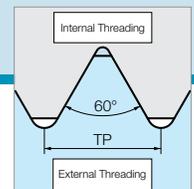
Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

THREADING INSERTS



External Threading Insert

Metric (M), Unified (UN)

60° Partial Profile (in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes						
						M	UN UNF	RE	PDX		PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15	R		L	R	L	R	L	
16ER	TNN32ER	0.375	0.145	0.157		P	Carbon Steel / Alloy Steel																		
22ER	TNN43ER	0.500	0.193	0.191		M	Stainless Steel																		
						K	Cast Iron																		
						N	Non-ferrous																		
Insert		Part Number		Previous Part Number		Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes						
Right-handed Insert Shown						M	UN UNF	RE	PDX		PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15	R		L	R	L			
Partial Profile		16ER	A60-TF	-		0.50~1.50	48~16	0.002	0.039	60°															
		G60-TF	1.75~3.00			14~8	0.009	0.063																	
		AG60-TF	0.50~3.00			48~8	0.002	0.063																	
		16ER	A60	-		0.50~1.50	48~16	0.002	0.039	60°															
		G60	1.75~3.00			14~8	0.009	0.063																	
		AG60	0.50~3.00			48~8	0.002	0.063																	
		22ER	N60			3.50~5.00	7~5	0.019	0.098																
		16ER	6001	TNN32ER	6001	1.00~2.50	24~11	0.004	0.059	60°															
		6002	6002	1.50~2.50	16~11	0.008	0.059																		
		16ER	A60-TQ	-		0.50~1.50	48~16	0.002	0.039	60°															
		G60-TQ	1.75~3.00			14~8	0.009	0.063																	
		AG60-TQ	0.50~3.00			48~8	0.002	0.063																	

Recommended Cutting Conditions **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21
22ER...	KTNR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Threading Insert Identification System (Partial Profile) **J16 ~ J19**

16
①

E
②

R
③

A60
④

-TF
⑤

① Insert Size

06	3.970
08	4.760
11	6.350
16	9.525
22	12.70
Symbol	I.C. Size (mm)

② External / Internal

E	External Threading
I	Internal Threading

③ Insert Hand

R	Right hand
L	Left hand

④ Pitch

60°	A60	60° Angle (Partial Profile) 0.50mm~1.50mm
	G60	60° Angle (Partial Profile) 1.75mm~3.00mm
	AG60	60° Angle (Partial Profile) 0.50mm~3.00mm
55°	A55	55° Angle (Partial Profile) 40~16 TPI
	G55	55° Angle (Partial Profile) 14~8 TPI
	AG55	55° Angle (Partial Profile) 40~8 TPI
Vertex Angle	Partial Profile	

⑤ Optional Code

-TF	TF Cutting Edge
-TQ	Molded Chipbreaker

④ Pitch

60°	6001	60° Angle (Partial Profile) R Corner-R(RE)=0.10mm
		1.00mm~2.50mm
55°	5501	55° Angle (Partial Profile) R Corner-R(RE)=0.10mm
		28~11 TPI
Vertex Angle	Partial Profile	

Note: Pitch and threads per inch of an insert without wiper depend on the size of insert.

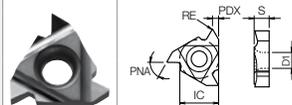
TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

Internal Threading Insert

Metric (M), Unified (UN)

60° Partial Profile (in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification												Ref. Page for D.O.C. & Number of Passes	
					P	Carbon Steel / Alloy Steel								●				
					M	Stainless Steel								●				
					K	Cast Iron								●				
					N	Non-ferrous								●				
Insert Right-handed Insert Shown	Part Number	Previous Part Number	Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Carbide		
			M	UN UNF	RE	PDX		PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15				
			Pitch															
		mm	TPI															
	11IR A60	-	0.50~1.50	48~16	0.001	0.039	60°									●	●	
	16IR A60		0.50~1.50	48~16	0.001	0.039	60°									●	●	
	G60		1.75~3.00	14~8	0.004	0.067										●	●	
	AG60		0.50~3.00	48~8	0.001	0.067									●	●		
	22IR N60		3.50~5.00	7~5	0.009	0.098	60°									●	●	
	06IR 60005	TNN06IR 60005		0.75~1.25	28~20	0.002	0.024	60°									●	
	08IR 60007	TNN08IR 60007		1.00~1.75	20~16	0.003	0.031	60°									●	
	11IR 60005	TNN22IR 60005		0.75~1.50	32~16	0.002	0.039	60°	●									
	16IR 6001	TNN32IR 6001		1.50~2.50	16~10	0.004	0.059	60°	●									
	60015	60015		2.50	11~10	0.006	0.059		●									

Recommended Cutting Conditions **J38**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
06IR...	SINR...-06E	● J22
08IR...	SINR...-08E	
11IR...	SINR...-11E SINR...-11	
16IR...	SINR...-16 CINR...-16	
22IR...	SINR...-22 CINR...-22	

Applicable Thread	M: Metric	R, Rc, (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Corner-R (RE) Selection for Partial Profiling Inserts

	External Threading	Internal Threading	
External Threading	RE ≤ 0.1443 X P	RE ≤ 0.0720 X P	● Metric, Unified Thread Corner-R (RE) at Internal Threading is almost half of that of External.
Parallel Pipe Whitworth Tapered Pipe	For Both External and Internal Thread RE ≤ 0.1373 X P		● Parallel Pipe, Tapered Pipe, Whitworth Thread Same Corner-R (RE) for both External and Internal Threading.

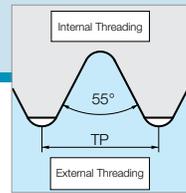
RE : Corner-R TP : Pitch (TPI) (= $\frac{1}{n}$) n : TPI
 TP : Pitch (Metric) (= $\frac{25.4}{n}$)

TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

THREADING INSERTS



External Threading Insert

Parallel Pipe [G (PF)], Tapered Pipe [R, (PT), (BSPT)], Whitworth (W)

55° Partial Profile

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P		M		K		N		C		MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes		
						Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous		TC60	PR1215	PR1515	PR1535	PR1115	GW15				
Insert		Part Number		Previous Part Number		Applicable Thread		Dimensions (in)		Angle		Cermet		MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes				
Right-handed Insert Shown						G(PF) R(PT)	W	RE	PDX	PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15							
Partial Profile						Pitch																	
						TPI																	
	16ER	A55-TF	-	-	-	28, 19	40~16	0.002	0.039	55°													
		G55-TF				14, 11	14~8	0.009	0.063														
		AG55-TF				28~11	40~8	0.002	0.063														
	16ER	A55	-	-	-	28, 19	40~16	0.002	0.039	55°													
		G55				14, 11	14~8	0.009	0.063														
		AG55				28~11	40~8	0.002	0.063														
	22ER	N55	-	7~5	0.019	0.098																	
	16ER	5501	TNN32ER 5501	28~11	24~10	0.004	0.059																
	5502	5502	14, 11	16~9	0.006	0.059																	

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21
22ER...	KTNR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Recommended Cutting Conditions J38

External Threading Insert

Trapezoidal (Tr)

30° Partial Profile

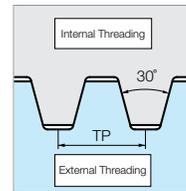
Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	P		M		K		N		C		MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes
						Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous		TC60	PR1215	PR1515	PR1535	PR1115	GW15		
Insert		Part Number		Previous Part Number		Applicable Thread		Dimensions (mm)		Angle		Cermet		MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide	Ref. Page for D.O.C. & Number of Passes		
Right-handed Insert Shown						Tr	RE	PDX	PNA	TC60	PR1215	PR1515	PR1535	PR1115	GW15						
Partial Profile						Pitch															
						mm															
	16ER	200TR	TNN32ER 200TR	2.00	0.20	1.60	30°														
		300TR	300TR	3.00	0.20	1.60															
	22ER	400TR	TNN43ER 400TR	4.0	0.20	2.5	30°														
	500TR	500TR	5.0	0.20	2.5																

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16(JCT) KTNSR...-16	J20~J21
22ER...	KTNR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Recommended Cutting Conditions J38



TC60 Threading Inserts sold in 10 piece boxes.

All other grade Inserts are sold in 5 piece boxes.

Internal Threading Insert

Parallel Pipe [G(PF)], Tapered Pipe [Rc, (PT), (BSPT)], Whitworth (W)

55° Partial Profile (in)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes	
						P	M	RE	PDX		TC60	PR1215	PR1515	PR1535	PR1115	GW15				
06IR	TNN06IR	0.156	0.075	0.091		P	Carbon Steel / Alloy Steel													
08IR	TNN08IR	0.187	0.094	0.091		M	Stainless Steel													
11IR	TNN22IR	0.250	0.125	0.118		K	Cast Iron													
16IR	TNN32IR	0.375	0.145	0.157		N	Non-ferrous													
22IR	TNN43IR	0.500	0.193	0.191																
Insert		Part Number	Previous Part Number	Applicable Thread		Dimensions (in)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes			
Right-handed Insert Shown				RE	PDX	PNA	TC60		PR1215	PR1515	PR1535	PR1115	GW15							
Partial Profile		11IR	A55	-	28, 19	40-16	0.002	0.039	55°											
		16IR	A55	-	28, 19	40-16	0.002	0.039	55°											
			G55	-	14, 11	14-8	0.009	0.067	55°											
			AG55	-	28-11	40-8	0.002	0.067	55°											
			22IR	N55	-	-	7-5	0.019	0.098	55°										
			06IR	5501	-	28	24	0.004	0.024	55°										
			08IR	5501	-	28, 19	24, 20	0.004	0.031	55°										
			11IR	55005	TNN22IR 55005	28-14	24-14	0.002	0.043	55°	●									
			16IR	5501	TNN32IR 5501	28-11	24-11	0.004	0.059	55°	●									
			5502	5502	-	14-11	16-11	0.008	0.059	55°	●									

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
06IR...	SINR...-06E	J22
08IR...	SINR...-08E	
11IR...	SINR...-11E SINR...-11	

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16 CINR...-16	J22
22IR...	SINR...-22 CINR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

Recommended Cutting Conditions J38

Internal Threading Insert

Trapezoidal (Tr)

30° Partial Profile (mm)

Part Number	Previous Part Number	IC	S	D1	Usage Classification ● : 1st Choice ○ : 2nd Choice	Applicable Thread		Dimensions (mm)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes
						P	M	RE	PDX		TC60	PR1215	PR1515	PR1535	PR1115	GW15			
16IR	TNN32IR	9.525	3.68	4.0		P	Carbon Steel / Alloy Steel												
22IR	TNN43IR	12.70	4.9	4.85		M	Stainless Steel												
						K	Cast Iron												
						N	Non-ferrous												
Insert		Part Number	Previous Part Number	Applicable Thread		Dimensions (mm)		Angle	Cermet		MEGACOAT / MEGACOAT NANO				PVD Coated Carbide		Ref. Page for D.O.C. & Number of Passes		
Right-handed Insert Shown				Tr	RE	PDX	PNA		TC60	PR1215	PR1515	PR1535	PR1115	GW15					
Partial Profile		16IR	200TR	TNN32IR 200TR	2.00	0.20	1.60	30°											
			300TR	300TR	3.00	0.20	1.60	30°											
		22IR	400TR	TNN43IR 400TR	4.0	0.20	2.5	30°											
			500TR	500TR	5.0	0.20	2.5	30°											

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16 CINR...-16	J22
22IR...	SINR...-22 CINR...-22	

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

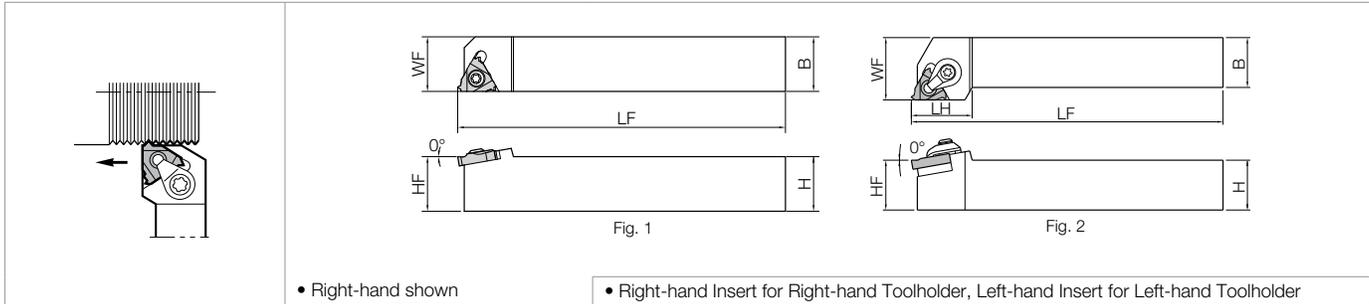
Recommended Cutting Conditions J38

TC60 Threading Inserts sold in 10 piece boxes.

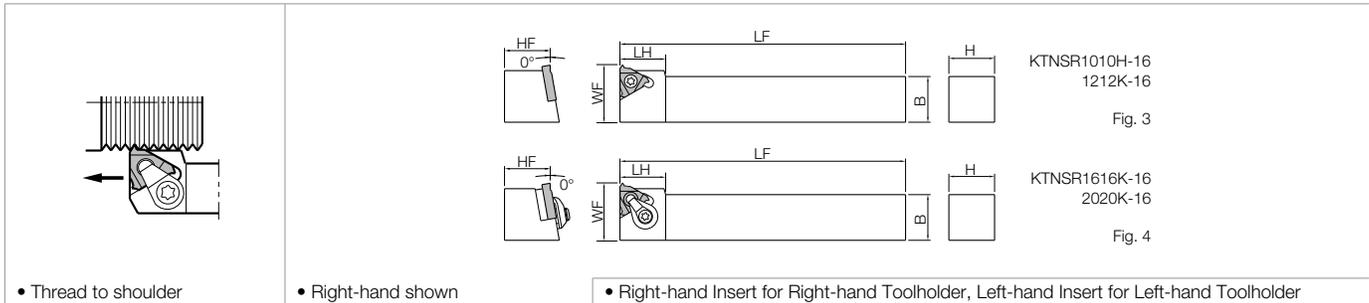
All other grade Inserts are sold in 5 piece boxes.

EXTERNAL THREADING TOOLHOLDERS

KTN



KTNS (For Gang Type NC Lathe)



Toolholder Dimensions

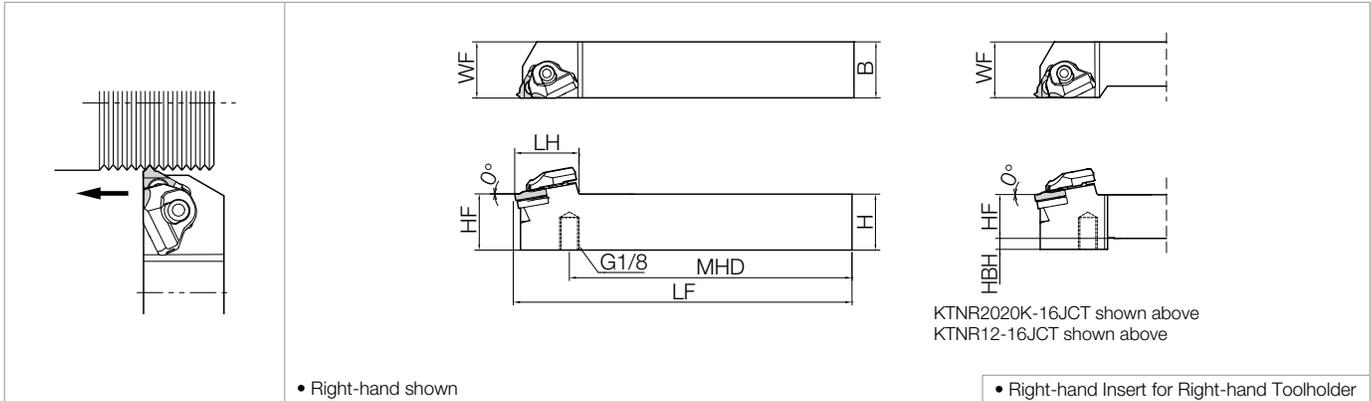
Part Number	Stock		Unit	Dimensions						Drawing	Spare Parts					Applicable Inserts	
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Insert Screw	Wrench	Shim	Shim Screw		
KTN% 12-3	●	□	inch	0.750	0.750	0.750	5.00	0.87	0.875	Fig.2	5S	6S	-	FT-15	TN-32	SP3X8	16E%...
	●	□		1.000	1.000	1.000	6.00		1.250		CPS-5S	SB-3.5TR		LTW-15S	TN-32	SP3X8	
KTN% 1216JX-16F	●	●	mm	12	12	16	120	-	16	Fig.1	-	SB-3.5TR	LTW-15S	-	-	16E%...	
	●	●		16	16		100	25	20		Fig.2	CPS-5S	-	FT-15	TN-32		SP3X8
1616H-16	●	●	mm	16	16	16	120	-	16	Fig.1	-	SB-3.5TR	LTW-15S	-	-	16E%...	
1616JX-16F	●	●					100	25	25		Fig.2	CPS-5S	-	FT-15	TN-32		SP3X8
2020H-16*	●		mm	20	20	20	120	-	20	Fig.1	-	SB-3.5TR	LTW-15S	-	-	16E%...	
2020JX-16F	●	●					125	25	25		Fig.2	CPS-5S	-	FT-15	TN-32		SP3X8
2020K-16	●	●	mm	25	25	25	150	29	32	Fig.2	CPS-6S	-	LW-3	TN-43	SP3X8	22ER...	
2525M-16	●	●					170	34	32		CPS-6S	-	LW-3	TN-43	SP3X8	22ER...	
2525M-22	●		mm	32	32	25	150	29	32	Fig.2	CPS-6S	-	LW-3	TN-43	SP3X8	22ER...	
3225P-22	●						170	34	32		CPS-6S	-	LW-3	TN-43	SP3X8	22ER...	
KTNSR 1010H-16	●		mm	10	10	10	100	16	16	Fig.3	-	SB-3.5TR	FT-15	-	-	16ER...	
	●			12	12	12	125	18	18		Fig.4	CPS-5S		-	TN-32		SP3X8
1212K-16	●		mm	16	16	16	125	18	22	Fig.4	CPS-5S	-	FT-15	TN-32	SP3X8	16ER...	
1616K-16	●						20	20	20		20	27.4	27.4	Fig.4	CPS-5S	-	FT-15	TN-32	SP3X8	16ER...
2020K-16	●		mm	20	20	20	125	18	22	Fig.4	CPS-5S	-	FT-15	TN-32	SP3X8	16ER...	
2020K-16	●						20	20	20		20	27.4	27.4	Fig.4	CPS-5S	-	FT-15	TN-32	SP3X8	16ER...

* Mark indicates short shank type.

Reference Page for Applicable Inserts

Applicable Thread	Full Profile	Partial Profile	Applicable Thread	Full Profile	Partial Profile
M: Metric	● J6	● J16	R (PT), (BSPT): Tapered Pipe	● J12	● J18
UN: Unified	● J8	● J16	W: Whitworth	● J10	● J18
UNF: Unified Fine Thread	● J8	● J16	NPT: American National Pipe	● J14	-
G (PF): Parallel Pipe	● J10	● J16	Tr: 30° Trapezoidal	-	● J18

KTN-JCT (Jet Coolant-Through) NEW



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Spare Parts					Applicable Inserts
	R	L		H	HF	HBH	B	WF	LF	LH	MHD	Clamp Set	Pipe Connection (*1 with O-Ring)	Wrench	Shim	Shim Screw	
KTNR 12-16JCT	●		inch	0.750	0.750	0.234	0.750	0.875	5.000	1.122	4.042						16ER...
16-16JCT	●			1.000	1.000	-	1.000	1.000	6.000	1.122	5.042						
KTNR 2020K-16JCT	●		mm	20	20	5	20	25	125	33.3	100.7						16ER...
2525M-16JCT	●			25	25	-	25	25	150	-	125.7						

*1 O-ring (SS-035) is available to order separately

Coolant Connections and Pipe Parts D11

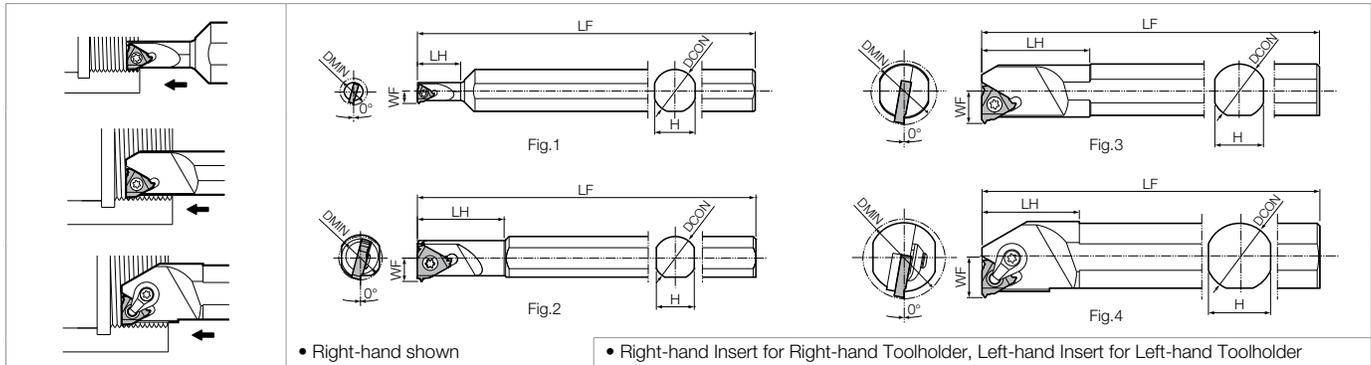
Reference Page for Applicable Inserts

Applicable Thread	Full Profile		Partial Profile		
	Full Profile	Partial Profile	Full Profile	Partial Profile	
M: Metric	● J6	● J16	R (PT), (BSPT): Tapered Pipe	● J12	● J18
UN: Unified	● J8	● J16	W: Whitworth	● J10	● J18
UNF: Unified Fine Thread	● J8	● J16	NPT: American National Pipe	● J14	-
G (PF): Parallel Pipe	● J10	● J16	Tr: 30° Trapezoidal	-	● J18

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

INTERNAL THREADING TOOLHOLDERS

SIN / CIN



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions					Drawing	Spare Parts					Applicable Inserts	
	R	L		DMIN	DCON	H	LF	LH		WF	Insert Screw	Clamp Set	Wrench	Shim		Shim Screw
S10M- SINR-2	●		inch	0.590	0.625	0.56	1.18	0.295	Fig.1	SB-2TR		FT-8			111%...	
S10M- SINR-3	●			0.790		0.584		5.91								1.46
S12X- SINR-3	●			0.940	0.750	0.710	7.09	1.57	0.470							
SIN% 0612S-06E	●		mm	6.4	12	11	100	10	3.8	Fig.1	SB-2040TR	-	FT-6	-	-	06IR...
0816S-08E	●			7.8	16	15	125	16	4.0		SB-2050TR	-	FT-6	-	-	08IR...
1216S-11E	●	●		12	16	14	150	25	6.3	Fig.1	SB-2TR	-	FT-8	-	-	111%...
1516S-11	●	●		15													30	7.5
1616S-16	●			16	16	14	150	32	8.6	Fig.2	-	-	-	-	-	-
2016S-16	●	●		20													37	10.0
2420S-16	●	●		24	20	18	180	40	12.0	Fig.3	SB-3.5TR	-	FT-15	-	-	161%...
2420S-22	●			24	20	18	180	40	13.5		SB-4085TR	-	FT-15	-	-	22IR...
CIN% 3025S-16	●	●		30	25	23	200	36	15.0	Fig.4	-	CPS-5S	FT-15	TN-32	SP3X8	161%...
3732S-16	●			37	32	30	250	45	18.5		-	-	-	-	-	-
3025S-22	●		30	25	23	200	40	16.5	-		CPS-6S	LW-3	TN-43	SP3X8	22IR...	
3732S-22	●		37	32	30	250	45	20	-		-	-	-	-	-	

Reference Page for Applicable Inserts

Applicable Thread	Full Profile	Partial Profile	Applicable Thread	Full Profile	Partial Profile
M: Metric	● J7	● J17	R (PT), (BSPT): Tapered Pipe	● J13	● J19
UN: Unified	● J9	● J17	W: Whitworth	● J11	● J19
UNF: Unified Fine Thread			NPT: American National Pipe	● J15	-
G (PF): Parallel Pipe	● J11	● J19	Tr: 30° Trapezoidal	-	● J19

Guide for Internal Threading

For internal threading, ensure consistent diameter and pay attention to chip evacuation.

1. Consistent diameters of pre-drilled holes

Because fine pitch internal threads have small corner radii, any variation in the diameter of pre drilled holes will greatly affect the tool life of the insert. Please minimize any variation of pre drilled holes and add an air pass to the first thread pass for safety.

2. Chip evacuation

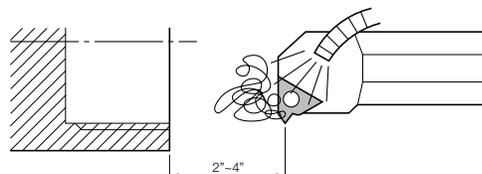
If chips become entangled on the holder or in the part it may damage the insert. We suggest starting each thread pass at least 2" from the part to allow room for the coolant to remove chips from the tool on each pass.

< 1 When running the first part of a setup>

Run the program in single block to make sure coolant can remove the chips from the tool after each threading pass.

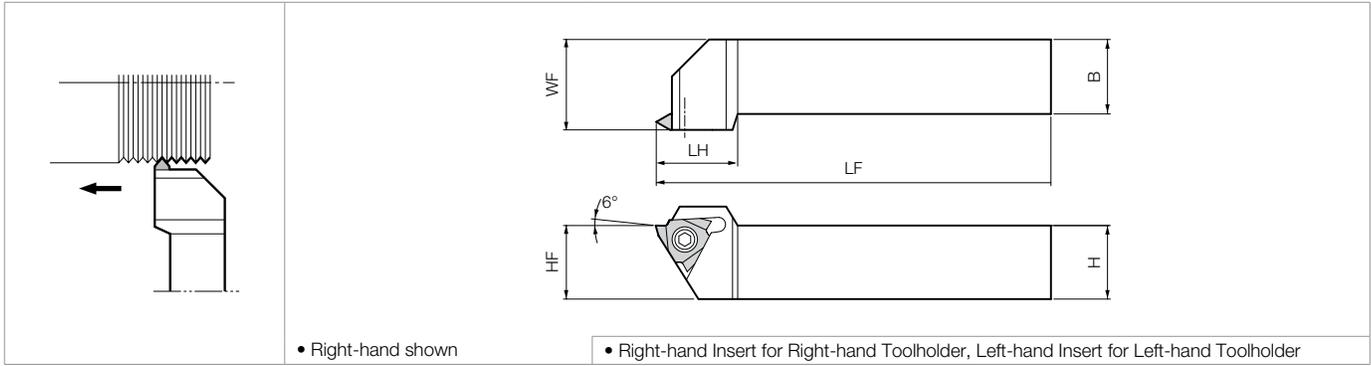
< 2 When running the second part of a setup>

Run through the full threading cycle and again check that chips are removed from the tool before going into production.



EXTERNAL THREADING TOOLHOLDERS [TNMC, TPMC INSERTS]

STVP



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Spare Parts	
	R	L		H	HF	B	LF	LH	WF	Insert Screw	Wrench
STVP% 12-3	●		inch	0.750	0.750	0.750	4.50	0.750	0.875	SB-4TR	FT-15
	●			1.000	1.000	1.000	6.00	0.750	1.125		
	●			1.000	1.000	1.000	6.00	0.950	1.125	GS-50	LW-3

Applicable Inserts

Part Number	Applicable Inserts	Ref. Page for Inserts
STVP%...-3	TPMC32NV TNMC32NV	See Below
STVP%...-4	TPMC43NV TNMC43NV	

External Threading Inserts

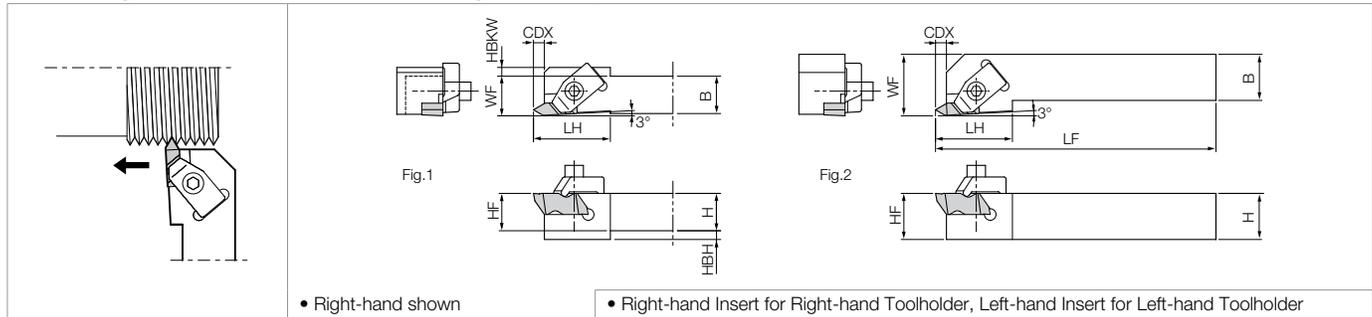
TNMC / TPMC

Shape Right-handed Insert Shown	Part Number	Applicable Thread	Pitch		Dimensions (in)				Angle (°)	Insert Grade	
			mm	TPI	IC	S	D1	RE		Cermet	
											TC40	TC60
	TNMC 32NV60004	M UN	0.75~4.25	36~6	0.375	0.125	0.150	0.004	60°		●
	TNMC 43NV60004	M UN	0.75~4.25	36~6	0.500	0.188	0.203				●
	TPMC 32NV60002	M UN	0.35~3.00	72~8				0.002			●
	32NV60004	M UN	0.75~3.00	36~8	0.375	0.125	0.177	0.004	60°		●
	32NV60008	M UN	1.50~3.00	18~8				0.008		●	
	TPMC 43NV60004	M UN	0.75~4.25	36~6	0.500	0.188	0.217	0.004	60°		●

Inserts are sold in 10 piece boxes.

A
B
C
D
E
F
G
H
J
K
M
N
P
R
T

■ KKC (Cera-Notch Toolholders)



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Drawing	Spare Parts		
	R	L		H	HF	HBH	B	LF	LH	WF	HBKW	CDX*		Clamp	Clamp Bolt	Wrench
KKCR 1212M-2-150F	●		mm (inch)	12 (0.472)	12 (0.472)	-	12 (0.472)	150 (5.906)	19.05 (0.750)	12.25 (0.482)	-	3.5 (0.138)	Fig.1	CKC-2R	SKC-2	(7/64 hex)
KKC% 6-2X	●	●	inch	0.375	0.375	-	0.375	2.500	0.750	0.562	-	0.138	Fig.2	CKC-2%	SKC-2	(7/64 hex)
6-2CF	●	●		0.375	0.375	0.125	0.375	5.000	0.750	0.385	0.125	0.138	Fig.1			
8-2X	●	●		0.500	0.500	-	0.500	3.500	0.750	0.750	-	0.138	Fig.2			
8-2DF	●	●		0.500	0.500	-	0.500	6.000	0.750	0.510	-	0.138	Fig.1			
10-2DF	●	●		0.625	0.625	-	0.625	6.00	0.750	0.635	-	0.138	Fig.1			
12-2B	●	●		0.750	0.750	-	0.750	4.50	0.750	1.000	-	0.138	Fig.2			
12-2C	●	□		0.750	0.750	-	0.750	5.00	0.750	1.000	-	0.138	Fig.2			
16-2C	●	●		1.000	1.000	-	1.000	5.00	0.750	1.250	-	0.138	Fig.2			
16-2D	●	●		1.000	1.000	-	1.000	6.00	0.750	1.250	-	0.138	Fig.2			
KKC% 12-3B	●	●		0.750	0.750	-	0.750	4.50	1.250	1.000	-	0.210	Fig.2				CKC-3%	SKC-3	(LW-156)
12-3C	●	●	0.750	0.750	-	0.750	5.00	1.250	1.000	-	0.210	Fig.2				
16-3C	●	●	1.000	1.000	-	1.000	5.00	1.250	1.250	-	0.210	Fig.2				
16-3D	●	●	1.000	1.000	-	1.000	6.00	1.250	1.250	-	0.210	Fig.2				
20-3D	●	●	1.250	1.250	-	1.250	6.00	1.250	1.500	-	0.210	Fig.2				
16-4D	●	●	1.000	1.000	-	1.000	6.00	1.380	1.250	-	0.294	Fig.2				
20-4D	●	●	1.250	1.250	-	1.250	6.00	1.380	1.500	-	0.294	Fig.2				

• Dimension CDX shows the distance from the toolholder to the cutting edge.

Also Available for Grooving. See Page [G43](#)

• **Right-hand** bars require **Right-hand** inserts and clamps.

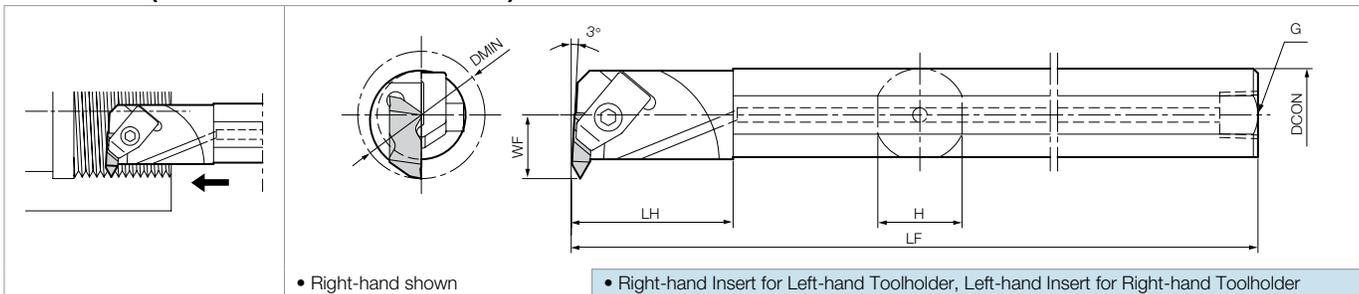
• **Left-hand** bars require **Left-hand** inserts and clamps

• Spare parts in parentheses () are not included with toolholder. Please order separately.

● Applicable Inserts

Part Number	Applicable Inserts	Ref. Page for Inserts
KKC% ...2-	KCT-2% , KCTK-2% , KCTP-2%	● J25
KKC% ...3-	KCT-3% , KCTK-3% , KCTP-3%	
KKC% ...4-	KCT-4% , KCTP-4%	

A-KKC (Cera-Notch Toolholders)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						Spare Parts		
	R	L			DMIN	DCON	H	LF	LH	WF	G	Clamp	Clamp Bolt	Wrench
A10M-KKCR-2	●		inch	1.000	0.625	0.596	6.00	1.153	0.500	1/8-27 NPT	CKC-2%	SKC-2	(7/64 Hex)
A10S-KKCR-2	●			1.000	0.625	0.596	10.00	1.153	0.500				
A12R-KKCR-2	●			1.125	0.750	0.728	8.00	1.171	0.562				
A12S-KKCR-2	●			1.125	0.750	0.728	10.00	1.171	0.562	1/8-27 NPT	CKC-2%	SKC-2	(7/64 Hex)
A16T-KKC% _L -2	●	●		1.375	1.000	0.910	12.00	1.100	0.688				
A16X-KKC% _L -3	●			1.375	1.000	0.910	9.00	1.750	0.688	1/4-18 NPT	CKC-3%	SKC-3	(LW-156)
A16T-KKC% _L -3	●	●		1.375	1.000	0.910	12.00	1.750	0.688				
A20U-KKC% _L -3	●	●		1.750	1.250	1.138	14.00	1.750	0.875				
A24U-KKC% _L -3	●	●		2.000	1.500	1.366	14.00	1.750	1.000	1/4-18 NPT	CKC-3%	SKC-3	(LW-156)
A28U-KKC% _L -3	●			2.250	1.750	1.593	14.00	1.750	1.125				
A32V-KKC% _L -3	●	●		2.500	2.000	1.820	16.00	1.750	1.250	1/4-18 NPT	CKC-3%	SKC-3	(LW-156)
A28U-KKC% _L -4	●	●		2.500	1.750	1.593	14.00	1.750	1.250				
A32V-KKC% _L -4	●	●		2.750	2.000	1.820	16.00	1.750	1.375				

Also Available for Internal Grooving. See Page G85

Applicable Inserts

Part Number	Applicable Inserts	Ref. Page for Inserts
A...KKC% _L -2	KCT-2%, KCTK-2%, KCTP-2%	See Below
A...KKC% _L -3	KCT-3%, KCTK-3%, KCTP-3%	
A...KKC% _L -4	KCT-4%, KCTP-4%	

• Right-hand bars require Left-hand inserts and clamps.
 • Left-hand bars require Right-hand inserts and clamps

• Spare parts in parentheses () are not included with toolholder. Please order separately.

Cera-Notch External Threading Inserts

KCT / KCTP / KCTK

Shape Right-handed Insert Shown	Part Number	Applicable Thread	Pitch				Dimensions (in)				Angle (°)	Insert Grade						Ref. Page for Toolholder	
			mm		TPI		RE	W1	S	PDX		PNA	Cermet		MEGA COAT CVD		Carbide		
			External	Internal	External	Internal							TC60	PR1215	PR660	PR660			
			R	L	R	L	R	L	R	L									
	KCT 2%	M UN	3.00-0.75	3.50-1.25	8-36	7-20	0.004	0.150	0.219	0.075	60°	●	●	●	●	●	●	J24 J25	
		M UN	4.25-1.25	5.00-2.00	6-20	5-12	0.007	0.195	0.344	0.098		●	●	●	●	●			
	KCTP 2%	M UN	3.00-0.75	3.50-1.25	8-36	7-20	0.004	0.150	0.219	0.075		●	●	●	●	●			
		M UN	4.25-1.25	5.00-2.00	6-20	5-12	0.007	0.195	0.344	0.098		●	●	●	●	●			
	KCTK 2%	M UN	1.75-0.50	2.00-1.00	14-44	12-24	0.003	0.150	0.219	0.110		●	●	●	●	●			
		M UN	2.50-0.50	2.80-1.00	10-44	9-24	0.003	0.195	0.344	0.141		●	●	●	●	●			

Cera-Notch Conversion Table R45

Recommended Cutting Conditions J38

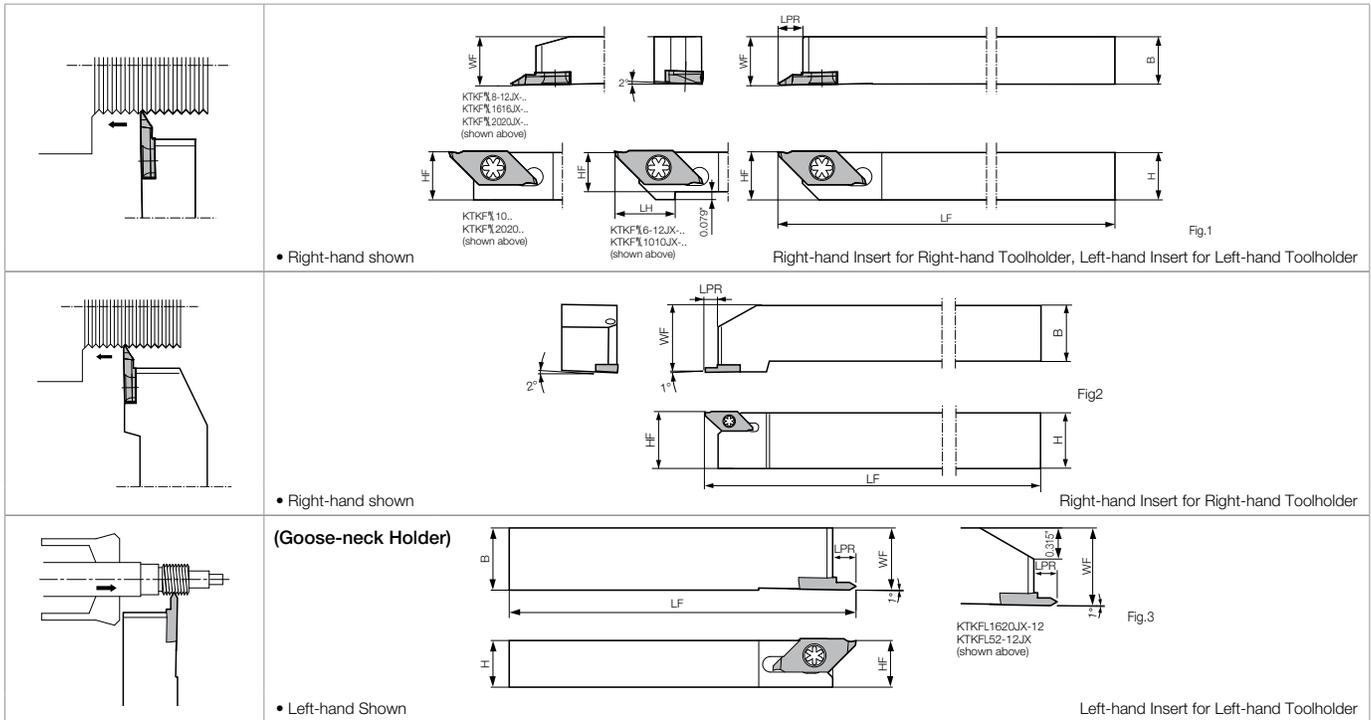
Inserts are sold in 10 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

INSERT GRADES A
 TURNING INSERTS B
 GEN/PCD INSERTS C
 TURNING HOLDERS D
 SMALL TOOLS E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 DRILLING K
 MILLING M
 QUICK CHANGE TOOLING N
 SPARE PARTS P
 TECHNICAL R
 INDEX T

KTKF / KTKF Goose-neck Holder



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Drawing	Spare Parts		Applicable Inserts	
	R	L		H	HF	B	LF	LH	WF		LPR	Clamp Screw		Wrench
KTKF% 6-12JX 8-12JX 10-12JX	●	●	inch	0.375	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFT12%...
	●	●		0.500	0.500	0.500	4.750	-	0.500	0.236				
	●	●		0.625	0.625	0.625	4.750	-	0.625	0.236				
KTKF% 1010JX-12 1212JX-12 1616JX-12 2020JX-12	●	●	mm	10	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFT12%...
	●	●		12	12	12	120	-	12	6				
	●	●		16	16	16	120	-	16	6				
	●	●		20	20	20	120	-	20	6				
KTKFR 1212F-12	●		inch	12	12	12	85	-	12	6	Fig.1	SB-4590TRWN	LTW-10S	TKFT12R...
KTKFR 2525M-12	●		mm	25	25	25	150	-	30	6	Fig.2	SB-4590TRWN	LTW-10S	TKFT12R...
KTKFL 52-12JX 62.5-12JX		●	inch	0.500	0.500	0.625	4.750	-	0.625	0.236	Fig.3	SB-4590TRWN	LTW-10S	TKFT12L...
		●		0.625	0.625	0.750	4.750	-	0.750	0.236				
KTKFL 1216JX-12 1620JX-12		●	mm	12	12	16	120	-	16	6	Fig.3	SB-4590TRWN	LTW-10S	TKFT12L...
		●		16	16	20	120	-	20	6				

• Dimension LPR shows the distance from the toolholder to the cutting edge.

For Coolant-Through Holders, See **H14**

For Y-Axis Holders, See **H16**

Applicable Inserts

Insert	Part Number	Applicable Thread	Pitch		Dimensions (in)							Angle (°)	MEGACOAT					Applicable Toolholders		
			mm	TPI	W1	CW	S	D1	RE	PDX	PDX1		NANO	COAT	Carbide					
	TKFT 12RA6000 12RB6000 12RA60005 12RB60005 12RN6001 12RA55005 12RB55005	M UN	0.20-0.60	64-48	0.118	0.098	0.343	0.205	Max 0.002 or Flat	0.016	0.083	60°	PR1725	PR1535	PR1425	PR1225	PR1025	KW10	KTKFR ...12	
					0.118	0.098	0.343	0.205	0.002	0.031	0.067		●	●	△	●	△	●		
			0.118	0.098	0.343	0.205	0.002	0.067	0.031	●	●		△	●	△	●				
		1.00-1.50	24-18	0.118	0.098	0.343	0.205	0.004	0.049	0.049	●		●	△	●	△	●			
		G,R W	-	40-16	0.118	0.098	0.343	0.205	0.002	0.031	0.067		●	●	△	●	△	●		
					0.118	0.098	0.343	0.205	0.002	0.067	0.031		●	●	△	●	△	●		
	0.118				0.098	0.343	0.205	0.002	0.067	0.031	●	●	△	●	△	●				
	TKFT 12LA6000 12LB6000 12LA60005 12LB60005 12LN6001 12LA55005 12LB55005	M UN	0.20-0.60	64-48	0.118	0.098	0.343	0.205	Max 0.002 or Flat	0.083	0.016	0.083	60°	PR1725	PR1535	PR1425	PR1225	PR1025	KW10	KTKFL ...12
					0.118	0.098	0.343	0.205	0.002	0.031	0.067	●		●	△	●	△	●		
			0.118	0.098	0.343	0.205	0.002	0.031	0.067	●	●	△		●	△	●				
		1.00-1.50	24-18	0.118	0.098	0.343	0.205	0.004	0.049	0.049	●	●		△	●	△	●			
		G,R W	-	40-16	0.118	0.098	0.343	0.205	0.002	0.067	0.031	●		●	△	●	△	●		
0.118					0.098	0.343	0.205	0.002	0.067	0.031	●	●		△	●	△	●			
0.118	0.098				0.343	0.205	0.002	0.067	0.031	●	●	△	●	△	●					

Inserts are sold in 10 piece boxes.

■ Indication of Description (See Table 1) ◆ Recommended Cutting Conditions

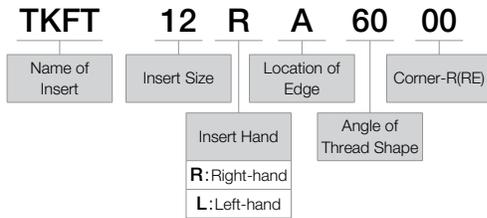
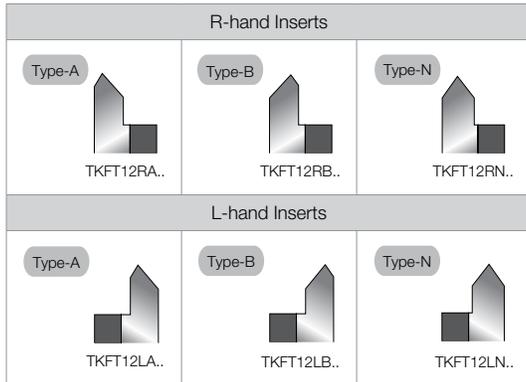


Table 1



Workpiece Material	Recommended Insert Grade					
	MEGACOAT NANO			MEGA COAT	PVD Coated Carbide	Carbide
	PR1725	PR1535	PR1425	PR1225	PR1025	KW10
Carbon Steel	Vc (sfm) = 230-560			Vc (sfm) = 200-490		-
	First D.O.C. (Radial) under 0.0079"			First D.O.C. (Radial) under 0.0079"		-
Alloy Steel	Vc (sfm) = 230-560			Vc (sfm) = 200-490		-
	First D.O.C. (Radial) under 0.0079"			First D.O.C. (Radial) under 0.0079"		-
Stainless Steel	Vc (sfm) = 200-330			Vc (sfm) = 160-260		-
	First D.O.C. (Radial) under 0.0079"			First D.O.C. (Radial) under 0.0079"		-
Cast Iron	-	-	-	-	-	Vc (sfm) = 330 First D.O.C. (Radial) under 0.0079"
Aluminum	-	-	-	-	-	Vc (sfm) = 490-1310 First D.O.C. (Radial) under 0.0079"
Brass	-	-	-	-	-	Vc (sfm) = 490-980 First D.O.C. (Radial) under 0.0079"

- Coolant is recommended.
- In case of threading stainless steel, please set two to three passes more than <D.O.C. - passes> listed above.

■ D.O.C. & Number of Passes

● 60° / 55° Partial Profile

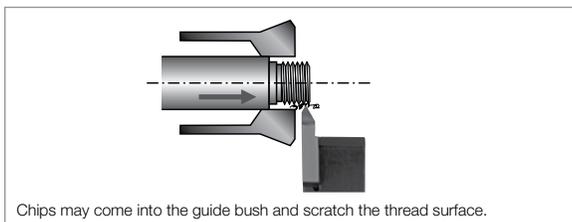
(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass			
						0.06	0.04	0.03	0.02											
Metric	External Threading	TKFT 12R/L A/B6000	Max 0.05 Flat	0.15	4	0.06	0.04	0.03	0.02											
				0.19	4	0.07	0.06	0.04	0.02											
				0.23	4	0.08	0.07	0.06	0.02											
				0.27	5	0.08	0.07	0.06	0.04	0.02										
				0.30	5	0.10	0.08	0.06	0.04	0.02										
				0.34	6	0.10	0.08	0.06	0.04	0.04	0.02									
				0.50mm	TKFT 12R/L A/B6000 12R/L A/B60005	Max 0.05 Flat 0.05	0.38 0.33	6 5	0.10 0.10	0.10 0.07	0.05 0.04	0.04 0.02								
	0.60mm	TKFT 12R/L A/B6000 12R/L A/B60005	Max 0.05 Flat 0.05	0.45 0.40	7 6	0.10 0.10	0.10 0.08	0.06 0.06	0.05 0.04	0.02 0.02										
	0.70mm	TKFT 12R/L A/B60005	0.05	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02								
	0.75mm			0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02							
	0.80mm	TKFT 12R/L A/B60005 12R/L N6001	0.05	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02							
	1.00mm			0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02						
	1.25mm			0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02							
	1.50mm	TKFT 12R/L N6001	0.10	1.04	10	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05	0.02					
	Parallel Pipe	External Threading	TKFT 12R/L A/B55005	0.0020	0.0264	7	0.007	0.006	0.005	0.004	0.002	0.002	0.001							
0.0398					9	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001						
Whitworth	External Threading	TKFT 12R/L A/B55005	0.0020	0.0311	8	0.007	0.007	0.005	0.004	0.003	0.003	0.002	0.001							
				0.0020	0.0378	9	0.008	0.008	0.006	0.004	0.003	0.002	0.002	0.001						
				0.0020	0.0421	10	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001				
				0.0020	0.0476	11	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001			

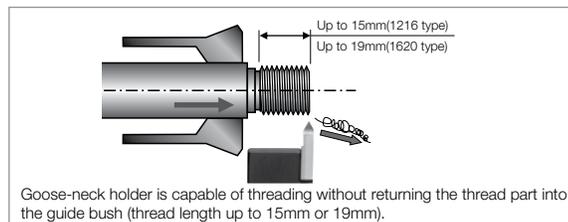
■ Swiss Tool Automatic Lathe (Guide Bush System)

Goose-neck Holder is applicable to automatic lathes whose toolholder does not move in longitudinal direction (Z-axis)

● Conventional Threading Tool



● Goose-neck Holder (for Threading)



EXTERNAL THREADING TOOLHOLDERS [TTX INSERT]

KTTX

• Thread to shoulder

• Right-hand shown

• Right-hand Insert for Right-hand Toolholder

Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Spare Parts	
			H	HF	HBH	B	LF	LH	WF	Insert Screw	Wrench
KTTXR 6-3JXF	●	inch	0.375	0.375	0.079	0.375	4.750	0.693	0.383	SB-4070TRW	FT-8
8-3JXF	●		0.500	0.500	-	0.500	4.750	0.693	0.508		
10-3JXF	●		0.625	0.625	-	0.625	4.750	0.693	0.633		
KTTXR 1010JX-16F	●	mm	10	10	2	10	120	17.6	10	SB-4070TRW	FT-8
1212JX-16F	●		12	12	-	12	120	17.6	12		
1616JX-16F	●		16	16	-	16	120	17.6	16		
KTTXR 1212F-16F	●		12	12	-	12	85	17.6	12		
KTTXR 2020K-16F	●		20	20	-	20	125	17.6	20		

Applicable Inserts J29

S...KTTX (External Sleeve Holder)

• Thread to shoulder

• Left-hand shown

• Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)						Spare Parts	
		DCON	LF	WF	DN	HDD	H	Insert Screw	Wrench
S12F-KTTXL16	●	12	80	6.0	11.0	27	11	SB-4070TRW	FT-8
S14H-KTTXL16	●	14	100	6.0	13.0	27	13		
S15F-KTTXL16	●	5/8"	85	6.0	14.6	27	15		
S16F-KTTXL16	●	16	85	6.0	14.6	27	15		
S19G-KTTXL16	●	3/4"	90	6.0	17.6	27	17		
S19K-KTTXL16	●	3/4"	120	6.0	17.6	27	17		
S20G-KTTXL16	●	20	90	6.0	18.6	27	18		
S20K-KTTXL16	●	20	120	6.0	18.6	27	18		
S25.0H-KTTXL16	●	25	100	10.0	23.6	32	23		
S25K-KTTXL16	●	1"	120	10.0	23.6	32	23		

Applicable Inserts J29

EXTERNAL THREADING TOOLHOLDERS [TTX INSERT]

Applicable Inserts

Part Number				IC	S	D1	Material		Classification of Usage			
TTX32R				0.375	0.125	0.173	P	Carbon Steel / Alloy Steel	○	○	●	●
							M	Stainless Steel		○	●	●
							K	Cast Iron			●	●
							N	Non-ferrous Metals			●	●

Shape Right-handed Insert Shown	Part Number	Applicable Thread	Pitch		Dimensions (in)			Angle	Cermet	PVD Coated Carbide			Applicable Toolholders J28	Ref. Page for D.O.C. & Number of Passes
			mm	TPI	RE	PDX	PDX1			PNA	TC60	PR930			PR1115	KW10
	TTX32R 6000	M UN	0.5~1.0	-	0.000	0.024	0.044	60°				●	KTTXR...-3 KTTXR...-16 S...KTTXL16	J46
	60005		-	56~32	0.002	0.024	0.044	60°	●	●	●	●		
	6001		1.0~2.0	-	0.004	0.043	0.064	60°	●	●	●	●		
	TTX32R 6000S	M UN	0.5	-	0.000	0.012	0.044	60°		●	●	●		
	60005S		-	56~48	0.002	0.012	0.044	60°	●	●	●	●		
	TTX32R 5501	G,R W	-	28~19	0.004	0.030	0.040	55°	●	●	●	●		
55015	-		24~20	0.006	0.047	0.057	55°	●	●	●	●			

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	

Recommended Cutting Conditions J38

Advantages of TTX

Type	Insert	Advantages		
		Rake Angle after Installation	Condition	Dead Space
TT			<ul style="list-style-type: none"> One insert can machine various pitch sizes 	
TTX			<ul style="list-style-type: none"> The Least Cutting Resistance Thread to shoulder (Less dead space) 3-edge 	

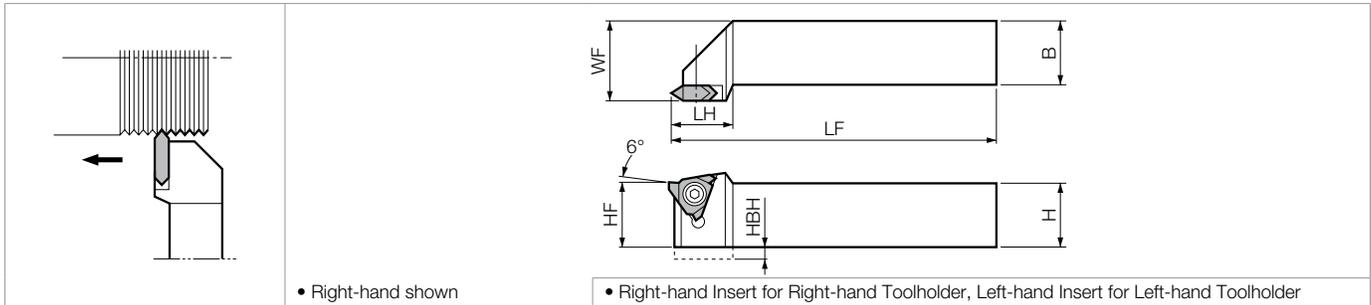
PR930/PR1115 Threading Inserts are sold in 5 piece boxes.

All other grade Inserts are sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EXTERNAL THREADING TOOLHOLDERS [TT INSERT]

KTT



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)							Spare Parts			
	R	L	H	HF	HBH	B	LF	LH	WF	Insert Screw	Wrench		
KTT% 1010F-16	●	●	10	10	4	10	80	18	12	SB-4070TRS	-	FT-10	-
	●	●	12	12	2	12	100		16				
	●	●	16	16	-	16	100		20				
	2020K-16	●	●	20	20	-	20	125	25	SB-4TR	-	FT-15	-
	2525M-16	●	●	25	25	-	25	150	30				
	2020K-22	●	●	20	20	-	20	125	25	-	GS-50	-	LW-3
2525M-22	●	●	25	25	-	25	150	30					

Applicable Inserts

Part Number	IC	S	D1	(in)		P	M	K	N	Classification of Usage
				P	M					
				Carbon Steel / Alloy Steel	Stainless Steel					
TT32%	0.375	0.125	0.173							● : Continuous / 1st Choice ○ : Continuous / 2nd Choice
TT43%	0.500	0.187	0.217							

Shape	Part Number	Applicable Thread	Pitch		Dimensions (in)		Angle	Cemet	PVD Coated Carbide			Carbide	Applicable Toolholders	Ref. Page for D.O.C. & Number of Passes		
			mm	TPI	RE	PDX			PNA	TC60	PR90				PR115	KW10
			R	L	R	L			R	L	R				L	
Partial Profile	TT32% 6000	M UN	0.5-2.5	-	56-10	0.000	60°	●	●	●	●	●	KTT%...-16	J45		
			1.0-2.5	-	24-10	0.004		●	●	●	●					
			1.5-2.5	-	16-10	0.008		●	●	●	●					
			2.5	-	11-10	0.012		●	●	●	●					
			-	-	-	-		●	●	●	●					
Full Profile	TT43ER 100M	M	1.00	-	0.005	0.031	60°	●	●	●	●	KTT%...-22	J46			
			1.25	-	0.006	0.035		●	●	●	●					
1.50			-	0.007	0.039	●		●	●	●						
2.00			-	0.010	0.067	●		●	●	●						
Partial Profile	TT43% 6001	M UN	1.0-3.5	-	24-8	0.004	60°	●	●	●	●	KTT%...-22	J45			
			1.5-3.5	-	16-8	0.008		●	●	●	●					
			2.5-3.5	-	11-8	0.012		●	●	●	●					
			3.0-3.5	-	8	0.016		●	●	●	●					
	TT43% 5501	G,PT W	-	28-11	24-7	0.004	55°	●	●	●	●	KTT%...-22	J45			
			-	14-11	16-7	0.008		●	●	●	●					
			-	11	10-7	0.012		●	●	●	●					
			-	8-7	-	0.016		●	●	●	●					

Recommended Cutting Conditions J38

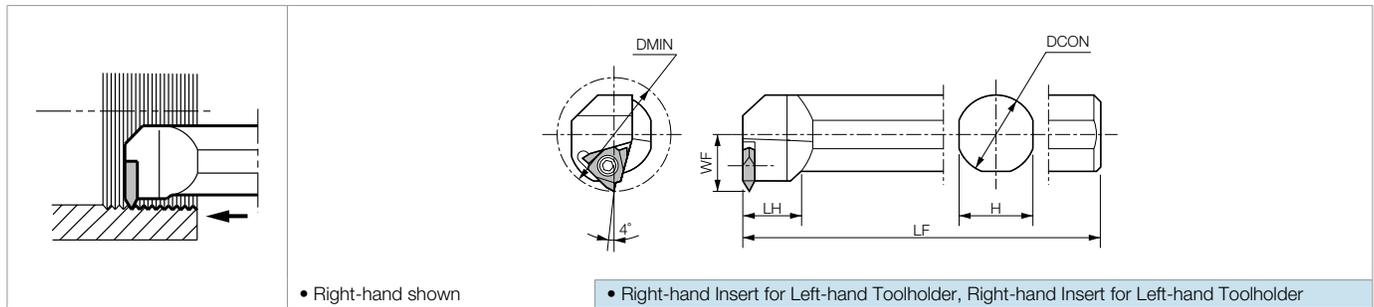
Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	Tr: 30° Trapezoidal

PR930/PR115 Threading Inserts are sold in 5 piece boxes.

All other grade Inserts are sold in 10 piece boxes.

INTERNAL THREADING TOOLHOLDERS [TT INSERT]

KITG



• Right-hand shown

• Right-hand Insert for Left-hand Toolholder, Right-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)					Spare Parts				
	R	L		DMIN	DCON	H	LF	LH	WF	Insert Screw		Wrench	
KITG% 3525T-16	●	●	35	25	23	220	18	17.5	SB-4TR	-	FT-15	-	
4532T-22	●	●	45	32	30	250	20	22.5	-	GS-50	-	LW-3	

• Max. available Pitch: KITG% 3525T-16...P2.5 or 10TPI, KITG% 4532T-22...P3.0 or 8TPI.

Applicable Inserts

Part Number	IC	S	D1	P	Material	Classification of Usage			
						●	○	●	○
						● : Continuous / 1st Choice ○ : Continuous / 2nd Choice			
TT32%	0.375	0.125	0.173	M	Carbon Steel / Alloy Steel	○	○	●	○
TT32%	0.375	0.125	0.173	M	Stainless Steel	○	○	●	○
TT43%	0.500	0.187	0.217	K	Cast Iron	○	○	●	○
TT43%	0.500	0.187	0.217	N	Non-ferrous Metals	○	○	●	○

Shape Right-handed Insert Shown	Part Number	Applicable Thread	Pitch		Dimensions (in)		Angle	Material				Applicable Toolholders	Ref. Page for D.O.C. & Number of Passes		
			mm	TPI	RE	PNA		Cermet		PVD Coated Carbide				Carbide	
								TC60	PR930	PR1115	KW10			R	L	R	L
	TT32% 6000	M UN	0.5~2.5	-	48~10	0.000	60°	●	●	●	●	●	●	KITG%...-16	
		M UN	1.0~2.5	-	16~10	0.004		●	●	●	●	●	●		
	TT32% 5501	G,PT W	-	28~11	24~10	0.004	55°	●	●	●	●	●	●		
		G,PT W	-	16~18	0.008	●		●	●	●	●	●			
	TT43% 6001	M UN	1.5~3.0	14~11	16~10	0.004	60°	●	●	●	●	●	●		KITG%...-22
		M UN	3.0	-	8	0.008		●	●	●	●	●	●		
	TT43% 5501	G,PT W	-	28~11	24~8	0.004	55°	●	●	●	●	●	●		
		G,PT W	-	14~11	16~8	0.008		●	●	●	●	●	●		
		G,PT W	-	11	11~8	0.012		●	●	●	●	●	●		
		G,PT W	-	8	0.016	●		●	●	●	●	●	●		

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	

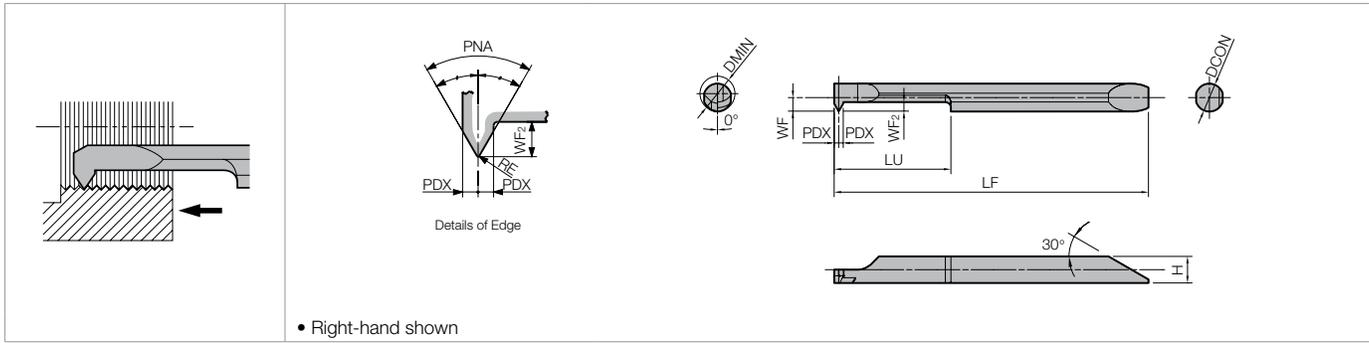
Recommended Cutting Conditions J38

PR930/PR1115 Threading Inserts are sold in 5 piece boxes.

All other grade Inserts are sold in 10 piece boxes.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZT



Toolholder Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)									MEGA COAT	Carbide	Applicable Screw						
		DMIN	DCON	H	LF	LU	WF	WF ₂	PDX	RE			PNA	Metric		Unified		American National Pipe	
														Applicable Thread	Pitch (mm)	Applicable Thread	Pitch (TPI)	Applicable Thread	Pitch (TPI)
EZTR 030025-60-002	3.0	2.5	2.3	35.0	6.5	1.19	1.0	0.5	0.02 ^{+0.01}	60°	●	●	M4 or more Fine Thread: M3.5 or more	P0.5-P0.8	No.8-32UNC No.8-36UNF or more	36-32	-	-	
035030-60-002	3.5	3.0	2.8	39.0	9.0	1.44	1.2	0.6			●	●	M4.5 or more Fine Thread: M4.5 or more	P0.5-P1.0	No.10-24UNC No.8-36UNF or more	36-24	-	-	
040035-60-004	4.0	3.5	3.3	42.0	11.0	1.69	1.2	0.6			●	●	M5 or more Fine Thread: M5 or more	P0.75-P1.25	No.12-24UNC No.12-28UNF or more	28-20	-	-	
050040-60-004	5.0	4.0	3.8	45.0	16.0	1.94	1.3	0.65			●	●	M7 or more Fine Thread: M6 or more	P0.75-P1.5	1/4-20UNC 1/4-28UNF or more	28-18	-	-	
060050-60-004	6.0	5.0	4.8	53.2	20.0	2.44	1.6	0.8			●	●	M8 or more Fine Thread: M7 or more	P0.75-P1.5	5/16-18UNC 5/16-24UNF or more	24-16	1/4NPT 3/8NPT	18	
070060-60-004	7.0	6.0	5.8	61.2	25.0	2.94	2.0	1.0			●	●	M9 or more Fine Thread: M8 or more	P0.75-P1.75	3/8-16UNC 3/8-24UNF or more	24-16	1/4NPT or more	18,14	
												Whitworth		Parallel Pipe / Tapered Pipe					
EZTR 060050-55-008	6.0	5.0	4.8	53.2	20.0	2.44	1.6	0.8	0.085 ^{+0.01}	55°	●	●	W10 TPI 24 or more	24-20	G1/16 R1/16 or more	28			
080070-55-008	8.0	7.0	6.8	64.2	20.5	3.44	2.0	1.0			●	●	W11 TPI 20 or more	20-18	G1/8 R1/8 or more	28,19			

• For American National Pipe (NPT), use EZTR...-60-004 see **J35**

For applicable sleeve see **J33**

Bars are sold in 1 piece boxes

APPLICABLE SLEEVES

EZH Sleeves EZ Bar Sleeves (Listed by Sleeve Shank Dia.)

Sleeve Part Number				EZ Bar Part Number		Applicable Machine Manufacturer
EZH-CT (Adjustable Overhang Length / with Coolant Hole) ● F30~F31	EZH-HP (Adjustable Overhang Length) ● F32~F33	EZH-ST ● F34	Sleeve Shank Dia DCON (mm)	EZT	EZ Bar Shank Dia DCON (mm)	
-	-	EZH 02512ST-80 03012ST-80 03512ST-80 04012ST-80 05012ST-80 06012ST-80 07012ST-80	12.00	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	General Machines
-	EZH 02516HP-100 03016HP-100 03516HP-100 04016HP-100 05016HP-100 06016HP-100 07016HP-100	EZH 02516ST-100 03016ST-100 03516ST-100 04016ST-100 05016ST-100 06016ST-100 07016ST-100	16.00	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	General Machines
EZH 02519CT-120 03019CT-120 03519CT-120 04019CT-120 05019CT-120 06019CT-120 07019CT-120	EZH 02519HP-120 03019HP-120 03519HP-120 04019HP-120 05019HP-120 06019HP-120 07019HP-120	EZH 02519ST-120 03019ST-120 03519ST-120 04019ST-120 05019ST-120 06019ST-120 07019ST-120	0.750"	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	Citizen Machinery
EZH 02520CT-120 03020CT-120 03520CT-120 04020CT-120 05020CT-120 06020CT-120 07020CT-120	EZH 02520HP-120 03020HP-120 03520HP-120 04020HP-120 05020HP-120 06020HP-120 07020HP-120	EZH 02520ST-120 03020ST-120 03520ST-120 04020ST-120 05020ST-120 06020ST-120 07020ST-120	20.00	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
EZH 02522CT-135 03022CT-135 03522CT-135 04022CT-135 05022CT-135 06022CT-135 07022CT-135	EZH 02522HP-135 03022HP-135 03522HP-135 04022HP-135 05022HP-135 06022HP-135 07022HP-135	EZH 02522ST-135 03022ST-135 03522ST-135 04022ST-135 05022ST-135 06022ST-135 07022ST-135	22.00	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	Star Micronics Nomura DS Tsugami
EZH 02525.0CT-135 03025.0CT-135 03525.0CT-135 04025.0CT-135 05025.0CT-135 06025.0CT-135 07025.0CT-135	EZH 02525.0HP-135 03025.0HP-135 03525.0HP-135 04025.0HP-135 05025.0HP-135 06025.0HP-135 07025.0HP-135	EZH 02525.0ST-135 03025.0ST-135 03525.0ST-135 04025.0ST-135 05025.0ST-135 06025.0ST-135 07025.0ST-135	25.00	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	Amada Machine Tools Eguro Tsugami Citizen Machinery General Machines
EZH 02525.4CT-120 03025.4CT-120 03525.4CT-120 04025.4CT-120 05025.4CT-120 06025.4CT-120 07025.4CT-120	EZH 02525.4HP-120 03025.4HP-120 03525.4HP-120 04025.4HP-120 05025.4HP-120 06025.4HP-120 07025.4HP-120	EZH 02525.4ST-120 03025.4ST-120 03525.4ST-120 04025.4ST-120 05025.4ST-120 06025.4ST-120 07025.4ST-120	1.000"	EZTR 030025-... EZTR 035030-... EZTR 040035-... EZTR 050040-... EZTR 060050-... EZTR 070060-... EZTR 080070-...	2.5 3.0 3.5 4.0 5.0 6.0 7.0	Citizen Machinery

- Choose sleeves (DCB) to meet with DCON dimension of bar.
- Adjustment Pin cannot be installed to EZH-ST sleeves. To adjust overhang of the bar, please use EZH-CT/HP sleeves.
- Machine manufacturers in random order.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZT RECOMMENDED CUTTING CONDITIONS

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)	
	MEGACOAT	Carbide
	PR1225	GW05
Carbon Steel/Alloy Steel	★ 100-160	-
Stainless Steel	★ 100-160	-
Non-ferrous Metals	-	★ 100-160

★ : 1st Recommendation

Note:

1) The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds. Variable RPMs due to constant surface speed can result in inaccurate threads. Constant RPM programming is recommended.

2) Coolant is recommended.

◆ D.O.C. & Number of Passes (Metric)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass	20 Pass
0.50	0.30	9	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02											
0.70	0.42	10	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02										
0.75	0.45	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03										
0.80	0.48	11	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03									
1.00	0.61	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
1.25	0.77	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03						
1.50	0.93	17	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03			
1.75	1.10	20	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03

◆ D.O.C. & Number of Passes (Whitworth)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
24	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
20	0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001			
18	0.0358	17	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001

◆ D.O.C. & Number of Passes (Unified: UN, UNC, UNF, UNEF)

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
36	0.0173	8	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001								
32	0.0197	10	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001							
28	0.0217	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001						
24	0.0256	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001						
20	0.0307	14	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001				
18	0.0346	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001		
16	0.0390	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	

EZT RECOMMENDED CUTTING CONDITIONS

Application of Parallel Pipe and Tapered Pipe Thread

Parallel Pipe: G (PF), Rp (PS)

Applicable Thread		TPI	Internal Threading (G, Rp)		Min. Bore Dia. (mm)	Same Root Radius
Inch	Symbol Previous Symbol		Insert			
-	G 1/16 (-)	28	EZTR	06005-55-008	6.56	0.12
1/8	G 1/8 (PF 1/8)	28		08007-55-008	8.57	0.12
2/8	G 1/4 (PF 1/4)	19	EZTR	08007-55-008	11.45	0.18
3/8	G 3/8 (PF 3/8)	19		08007-55-008	14.95	0.18

Tapered Pipe: R, Rc (PT) (BSPT)

Applicable Thread		TPI	Internal Threading (Rc)		Min. Bore Dia. (mm)	Same Root Radius
Inch	Symbol Previous Symbol		Insert			
-	R 1/16, Rc 1/16 (-)	28	EZTR	06005-55-008	-	0.12
1/8	R 1/8, Rc 1/8 (PT 1/8)	28		08007-55-008	-	0.12
2/8	R 1/4, Rc 1/4 (PT 1/4)	19	EZTR	08007-55-008	-	0.18
3/8	R 3/8, Rc 3/8 (PT 3/8)	19		08007-55-008	-	0.18

• When using "EZT type" for Parallel Pipe / Tapered Pipe threading, the thread's corners become sharp edged due to its partial profile, and the shape will not be the same as the standard shape for Parallel Pipe / Tapered Pipe.

D.O.C. & Number of Passes (Parallel Pipe / G(PF), Tapered Pipe / BSPT (PT) (Rc))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass
28	0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001						
19	0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001

Application of American National Tapered Pipe Thread (NPT)

Applicable Thread	TPI	Internal Threading		
		Toolholder	Insert	
			Partial Profile	Full Profile
1/16 NPT	27		No Tools Available	
1/8 NPT			No Tools Available	
1/4 NPT	18	EZH Sleeve	EZTR060050-60-004	-
3/8 NPT			EZTR070060-60-004	-
1/2 NPT	14	EZH Sleeve	EZTR070060-60-004	-
3/4 NPT				-
1/2 NPT	14	SINR1616S-16	-	16IR14NPT
3/4 NPT		SINR2016S-16	-	16IR14NPT

• Application of NPTF Thread

NPTF is the thread for sealing pipes without using any sealing material.

Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above inserts are not applicable to NPTF.

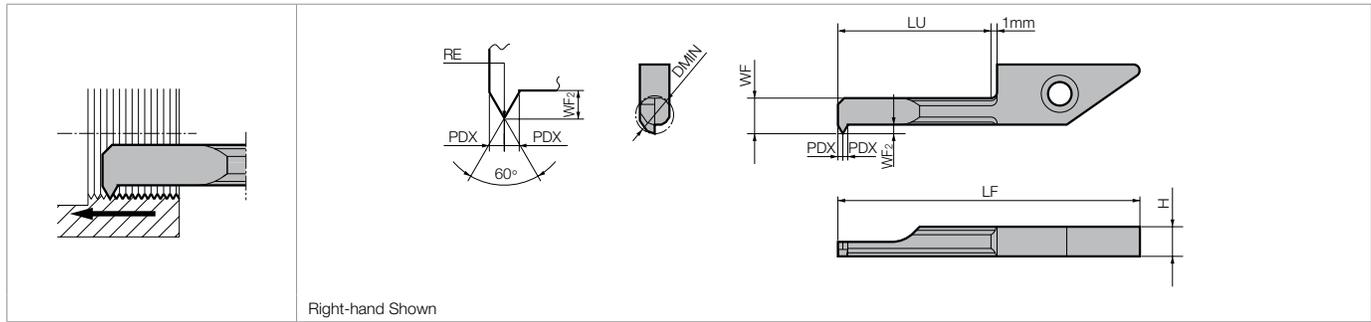
D.O.C. & Number of Passes (American National Tapered Pipe (NPT))

TPI	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass
18	0.0484	16	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001			
14	0.0614	19	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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TIP-BARS FOR MICRO THREADING

VNT (Swiss IQ Bar)



Tip-Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)							Insert Grades			Applicable Thread			
									MEGA COAT	PVD Coated Carbide	Carbide	Metric		Unified	
		DMIN	H	LF	LU	WF	WF2	PDX	RE	PR1225	PR930	KW10	Applicable Thread	Pitch (mm)	Applicable Thread	Pitch TPI
VNTR 045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	+0 -0.02 0.05	●	●	●	M6 or more	P0.75-P1.25	1/4-20UNC, 1/4-28UNF or more	28-20
	060-11	6.0	3.9	30.8	11	4.6	1.6		0.8	●	●	●	M8 or more	P0.75-P1.50	5/16-18UNC, 5/16-24UNF or more	24-18

• See Page F34-F35 for applicable toolholders.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)		
	MEGACOAT	PVD Coated Carbide	Carbide
	PR1225	PR930	KW10
Carbon Steel/Alloy Steel	★ 100-160	☆ 100-160	-
Stainless Steel	★ 100-160	☆ 100-160	-
Non-ferrous Metals	-	-	★ 100-160

★ : 1st Recommendation ☆ : 2nd Recommendation

D.O.C. & Number of Passes (Metric)

Pitch (mm)	Total D.O.C. (mm)	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass
0.75	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03							
1.00	0.60	12	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
1.25	0.76	14	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
1.50	0.92	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03

Note:
1) The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds. Variable RPMs due to constant surface speed can result in inaccurate threads. Constant RPM programming is recommended.

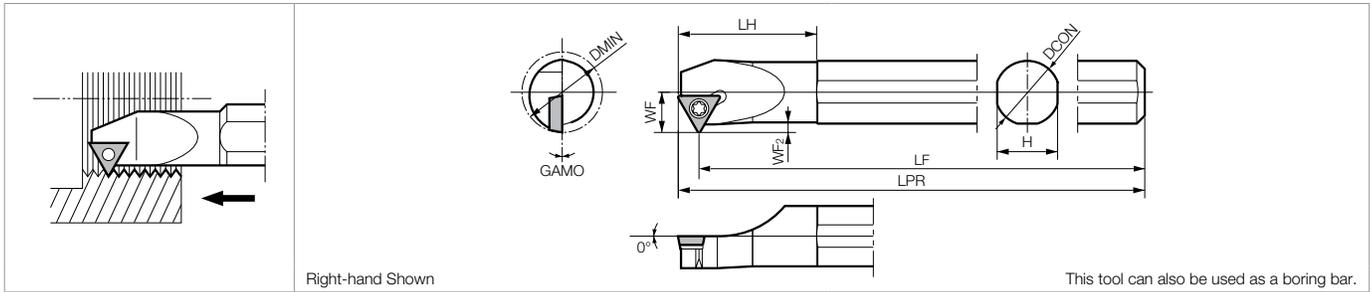
2) Coolant is recommended.

Tip-Bar is sold in 1 piece boxes.

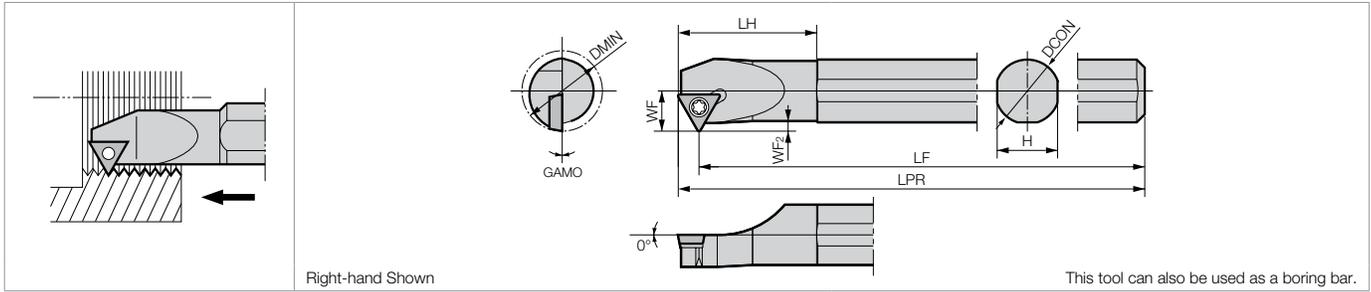
Swiss IQ Bar is sold in 5 piece boxes.

INTERNAL THREADING TOOLHOLDERS [TPGB INSERTS]

S...STWP



S...STWP-E Excellent Bar



Toolholder Dimensions

Part Number	Previous Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						Available Pitch (TPI / mm)	Spare Parts		
		R	L			DMIN	DCON	H	LPR	LH	WF		WF2	GAMO	Clamp Screw	Wrench
S06M -STWP%L-2	-	●		inch	0.476	0.375	0.340	6.00	0.910	0.238	0.050	0.050	14-32 TPI	SB-3STR	FT-10
S08M -STWP%L-2		●			0.630	0.500	0.475	6.00	1.200	0.315	0.065	0.065			
S10X -STWP%L-2		●			0.786	0.625	0.595	7.00	1.400	0.393	0.080	0.080			
S12R -STWP%L-2		●			0.970	0.750	0.720	8.00	1.600	0.485	0.110	0.110			
S16R -STWP%L-2		●			1.240	1.000	0.970	8.00	2.00	0.620	0.120	0.120			
S10M -STWPR11-12	SITR 1210-11	●		mm	12	10	9.2	150	23	6	1.0	1.0	1.5 and under	SB-3STR	FT-10
S12M -STWPR11-16	1612-11	●			16	12	11	150	30	8	1.5	1.5	2.0 and under		
S16Q -STWPR11-20	2016-11	●			20	16	15	180	35	10	2.0	2.0	3.0 and under		
S20R -STWPR11-25	2520-11	●			25	20	19	200	40	12.5	2.5	2.5	3.5 and under		
S10M -STWP%L 11-12E	-	●	●		12	10	9.2	150	23	6	1.0	1.0	1.5 and under	SB-3STR		FT-10
S12M -STWP%L 11-16E		●	●	16	12	11	150	30	8	1.5	1.5	2.0 and under			
S16R -STWP%L 11-20E		●	●	20	16	15	200	35	10	2.0	2.0	3.0 and under			
S20X -STWP%L 11-25E		●	●	25	20	19	220	40	12.5	2.5	2.5	3.5 and under			

Applicable Inserts

Part Number	IC	S	D1	(in)	P	Material				Classification of Usage				
						M	K	N						
TPGB215...	1/4	3/32	0.138		M	Carbon Steel / Alloy Steel		●		● : Continuous / 1st Choice				
TPGB22...	1/4	1/8	0.130		K	Cast Iron			●	○ : Continuous / 2nd Choice				
					N	Non-ferrous Metals			●					
Shape	Part Number			Applicable Thread	Pitch	Dimensions (in)	Angle (°)	Cermet	PVD	Carbide	Applicable Toolholders	Ref. Page for D.O.C. & Number of Passes		
Right-handed Insert Shown					mm	TPI	RE	PNA	TN620	TN60	PV720		KW10	
	TPGB	21501	M UN	0.75~1.5	-	28~16	0.002	60°	●	●	●	S06M-STWP%L-2 ...STWP%L 11-12(E)	J47	
		21502	M UN	1.5	-	16	0.004		●	●	●			
		2202	M UN	1.5~3.5	-	16~8	0.004		●	●	●			...STWP%L-2 ...STWP%L 11-16(E)
		2205	M UN	3.0~3.5	-	8	0.20		●	●	●			...STWP%L 11-20(E) ...STWP%L 11-25(E)

Recommended Cutting Conditions J38

Applicable Thread	M: Metric	R, Rc (PT), (BSPT): Tapered Pipe
	UN: Unified	W: Whitworth
	UNF: Unified Fine Thread	NPT: American National Pipe
	G (PF): Parallel Pipe	

Inserts are sold in 10 piece boxes.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

RECOMMENDED CUTTING CONDITIONS

KTN / KTNS / SIN / CIN

Workpiece Material	Recommended Insert Grade (Vc sfm)					
	Cermet	MEGACOAT	MEGACOAT NANO		PVD Coated Carbide	Carbide
	TC60	PR1215	PR1515	PR1535	PR1115	GW15
Carbon Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Alloy Steel	☆ 330-490	★ 330-490	-	-	☆ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	-	-	0.0118" or less	-
Stainless Steel	☆ 200-260	-	★ 200-330	☆ 130-260	☆ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	-	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Aluminum	-	-	-	-	-	★ 490-1310
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less
Brass	-	-	-	-	-	★ 490-980
Initial D.O.C. (Radial)	-	-	-	-	-	0.0118" or less

• For 061R / 081R inserts, we recommend 40% lower sfm.

KTT

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490-1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490-980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

S...STWP (-E)

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide	Carbide	
	TN6020	TN60	PV7020	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Stainless Steel	-	-	-	-
Initial D.O.C. (Radial)	-	-	-	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Aluminum	-	-	-	★ 490-1310
Initial D.O.C. (Radial)	-	-	-	0.0098" or less
Brass	-	-	-	★ 490-980
Initial D.O.C. (Radial)	-	-	-	0.0098" or less

KTTX / S-KTTX

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490-1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490-980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KITG

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide	Carbide	
	TC60	PR930	PR1115	GW15
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial)	0.0118" or less	0.0118" or less	0.0118" or less	-
Stainless Steel	☆ 200-260	☆ 200-260	★ 200-260	-
Initial D.O.C. (Radial)	0.0098" or less	0.0098" or less	0.0098" or less	-
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490-1310
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490-980
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

KKC / A-KKC (Cera-Notch)

Workpiece Material	Recommended Insert Grade (Vc sfm)			Initial D.O.C. (Radial)
	Cermet	PVD Coated Carbide	MEGACOAT	
	TC60	PR660	PR1215	
Carbon Steel	☆ 300-650	☆ 300-500	★ 300-550	0.012" Max
Alloy Steel	☆ 300-600	☆ 300-450	★ 300-500	0.012" Max
Stainless Steel	☆ 200-300	☆ 150-250	★ 200-300	0.010" Max
Cast Iron	☆ 150-350	-	★ 150-350	0.012" Max
Heat-Resistant Alloy	-	☆ 25-100	★ 25-150	0.010" Max

★ : 1st Recommendation ☆ : 2nd Recommendation

- Coolant is recommended.
- When using cermet inserts if edge chipping occurs lightly hone cutting edge with diamond file.
- For stainless steel threading, please set smaller initial D.O.C. and two or three more passes than threading for carbon steel.

★ : 1st Recommendation ☆ : 2nd Recommendation

DEPTH OF CUT AND NUMBER OF PASSES

11 / 16 (Full Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch TPI	Part Number	HC (mm)	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass			
Parallel Pipe	External Thread	19 TPI 16ER 19W-TF/TQ	0.0350	0.0382	6	0.011	0.009	0.007	0.006	0.004	0.002													
		14 TPI 16ER 14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002										
		11 TPI 16ER 11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002							
	Internal Thread	19 TPI 16IR 19W-TF/TQ	0.0346	0.0378	6	0.010	0.008	0.008	0.006	0.004	0.002													
		14 TPI 16IR 14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002										
		11 TPI 16IR 11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002							
Whitworth	External Thread	16 TPI 16ER 16W-TF/TQ	0.0413	0.0445	8	0.010	0.008	0.007	0.006	0.005	0.003	0.003	0.002											
		14 TPI 16ER 14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002										
		11 TPI 16ER 11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002							
	Internal Thread	16 TPI 16IR 16W-TF/TQ	0.0413	0.0445	8	0.010	0.008	0.007	0.006	0.005	0.003	0.003	0.002											
		14 TPI 16IR 14W-TF/TQ	0.0469	0.0500	9	0.011	0.009	0.007	0.006	0.004	0.004	0.004	0.003	0.002										
		11 TPI 16IR 11W-TF/TQ	0.0591	0.0622	12	0.011	0.009	0.007	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.003	0.002							
Tapered Pipe	External Thread	28 TPI 16ER 28BSPT-TF/TQ	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002														
		19 TPI 16ER 19BSPT-TF/TQ	0.0339	0.0370	6	0.010	0.008	0.007	0.006	0.004	0.002													
		14 TPI 16ER 14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
		11 TPI 16ER 11BSPT-TF/TQ	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002							
		28 TPI 16ER 28BSPT	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002														
		19 TPI 16ER 19BSPT	0.0339	0.0370	6	0.010	0.008	0.007	0.006	0.004	0.002													
	Internal Thread	28 TPI 11IR 28BSPT-TF/TQ	0.0228	0.0248	5	0.008	0.006	0.005	0.004	0.002														
		19 TPI 11IR 19BSPT-TF/TQ	0.0339	0.0370	7	0.009	0.008	0.007	0.006	0.004	0.002	0.002												
		14 TPI 11IR 14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
		14 TPI 16IR 14BSPT-TF/TQ	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
		11 TPI 16IR 11BSPT-TF/TQ	0.0583	0.0614	12	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.002							
		14 TPI 16IR 14BSPT	0.0457	0.0488	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002										
American National Tapered Pipe	External Thread	18 TPI 16ER 18NPT	0.0449	0.0480	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001					
		14 TPI 16ER 14NPT	0.0575	0.0606	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.002	0.001			
		11.5 TPI 16ER 11.5NPT	0.0697	0.0728	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.001	0.001		
	Internal Thread	18 TPI 16IR 18NPT	0.0449	0.0480	13	0.008	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001						
		14 TPI 16IR 14NPT	0.0575	0.0606	15	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.002	0.001			
		11.5 TPI 16IR 11.5NPT	0.0697	0.0728	16	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001	0.001		

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass		
Metric	0.50mm	16ER A60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03												
		AG60-TF/TQ	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03												
	0.75mm	16ER A60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04											
		AG60-TF/TQ	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04											
	1.00mm	16ER A60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04										
		AG60-TF/TQ	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04										
	1.25mm	16ER A60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05									
		AG60-TF/TQ	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05									
	1.50mm	16ER A60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05								
		AG60-TF/TQ	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05								
	1.75mm	16ER G60-TF/TQ	0.22	1.11	8	0.24	0.20	0.18	0.16	0.13	0.10	0.06	0.04									
		AG60-TF/TQ	0.06	1.27	11	0.22	0.20	0.18	0.13	0.11	0.09	0.09	0.08	0.07	0.06	0.04						
	2.00mm	16ER G60-TF/TQ	0.22	1.30	10	0.24	0.20	0.18	0.16	0.14	0.12	0.09	0.07	0.06	0.04							
		AG60-TF/TQ	0.06	1.46	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.06	0.04						
	2.50mm	16ER G60-TF/TQ	0.22	1.67	12	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.10	0.08	0.06	0.04					
		AG60-TF/TQ	0.06	1.84	13	0.25	0.22	0.20	0.19	0.17	0.16	0.14	0.11	0.10	0.09	0.07	0.05					
	3.00mm	16ER G60-TF/TQ	0.22	2.05	14	0.25	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.07	0.05			
		AG60-TF/TQ	0.06	2.22	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.09	0.08	0.05		
	0.50mm	16ER A60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03												
		AG60	0.06	0.33	5	0.10	0.08	0.07	0.05	0.03												
	0.75mm	16ER A60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04											
		AG60	0.06	0.51	6	0.14	0.11	0.09	0.07	0.06	0.04											
	1.00mm	16ER A60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04										
		AG60	0.06	0.70	7	0.18	0.13	0.12	0.09	0.08	0.06	0.04										
1.25mm	16ER A60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05										
	AG60	0.06	0.89	8	0.18	0.15	0.14	0.12	0.10	0.08	0.07	0.05										
1.50mm	16ER A60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05									
	AG60	0.06	1.08	9	0.21	0.17	0.16	0.14	0.11	0.09	0.08	0.07	0.05									
1.75mm	16ER G60	0.22	1.11	8	0.24	0.20																

DEPTH OF CUT AND NUMBER OF PASSES

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	INSERT GRADES		
						Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass		Pass	Pass	Pass	A
Metric	External Thread	22ER N60	0.48	2.17	15	0.27	0.25	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.05					TURNING INSERTS		
				2.55	17	0.28	0.26	0.24	0.22	0.20	0.18	0.17	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05				
				2.93	18	0.30	0.28	0.26	0.25	0.24	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07	0.06	0.05			
				3.31	19	0.30	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.07		0.06	0.05
				0.75mm	06IR 60005	0.05	0.44	10	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03										
	1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.03										
		08IR 60007	0.07	0.58	12	0.07	0.06	0.06	0.06	0.06	0.05	0.04	0.04	0.04	0.04	0.03	0.03										
	1.25mm	06IR 60005	0.05	0.76	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03							
		08IR 60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03								
	1.50mm	08IR 60007	0.07	0.90	17	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03					
	1.75mm	60007	0.07	1.07	19	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03			
	0.50mm			0.30	5	0.08	0.07	0.06	0.05	0.04																	
	1.00mm	11IR A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04																
				0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04													
	1.50mm			0.30	5	0.08	0.07	0.06	0.05	0.04																	
	0.50mm	16IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																	
		AG60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																	
	0.75mm	16IR A60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04																
		AG60	0.02	0.47	6	0.12	0.10	0.08	0.07	0.06	0.04																
1.00mm	16IR A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04																	
	AG60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04																	
1.25mm	16IR A60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04																
	AG60	0.02	0.79	7	0.16	0.15	0.14	0.13	0.10	0.07	0.04																
1.50mm	16IR A60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04														
	AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04														
1.75mm	16IR G60	0.11	1.03	9	0.20	0.17	0.15	0.13	0.11	0.10	0.08	0.05	0.04														
	AG60	0.02	1.12	10	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.06	0.05	0.04													
2.00mm	16IR G60	0.11	1.19	10	0.20	0.18	0.17	0.15	0.13	0.11	0.08	0.07	0.06	0.04													
	39G60	0.02	1.28	12	0.20	0.17	0.15	0.13	0.12	0.11	0.10	0.09	0.07	0.06	0.04	0.04	0.04										
2.50mm	16IR G60	0.11	1.51	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.02									
	AG60	0.02	1.6	16	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04	0.04	0.04	0.02							
3.00mm	16IR G60	0.11	1.84	16	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.02							
	AG60	0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02						
3.50mm			2.05	14	0.26	0.25	0.22	0.20	0.18	0.16	0.14	0.12	0.12	0.11	0.10	0.08	0.06	0.05									
4.00mm	22IR N60	0.22	2.38	16	0.26	0.24	0.23	0.22	0.20	0.18	0.16	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05							
4.50mm			2.70	18	0.26	0.24	0.23	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05					
5.00mm			3.03	19	0.30	0.27	0.25	0.24	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10	0.10	0.08	0.06	0.05				
Unified (inch)	External Thread	48 TPI	16ER A60-TF	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002																
				0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002																
		24 TPI	16ER A60-TF	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002														
				0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002														
		20 TPI	16ER A60-TF	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002													
				0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002													
		18 TPI	16ER A60-TF	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002													
				0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002													
		16 TPI	16ER A60-TF	0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002											
				0.0024	0.0453	10	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002											
		14 TPI	16ER G60-TF	0.0087	0.0453	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002													
				0.0024	0.0520	11	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002										
		13 TPI	16ER G60-TF	0.0087	0.0496	9	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002												
				0.0024	0.0563	11	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002										
		12 TPI	16ER G60-TF	0.0087	0.0543	10	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.002											
				0.0024	0.0610	12	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002										
		10 TPI	16ER G60-TF	0.0087	0.0673	12	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002										
				0.0024	0.0736	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
		9 TPI	16ER G60-TF	0.0087	0.0756	13	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002									
				0.0024	0.0819	14	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002							
	8 TPI	16ER G60-TF	0.0087	0.0862	15	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002										
			0.0024	0.0925	16	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002								
	48 TPI	16ER A60	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002																	
			0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002																	
	24 TPI	16ER A60	0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002															
			0.0024	0.0295	7	0.007	0.006	0.005	0.004	0.003	0.003	0.002															
	20 TPI	16ER A60	0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002														
			0.0024	0.0358	8	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002														
	18 TPI	16ER A60	0.002																								

DEPTH OF CUT AND NUMBER OF PASSES

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass				
Unified (inch)	Internal Thread	18 TPI 081R 60007	0.0028	0.0335	17	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001					
		16 TPI 081R 60007	0.0028	0.0378	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001			
		48 TPI		0.0126	5	0.003	0.003	0.003	0.003	0.002	0.002																	
		24 TPI		0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002																
		20 TPI	111R A60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002														
		18 TPI		0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002														
		16 TPI		0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002													
		48 TPI	161R A60 AG60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002																	
		24 TPI	161R A60 AG60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002															
		20 TPI	161R A60 AG60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002														
		18 TPI	161R A60 AG60	0.0008	0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002													
		16 TPI	161R A60 AG60	0.0008	0.0398	10	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.002												
		14 TPI	161R G60 AG60	0.0043	0.0421	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002												
		13 TPI	161R G60 AG60	0.0043	0.0457	10	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002												
		12 TPI	161R G60 AG60	0.0043	0.0492	12	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002	0.002	0.002	0.002									
		10 TPI	161R G60 AG60	0.0043	0.0496	11	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002									
		9 TPI	161R G60 AG60	0.0043	0.0531	13	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001								
		8 TPI	161R G60 AG60	0.0043	0.0606	14	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.001							
		7 TPI	161R G60 AG60	0.0043	0.0642	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001						
		6 TPI	161R G60 AG60	0.0043	0.0677	16	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001					
		5 TPI	221R N60	0.0087	0.0713	17	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
					0.0043	0.0768	17	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001			
					0.0043	0.0803	19	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	
					0.0087	0.0843	14	0.010	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	
					0.0087	0.0996	17	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	
					0.0087	0.1213	18	0.012	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	
		Parallel Pipe / Tapered Pipe	External Thread	28 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002														
				19 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002													
14 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087			0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002											
11 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087			0.0551	11	0.009	0.009	0.008	0.008	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001									
28 TPI 16ER A55 AG55	0.0024			0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002																
19 TPI 16ER A55 AG55	0.0024			0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002															
14 TPI 16ER G55 AG55	0.0087			0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002											
11 TPI 16ER G55 AG55	0.0087			0.0551	11	0.009	0.009	0.008	0.008	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001									
28 TPI 061R 5501 081R 5501	0.0039			0.0240	12	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001									
19 TPI 081R 5501	0.0039			0.0374	18	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001				
28 TPI 111R A55	0.0024			0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002																
19 TPI 111R A55	0.0024			0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002															
28 TPI 161R A55 AG55	0.0024			0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002																
19 TPI 161R A55 AG55	0.0024			0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002															
14 TPI 161R G55 AG55	0.0087			0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002											
11 TPI 161R G55 AG55	0.0087			0.0551	11	0.009	0.009	0.008	0.008	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001									
Whitworth	External Thread			48 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002																
				24 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002														
				20 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002													
				18 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002												
				16 TPI 16ER A55-TF/TQ AG55-TF/TQ	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002										
				14 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.002	0.002									
				12 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087	0.0551	11	0.009	0.009	0.008	0.008	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001							
				11 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001						
				10 TPI 16ER G55-TF/TQ AG55-TF/TQ	0.0087	0.0705	13	0.010	0.009	0.008	0.008	0.007	0															

DEPTH OF CUT AND NUMBER OF PASSES

60° / 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass	18 Pass	19 Pass			
Whitworth	External Thread	24 TPI	16ER A55	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002														
			AG55	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002														
		20 TPI	16ER A55	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002													
			AG55	0.0024	0.0378	8	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002													
		18 TPI	16ER A55	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002												
			AG55	0.0024	0.0421	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002												
		16 TPI	16ER A55	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002										
			AG55	0.0024	0.0480	11	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.002									
		14 TPI	16ER G55	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002												
			AG55	0.0024	0.0551	11	0.009	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002									
	12 TPI	16ER G55	0.0087	0.0567	10	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002									
		AG55	0.0024	0.0646	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002									
	11 TPI	16ER G55	0.0087	0.0630	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.002									
		AG55	0.0024	0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.002	0.001								
	10 TPI	16ER G55	0.0087	0.0701	12	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.002	0.004	0.003	0.002						
		AG55	0.0024	0.0780	14	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002							
	9 TPI	16ER G55	0.0087	0.0791	14	0.009	0.009	0.008	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002							
		AG55	0.0024	0.0866	15	0.011	0.010	0.009	0.009	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.003	0.002						
	8 TPI	16ER G55	0.0087	0.0902	15	0.011	0.010	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002						
		AG55	0.0024	0.0980	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002	0.002					
7 TPI	22ER N55			0.0957	16	0.012	0.011	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003								
				0.1150	18	0.012	0.011	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002					
6 TPI	22ER N55			0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002		
				0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002		
5 TPI	22ER N55			0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002		
				0.1417	21	0.012	0.011	0.011	0.010	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.003	0.002		
Whitworth	Internal Thread	28 TPI	06IR 5501	0.0039	0.0256	13	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001								
			08IR 5501	0.0039	0.0319	15	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.001					
		24 TPI	11IR A55		0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002													
					0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002													
		20 TPI	11IR A55		0.0024	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002												
					0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002											
		18 TPI	16IR A55		0.0024	0.0283	7	0.006	0.006	0.005	0.004	0.003	0.003	0.002													
					0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002													
		20 TPI	16IR A55		0.0024	0.0343	8	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.002												
					0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002													
	18 TPI	16IR A55		0.0024	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002													
				0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002												
	16 TPI	16IR A55		0.0024	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002												
				0.0433	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002												
	14 TPI	16IR G55		0.0087	0.0417	8	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002													
				0.0500	11	0.008	0.007	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002											
	12 TPI	16IR G55		0.0087	0.0504	9	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.003	0.002												
				0.0583	11	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002											
	11 TPI	16IR G55		0.0087	0.0559	10	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002											
				0.0638	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002										
10 TPI	16IR G55		0.0087	0.0626	12	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002											
			0.0705	13	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002	0.001										
9 TPI	16IR G55		0.0087	0.0705	12	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002										
			0.0783	14	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.002							
8 TPI	16IR G55		0.0087	0.0807	14	0.009	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002								
			0.0886	15	0.011	0.01	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.002							
7 TPI	22IR N55			0.0823																							

DEPTH OF CUT AND NUMBER OF PASSES

TT (60° / 55° Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	A												
																											B							
Metric (60°)	External Thread	0.50mm	TT32% 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02											C											
		0.70mm	TT32% 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02											D										
		0.75mm	TT32% 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02											E									
		0.80mm	TT32% 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02												F								
		1.00mm	TT32% 6000	0.00	0.76	8	0.15	0.12	0.12	0.11	0.10	0.08	0.06	0.02														G						
			TT32/43% 6001	0.10	0.66	6	0.20	0.15	0.12	0.10	0.07	0.02																	H					
			TT32% 6000	0.00	0.95	9	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.05	0.02															I				
		1.25mm	TT32/43% 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02																		J			
			TT32% 6000	0.00	1.14	10	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.07	0.05	0.02																K		
			TT32/43% 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02																		L	
		1.50mm	6002	0.20	0.94	8	0.25	0.18	0.14	0.12	0.10	0.08	0.05	0.02																				M
			TT32% 6000	0.00	1.33	11	0.25	0.23	0.20	0.13	0.10	0.10	0.10	0.08	0.07	0.05	0.02																	
	TT32/43% 6001		0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02								O											
	1.75mm	6002	0.20	1.13	9	0.25	0.23	0.20	0.13	0.10	0.08	0.07	0.05	0.02										P										
		TT32% 6000	0.00	1.52	12	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02								Q									
		TT32/43% 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.10	0.08	0.05	0.02									R								
	2.00mm	6002	0.20	1.32	10	0.25	0.23	0.20	0.16	0.13	0.10	0.08	0.07	0.05	0.02												S							
		TT32% 6000	0.00	1.89	13	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.14	0.13	0.10	0.08	0.06	0.02										T						
		TT32/43% 6001	0.10	1.79	12	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.10	0.06	0.02												U					
	2.50mm	6002	0.20	1.69	11	0.27	0.25	0.20	0.18	0.17	0.15	0.14	0.13	0.10	0.08	0.02														V				
		6003	0.30	1.59	11	0.27	0.25	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.05	0.02															W			
		TT43% 6001	0.10	2.17	14	0.30	0.25	0.23	0.20	0.20	0.18	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02													X		
	3.00mm	6002	0.20	2.07	13	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.13	0.12	0.10	0.05	0.02															Y	
		6003	0.30	1.97	12	0.30	0.25	0.23	0.20	0.20	0.18	0.15	0.14	0.12	0.10	0.08	0.02																	Z
6004		0.40	1.87	12	0.30	0.25	0.23	0.20	0.20	0.18	0.14	0.12	0.10	0.08	0.05	0.02						AA												
3.50mm	TT43% 6001	0.10	2.55	16	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.05	0.02			AB											
	6002	0.20	2.45	15	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.10	0.10	0.05	0.02					AC										
	6003	0.30	2.35	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.15	0.14	0.12	0.10	0.08	0.02							AD									
6004	0.40	2.25	14	0.30	0.27	0.23	0.22	0.20	0.18	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.02				AE													
Internal Thread	0.50mm	TT32% 6000	0.00	0.32	5	0.12	0.08	0.06	0.04	0.02																	AF							
	0.70mm	TT32% 6000	0.00	0.45	6	0.15	0.10	0.08	0.06	0.04	0.02																	AG						
	0.75mm	TT32% 6000	0.00	0.49	6	0.15	0.12	0.08	0.07	0.05	0.02																		AH					
	0.80mm	TT32% 6000	0.00	0.52	6	0.15	0.12	0.10	0.08	0.05	0.02																			AI				
	1.00mm	TT32% 6000	0.00	0.65	7	0.15	0.14	0.12	0.10	0.08	0.04	0.02																			AJ			
	1.25mm	TT32% 6000	0.00	0.81	8	0.18	0.16	0.14	0.12	0.10	0.05	0.04	0.02																			AK		
	1.50mm	TT32% 6000	0.00	0.97	9	0.20	0.18	0.16	0.14	0.10	0.08	0.05	0.04	0.02																				AL
		TT32/43% 6001	0.10	0.87	8	0.20	0.18	0.16	0.14	0.08	0.05	0.04	0.02																				AM	
		TT32% 6000	0.00	1.14	10	0.20	0.18	0.16	0.13	0.12	0.10	0.10	0.08	0.05	0.02	0.02										AN								
	1.75mm	TT32/43% 6001	0.10	1.04	9	0.20	0.18	0.16	0.13	0.12	0.10	0.08	0.05	0.02										AO										
		TT32% 6000	0.00	1.30	12	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.10	0.08	0.05	0.03	0.02								AP									
		TT32/43% 6001	0.10	1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02							AQ											
2.00mm	TT32% 6000	0.00	1.62	14	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.03	0.02				AR												
	TT32/43% 6001	0.10	1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02										AS							
	TT43% 6001	0.10	1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.05	0.02								AT						
6002	0.20	1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02				AU													
Parallel Pipe / Tapered Pipe (55°)	External Thread	28 TPI	TT32% 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001																			AV				
		19 TPI	TT32/43% 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001																	AW			
		14 TPI	TT32/43% 5501	0.0039	0.0528	10	0.010	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.001																		AX
			5502	0.0079	0.0480	9	0.010	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.001																		AY	
		11 TPI	TT32/43% 5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.001															
			5502	0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.001													BA		
	5503	0.0118	0.0591	11	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.001									BB									
	Internal Thread	28 TPI	TT32/43% 5501	0.0039	0.0240	6	0.007	0.006	0.005	0.003	0.002	0.001														BC								
		19 TPI	TT32/43% 5501	0.0039	0.0374	7	0.008	0.007	0.006	0.006	0.005	0.004	0.002											BD										
		14 TPI	TT32/43% 5501	0.0039	0.0528	10	0.008	0.007	0.007	0.006	0.006	0.006	0.004	0.004	0.003	0.002	0.002										BE							
			5502	0.0079	0.0480	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002												BF						
		11 TPI	TT32/43% 5501	0.0039	0.0681	13	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.004	0.003	0.003	0.002	0.001									BG					
5502			0.0079	0.0638	12	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002																	

DEPTH OF CUT AND NUMBER OF PASSES

TT (60° / 55° Partial Profile) Continued...

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
						Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Whitworth (65°)	Internal Thread	24 TPI TT32/43% 5501	0.0039	0.026	0.236	0.008	0.006	0.005	0.004	0.002	0.001													
		20 TPI TT32/43% 5501	0.0039	0.032	0.276	0.008	0.007	0.006	0.005	0.003	0.002	0.001												
		18 TPI TT32/43% 5501	0.0039	0.036	0.315	0.008	0.007	0.006	0.006	0.004	0.002	0.002	0.001											
		16 TPI TT32/43% 5501	0.0039	0.041	0.354	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001										
			5502	0.0079	0.036	0.315	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001										
		14 TPI TT32/43% 5501	0.0039	0.047	0.394	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001									
			5502	0.0079	0.043	0.354	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.002	0.001									
		12 TPI TT32/43% 5501	0.0039	0.056	0.394	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.002	0.001								
			5502	0.0079	0.051	0.354	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.002	0.001									
		11 TPI TT32/43% 5501	0.0039	0.061	0.433	0.010	0.009	0.009	0.007	0.006	0.006	0.005	0.004	0.004	0.004	0.002	0.001							
			5502	0.0079	0.057	0.394	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001								
		10 TPI TT43% 5503	0.0118	0.052	0.354	0.010	0.009	0.008	0.007	0.006	0.006	0.004	0.002	0.001										
			TT32/43% 5501	0.0039	0.068	0.472	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.002	0.001						
		9 TPI TT43% 5501	0.0039	0.076	0.512	0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.001					
			5502	0.0079	0.072	0.472	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.001					
		8 TPI TT43% 5501	0.0039	0.086	0.591	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002	0.001					
			5502	0.0079	0.081	0.551	0.011	0.010	0.009	0.008	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.001					
				5503	0.0118	0.067	0.433	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.004	0.002	0.001						
				5504	0.0157	0.072	0.472	0.012	0.010	0.009	0.008	0.008	0.007	0.006	0.005	0.003	0.002	0.002	0.001					

TT (60° / 55° Full Profile)

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12	
						Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Metric	External Thread	1.00mm TT43E% 100M	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05								
		1.25mm 125M	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05							
		1.50mm 150M	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05							
		2.00mm 200M	1.27	1.35	10	0.26	0.21	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05			

TTX (60° / 55° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1	2	3	4	5	6	7	8	9	10	11	12			
						Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass			
Metric (60°)	External Thread	0.50mm	TTX32R 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02								
			6000S																	
			60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02									
			60005S																	
		0.70mm	TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02	0.02						
			60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02								
		0.75mm	TTX32R 6000	0.00	0.57	8	0.10	0.10	0.10	0.08	0.08	0.05	0.04	0.02						
			60005	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02							
		0.80mm	TTX32R 6000	0.00	0.61	8	0.10	0.10	0.10	0.10	0.08	0.06	0.05	0.02						
			60005	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02							
		1.00mm	TTX32R 6000	0.00	0.76	8	0.15	0.13	0.12	0.12	0.10	0.08	0.04	0.02						
			60005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02							
6001	0.10		0.66	6	0.20	0.15	0.12	0.10	0.07	0.02										
1.25mm	TTX32R 6001	0.10	0.85	7	0.25	0.20	0.13	0.10	0.10	0.05	0.02									
	6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02							
	1.50mm	6001	0.10	1.23	10	0.25	0.23	0.20	0.13	0.10	0.10	0.08	0.07	0.05	0.02					
	1.75mm	6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.10	0.08	0.05	0.02				
Parallel Pipe (65°)	External Thread	28 TPI	TTX32R 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001									
			55015	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001							
		19 TPI	TTX32R 55015	0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002	0.001				
			55015	0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002	0.001		
		14 TPI	TTX32R 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001								
			55015	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001							
		11 TPI	TTX32R 5501	0.0039	0.0331	7	0.008	0.007	0.006	0.005	0.004	0.002	0.001							
			55015	0.0059	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001						
		24 TPI	TTX32R 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001								
			55015	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001							
		Whitworth (65°)	External Thread	20 TPI	TTX32R 5501	0.0039	0.0331	7	0.008	0.007	0.006	0.005	0.004	0.002	0.001					
					55015	0.0059	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001				
18 TPI	TTX32R 5501			0.0039	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001						
	55015			0.0059	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.002	0.001					
16 TPI	TTX32R 5501			0.0039	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001						
	55015			0.0059	0.0504	10	0.010	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001					
14 TPI	TTX32R 5501			0.0039	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001						
	55015			0.0059	0.0598	11	0.010	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.004	0.002	0.001			
12 TPI	TTX32R 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001								
	55015	0.0059	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.002	0.001					

<How to use>

- 1) Select the insert with suitable corner-R (RE) determined by the pitch.
- 2) Do not exceed 0.0118" for the 1st D.O.C.
- 3) Final D.O.C. for Finishing should be 0.0008" - 0.0020".
- 4) To improve insert life, pre chamfer to thread minor diameter.
- 5) Coolant is recommended.

TTX Type

Suitable for threading to the shoulder.

Insert Part Number	Thread Type	Metric (mm)	Unified TPI	Parallel Pipe TPI	Whitworth TPI
TTX32R 60005	0.5~1.0	48~32	-	-	
TTX32R 6001	1.0~2.0	28~14	-	-	
TTX32R 6000S	0.5	56~48	-	-	
TTX32R 60005S	0.5	48	-	-	
TTX32R 5501	-	-	28~19	24~20	
TTX32R 55015	-	-	19~11	20~14	

DEPTH OF CUT AND NUMBER OF PASSES

TPGB Type (60° Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch mm & TPI	Part Number	RE	Total D.O.C.	No. of Passes	1 Pass	2 Pass	3 Pass	4 Pass	5 Pass	6 Pass	7 Pass	8 Pass	9 Pass	10 Pass	11 Pass	12 Pass	13 Pass	14 Pass	15 Pass	16 Pass	17 Pass		
Metric (60°)	Internal Thread	TPGB 21501 2201	0.05	0.44	5	0.15	0.12	0.10	0.05	0.02														
				0.47	5	0.15	0.14	0.10	0.06	0.02														
		TPGB 21501 2201	0.05	0.60	6	0.18	0.14	0.12	0.10	0.04	0.02													
				0.76	7	0.18	0.16	0.14	0.12	0.10	0.04	0.02												
		TPGB 21501 2201	0.05	0.92	8	0.20	0.18	0.16	0.14	0.10	0.08	0.04	0.02											
				1.09	9	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.08	0.05	0.02									
		TPGB 21501 2202	0.05	1.25	11	0.20	0.18	0.16	0.14	0.13	0.12	0.10	0.10	0.06	0.04	0.02								
				1.20	11	0.20	0.18	0.16	0.13	0.13	0.12	0.10	0.08	0.05	0.03	0.02								
		TPGB 21501 2202	0.05	1.57	13	0.23	0.20	0.18	0.18	0.14	0.13	0.12	0.10	0.08	0.07	0.07	0.05	0.02						
				1.52	13	0.23	0.20	0.18	0.18	0.13	0.13	0.12	0.10	0.08	0.07	0.05	0.03	0.02						
		TPGB 21501 2205	0.05	1.90	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.12	0.10	0.08	0.08	0.07	0.05	0.02				
				1.85	15	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.10	0.08	0.07	0.05	0.05	0.02				
				1.75	14	0.25	0.22	0.20	0.18	0.14	0.14	0.13	0.12	0.10	0.08	0.07	0.05	0.05	0.02					
		TPGB 21501 2205	0.05	2.22	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.07	0.05	0.02		
				2.17	16	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.10	0.08	0.07	0.05	0.02			
				2.07	15	0.25	0.22	0.20	0.18	0.18	0.16	0.16	0.14	0.14	0.12	0.10	0.08	0.07	0.05	0.02				

Guide for Internal Threading

For internal threading, ensure consistent diameter and pay attention to chip evacuation.

1. Stabilizing diameters of pre-drilled holes

Because small pitch internal threads have a small corner radius any variation in the diameter of pre drilled holes will greatly affect the tool life of the insert. Please minimize any variation of pre drilled holes and add an air pass to the first thread pass for safety.

2. Chip evacuation

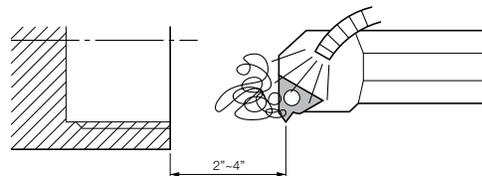
If the threading cycle continues with chips tangled on the holder or in the part it may damage the insert. We suggest starting each thread pass at least 2" from the part to allow room for the coolant to remove chips from the tool on each pass.

< 1 When running the first part of a setup>

Run the program in single block to make sure coolant can remove the chips from the tool after each threading pass.

< 2 When running the second part of a setup>

Run through the full threading cycle and again check that chips are removed from the tool before going into production.



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

APPLICABLE TOOLHOLDERS & INSERTS

The standard specification of the inch size thread is based on the dimension of 1/8".

In Applicable Toolholders and Inserts Lists on **J34~J37**, Right-hand Insert / Right-hand Toolholder descriptions are listed based on the previous TNN type inserts. For other applicable inserts / toolholders or stock availability of Left-hand, see each relevant page and **J40**.

Parallel Pipe : G (PF), Rp (PS)

Inch	Nominal Thread Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (G,Rp)			Root Radius Ext./Int. (mm)		
			Toolholder	Insert		Toolholder	Insert				
		Partial Profile		Full Profile			Partial Profile	Full Profile	Min. Bore Dia.(mm)		
-	G 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF/TQ		SINR0612S-06E (EZT ⚙ J32)	06IR5501	-	6.56	0.12	
1/8	G 1/8 (PF 1/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55				-	-		8.57
2/8	G 1/4 (PF 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF/TQ	16ER19W-TF/TQ	SINR0816S-08E (EZT ⚙ J32)	08IR5501	-	11.45	0.18	
3/8	G 3/8 (PF 3/8)			16ERAG55-TF/TQ 16ERA55 16ERAG55	16ER19W			SINR1216S-11E (EZT ⚙ J32)	11IRA55 11IR55005		-	14.95
4/8	G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF/TQ 16ERG55-TF/TQ 16ERAG55	16ER14W-TF/TQ 16ER14W	SINR1516S-11 SINR1616S-16	11IR55005	-	18.63	0.25	
5/8	G 5/8 (PF 5/8)							16IRAG55 16IRG55 16IR5501 16IR5502	16IR14W-TF/TQ 16IR14W		20.59
6/8	G 3/4 (PF 3/4)							24.12			
7/8	G 7/8 (PF 7/8)							27.88			
8/8	G 1 (PF 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF/TQ 16ERAG55-TF/TQ 16ERAG55 16ERG55	16ER11W-TF/TQ 16ER11W	SINR2420S-16 CINR3025S-16 CINR3732S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16IR11W-TF/TQ 16IR11W	30.29	0.32	
9/8	G 1 1/8 (PF 1 1/8)							34.94			
10/8	G 1 1/4 (PF 1 1/4)							38.95			
Hereafter, all the threads are 11 TPI and the root radius 0.32. The same tool for G 1 1/4 is recommended.											

Tapered Pipe : R, Rc(PT), (BSPT)

Inch	Nominal Thread Symbol (Previous Symbol)	TPI	External Thread (G)			Internal Thread (Rc)			Root Radius Ext./Int. (mm)	
			Toolholder	Insert		Toolholder	Insert			
		Partial Profile		Full Profile			Partial Profile	Full Profile		
-	R 1/16, Rc 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF/TQ	16ER28BSPT-TF/TQ	SINR0612S-06E (EZT ⚙ J32)	06IR5501	-	0.12	
1/8	R 1/8, Rc 1/8 (PT 1/8)	28		16ERAG55-TF/TQ 16ERA55 16ERAG55	16ER28BSPT			-		
2/8	R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF/TQ	16ER19BSPT-TF/TQ	SINR0816S-08E (EZT ⚙ J32)	08IR5501	-	0.18	
3/8	R 3/8, Rc 3/8 (PT 3/8)	19		16ERAG55-TF/TQ 16ERA55 16ERAG55	16ER19BSPT			SINR1216S-11E (EZT ⚙ J32)		11IRA55 11IR55005	11R19BSPT-TF/TQ 11R19BSPT
4/8	R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF/TQ	16ER14BSPT-TF/TQ	SINR1516S-11 SINR1616S-16	11IR55005	11R14BSPT-TF/TQ 11R14BSPT	0.25	
6/8	R 3/4, Rc 3/4 (PT 3/4)	14		16ERAG55-TF/TQ 16ERAG55 16ERG55	16ER14BSPT			SINR2016S-16		16IRAG55 16IRG55 16IR5501 16IR5502	16R14BSPT-TF/TQ 16R14BSPT
8/8	R 1, Rc 1 (PT 1)	11	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF/TQ 16ERAG55-TF/TQ 16ERAG55 16ERG55	16ER11BSPT-TF/TQ 16ER11BSPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	16IRAG55 16IRG55 16IR5501 16IR5502	16R11BSPT-TF/TQ 16R11BSPT	0.32	
10/8	R 1 1/4, Rc 1 1/4 (PT 1 1/4)							34.94		
12/8	R 1 1/2, Rc 1/2 (PT 1/2)							38.95		
Hereafter, all the threads are 11 TPI and the root's radius 0.32. The same tool for G 1 1/2 is recommended.										

1) The largest toolholder available for the minimum bore dia. is recommended for the female threading in these tables.

Then, the toolholder whose min. bore dia. is smaller than the recommended toolholder can be used for threading

2) When using "Partial Profile" for Tapered Pipe threading, thread's corners become sharp edged, and the shape will not be the same as the standard shape for Tapered Pipe.

American National Pipe : NPT

Nominal Thread	TPI	External Thread			Internal Thread		
		Toolholder	Insert		Toolholder	Insert	
			Partial Profile	Full Profile		Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	KTTR○○○○□-16 KTTXR○○○○□-16F	TT32R6000 TTX32R6000	-		No Tools Available	
1/4 NPT 3/8 NPT	18	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER18NPT	EZH Sleeve (See ● J33)	EZTR060050-60-004 EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER14NPT	EZH Sleeve (See ● J33)	EZTR070060-60-004	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER14NPT	SINR1616S-16 SINR2016S-16	-	16IR14NPT
1 NPT 1 1/4 NPT 1 1/2 NPT 2 NPT	11.5	KTNR○○○○□-16 KTNSR○○○○□-16	-	16ER11.5NPT	SINR2420S-16 CINR3025S-16 CINR3732S-16	-	16IR11.5NPT

- Application of NPTF Thread
NPTF is the thread for sealing pipes without using any sealing material.
Thread symbol is similar to NPT but the Tolerance is different from that of NPT and the above Inserts are not available to NPTF.

30° Trapezoidal : Tr

The JIS Standard Trapezoidal Size to be machined by TNN Insert are shown.

Nominal Thread	Pitch (mm)	External Thread			Internal Thread			Min. Bore Dia.(mm)
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
Tr 16X2 Tr 18X2 Tr 20X2	2		No Tools Available		No Tools Available	-	-	14.00
		KTNR○○○○□-16 KTNSR○○○○□-16	16ER200TR	-	SINR1616S-16	16IR200TR	-	16.00 18.00
Tr 22X3 Tr 24X3 Tr 26X3	3				SINR1616S-16 SINR2016S-16	16IR300TR	-	19.00 21.00 23.00
Tr 28X3 Tr 30X3 Tr 32X3 Tr 34X3 Tr 36X3 Tr 38X3 Tr 40X3	3	KTNR○○○○□-16 KTNSR○○○○□-16	16ER300TR	-	SINR2420S-16 SINR3025S-16	16IR300TR	-	25.00 27.00 29.00 31.00 33.00 35.00 37.00
Tr 42X3 Tr 44X3 Tr 46X3 Tr 48X3 Tr 50X3 Tr 52X3 Tr 55X3 Tr 60X3 Tr 65X3	3				CINR3732S-16	16IR300TR	-	39.00 41.00 43.00 45.00 47.00 49.00 52.00 57.00 62.00
Tr 70X3 Tr 75X3 Tr 80X3 Tr 90X3 Tr 95X3 Tr 100X3 Tr 105X3 Tr 110X3	4	KTNR○○○○□-22 KTNSR○○○○□-22	22ER400TR	-	CINR3732S-22	22IR400TR	-	66.00 71.00 76.00 86.00 91.00 96.00 101.00 106.00

TM Thread: TM Thread of old JIS 30°Trapezoidal Thread has been discontinued. But if the Nominal Dia. X Pitch is the same, the above Tr Thread can be used.
TW Thread: TW Thread is 29° Trapezoidal Thread and the above Inserts are not available.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Metric Coarse Thread : M

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1	0.25 0.50	No Tools Available	-	-	0.73
M3			-	-	2.46
M4			EZTR030025-60-002	-	3.24
M5	0.70	-	EZTR040035-60-004	-	4.13
M6	0.80	-	VNTR045-11	-	4.92
M7	1.00	-	EZTR050040-60-004	-	5.92
M8	1.25	-	VNTR045-11	-	
M8	1.25	-	EZTR060050-60-004	-	6.65
		-	VNTR060-11	-	
M9	1.25	SINR0612S-06E	06IR60005	-	7.65
		-	EZTR070060-60-004	-	
M10	1.50	-	SINR0612S-06E	06IR60005	-
M11	1.50	SINR0816S-08E	08IR60007	-	8.38
M12	1.75	SINR0816S-08E	08IR60007	-	9.38
M16	2.00	SINR1216S-11E	-	11IR200ISO	10.11
M18	2.50	No Tools Available			13.84
M20	2.50	SINR1616S-16	Table 5	16IR250ISO-□□	15.29
M22	2.50	-	-	-	17.29
M24	3.00	SINR2016S-16	Table 4	16IR300ISO-□□	19.29
M27	3.00	-	-	-	20.75
M30	3.5	SINR2420S-22	-	22IR350ISO	23.75
M33	3.5	-	-	-	26.21
M36	4.0	CINR3025S-22	-	22IR400ISO	29.21
M39	4.0	-	-	-	31.67
M42	4.5	CINR3732S-22	-	22IR450ISO	34.67
M45	4.5	-	-	-	37.13
M48	5.0	CINR3732S-22	-	22IR500ISO	40.13
M52	5.0	-	-	-	42.59
M56	5.5	* Threading of M56 and over is not available due to too large pitch size.			46.59
					50.05

Metric Fine Thread : M

Part 2

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M12.0x1.50	1.50	SINR0816S-08E	08IR60007	-	10.38
M12.0x1.25	1.25	SINR0816S-08E	08IR60007	-	10.65
M12.0x1.00	1.00	SINR0816S-08E	08IR60007	-	10.92
M14.0x1.50	1.50	SINR1216S-11E	11IRA60	11IR150ISO-□□	12.38
M14.0x1.25	1.25	SINR1216S-11E	11IR60005	11IR125ISO-□□	12.65
M14.0x1.00	1.00	SINR1216S-11E	11IR60005	11IR100ISO-□□	12.92
M15.0x1.50	1.50	SINR1216S-11E	11IRA60	11IR150ISO-□□	13.38
M15.0x1.00	1.00	SINR1216S-11E	11IR60005	11IR100ISO-□□	13.92
M16.0x1.50	1.50	SINR1216S-11E	11IRA60	11IR150ISO-□□	14.38
M16.0x1.00	1.00	SINR1216S-11E	11IR60005	11IR100ISO-□□	14.92
M17.0x1.50	1.50	SINR1516S-11E	11IRA60	11IR150ISO-□□	15.38
M17.0x1.00	1.00	SINR1516S-11E	11IR60005	11IR100ISO-□□	15.92
M18.0x2.00	2.00	SINR1516S-11E	-	11IR200ISO	15.84
M18.0x1.50	1.50	SINR1616S-16	Table 2	16IR150ISO-□□	16.38
M18.0x1.00	1.00	SINR1616S-16	Table 3	16IR100ISO-□□	16.92
M20.0x2.00	2.00	SINR1616S-16	Table 1	16IR200ISO-□□	17.84
M20.0x1.50	1.50	SINR1616S-16	Table 2	16IR150ISO-□□	18.38
M20.0x1.00	1.00	SINR1616S-16	Table 3	16IR100ISO-□□	18.92
M22.0x2.00	2.00	SINR1616S-16	Table 1	16IR200ISO-□□	19.84
M22.0x1.50	1.50	SINR2016S-16	Table 2	16IR150ISO-□□	20.38
M22.0x1.00	1.00	SINR2016S-16	Table 3	16IR100ISO-□□	20.92
M24.0x2.00	2.00	SINR2016S-16	Table 1	16IR200ISO-□□	21.84
M24.0x1.50	1.50	SINR2016S-16	Table 2	16IR150ISO-□□	22.38
M24.0x1.00	1.00	SINR2016S-16	Table 3	16IR100ISO-□□	22.92
M25.0x2.00	2.00	SINR2016S-16	Table 1	16IR200ISO-□□	22.84
M25.0x1.50	1.50	SINR2016S-16	Table 2	16IR150ISO-□□	23.38
M25.0x1.00	1.00	SINR2016S-16	Table 3	16IR100ISO-□□	23.92
M26.0x1.50	1.50	SINR2420S-16	Table 2	16IR150ISO-□□	24.38
M27.0x2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	24.84
M27.0x1.50	1.50	SINR2420S-16	Table 2	16IR150ISO-□□	25.38
M27.0x1.00	1.00	SINR2420S-16	Table 3	16IR100ISO-□□	25.92
M28.0x2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	25.84
M28.0x1.50	1.50	SINR2420S-16	Table 2	16IR150ISO-□□	26.38
M28.0x1.00	1.00	SINR2420S-16	Table 3	16IR100ISO-□□	26.92
M30.0x3.00	3.00	SINR2420S-22	-	22IR300ISO	26.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M30.0x2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	27.84
M30.0x1.50	1.50	SINR2420S-16	Table 2	16IR150ISO-□□	28.38
M30.0x1.00	1.00	SINR2420S-16	Table 3	16IR100ISO-□□	28.92
M32.0x2.00	2.00	SINR2420S-16	Table 1	16IR200ISO-□□	29.84
M32.0x1.50	1.50	CINR3025S-16	Table 2	16IR150ISO-□□	30.38
M33x3.0	3.0	SINR2420S-22	-	22IR300ISO	29.75
		SINR2420S-16	Table 4	16IR300ISO-□□	
M33x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	30.84
M33x1.5	1.5	-	Table 2	16IR150ISO-□□	31.38
M35x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	33.38
M36x3.0	3.0	CINR3025S-22	-	22IR300ISO	32.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M36x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	33.84
M36x1.5	1.5	-	Table 2	16IR150ISO-□□	34.38
M38x1.5	1.5	CINR3025S-16	Table 2	16IR150ISO-□□	36.38
M39x3.0	3.0	CINR3025S-22	-	22IR300ISO	35.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M39x2.0	2.0	CINR3025S-16	Table 1	16IR200ISO-□□	36.84
M39x1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	37.38
M40x3.0	3.0	CINR3025S-22	-	22IR300ISO	36.75
		CINR3025S-16	Table 4	16IR300ISO-□□	
M40x2.0	2.0	CINR3732S-16	Table 1	16IR200ISO-□□	37.84
M40x1.5	1.5	-	Table 2	16IR150ISO-□□	38.38
M42x4.0	4.0	CINR3732S-22	22IRN60	22IR400ISO	37.67
M42x3.0	3.0	-	-	22IR300ISO	38.75
		CINR3732S-16	Table 4	16IR300ISO-□□	
M42x2.0	2.0	-	Table 1	16IR200ISO-□□	39.84
M42x1.5	1.5	CINR3732S-16	Table 2	16IR150ISO-□□	40.38
M45x4.0	5.5	* Threading of M45 and over can be machined by the same tool for M42. (P=4.0, 3.0, 2.0, 1.5)			40.67

Table 1 (P=2.0mm)

16IRG60
16IRAG60
16IR6001

Table 2 (P=1.5mm)

16IRA60
16IRAG60
16IR6001

Table 3 (P=1.0mm)

16IRA60
16IRAG60

Table 4 (P=3.0mm)

16IRG60
16IRAG60

Table 5 (P=2.5mm)

16IRG60
16IRAG60
16IR6001
16IR60015

Metric Fine Thread : M

Part 1

Nominal Thread	Pitch (mm)	Internal Threading			Min. Bore Dia. (mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
M1.0x0.20	0.20	No Tools Available	-	-	0.78
M3.0x0.35	0.35		-	-	4.96
M3.5x0.35	0.35		-	EZTR030025-60-002	-	5.19
M4.5x0.50	0.50	-	EZTR035030-60-002	-	5.19
M5.0x0.50	0.50	-	EZTR040035-60-004	-	-
M6.0x0.75	0.75	-	VNTR045-11	-	5.19
M7.0x0.75	0.75	-	EZTR050040-60-004	-	6.20
		-	VNTR045-11	-	
M8.0x1.00	1.00	-	EZTR060050-60-004	-	6.92
		-	VNTR060-11	-	
M8.0x0.75	0.75	SINR0612S-06E	06IR60005	-	7.19
		-	EZTR060050-60-004	-	
M9.0x1.00	1.00	-	VNTR060-11	-	7.92
		SINR0612S-06E	06IR60005	-	
		SINR0816S-08E	08IR60007	-	
		-	EZTR070060-60-004	-	
M9.0x0.75	0.75	-	VNTR060-11	-	8.19
		SINR0612S-06E	06IR60005	-	
M10.0x1.25	1.25	-	VNTR060-11	-	8.65
		SINR0816S-08E	08IR60007	-	
M10.0x1.00	1.00	-	VNTR060-11	-	8.92
		SINR0816S-08E	08IR60007	-	
M10.0x0.75	0.75	SINR0612S-06E	06IR60005	-	9.19
		-	VNTR060-11	-	
M11.0x1.00	1.00	SINR0816S-08E	08IR60007	-	9.92
		-	VNTR060-11	-	
M11.0x0.75	0.75	SINR0612S-06E	06IR60005	-	10.19
		-	-	-	

• Above shows the usage example of applicable Toolholders / Inserts.

APPLICABLE TOOLHOLDERS & INSERTS (INTERNAL)

Unified Coarse Thread : UNC

Nominal Thread	TPI	Internal Threading			Min. Bore Dia.(mm)	
		Toolholder	Insert			
			Partial Profile	Full Profile		
2-56 UNC	56	No Tools Available	-	-	1.69	
6-32 UNC	32		-	-	2.65	
8-32 UNC	32		-	EZTR030025-60-002	-	3.31
10-24 UNC	24		-	EZTR035030-60-002	-	3.68
1/4-20 UNC	20		-	EZTR050040-60-004	-	4.98
5/16-18 UNC	18	-	VNTR045-11	-	6.41	
		-	EZTR060050-60-004	-		
3/8-16 UNC	16	-	VNTR060-11	-	7.81	
		-	EZTR070060-60-004	-		
7/16-14 UNC	14	-	HPTR07507-60-005	-	9.15	
1/2-13 UNC	13	No Tools Available				10.58
9/16-12 UNC	12	No Tools Available			12.00	
5/8-11 UNC	11	No Tools Available			13.38	
3/4-10 UNC	10	SINR1616S-16	16IRG60	16IR10UN-□□	16.30	
7/8- 9 UNC	9		16IRAG60	-	19.17	
1-8 UNC	8	SINR2016S-16		16IR08UN-□□	21.96	
1 1/8- 7 UNC	7	SINR2420S-22			24.65	
1 1/4- 7 UNC	7				27.82	
1 3/8- 6 UNC	6	CINR3025S-22	22IRN60		30.34	
1 1/2- 6 UNC	6				33.52	
1 3/4- 5 UNC	5	CINR3732S-22			38.95	
1 3/4- 5 UNC	5	CINR3732S-22			38.95	
2-4 1/2 UNC	4 1/2	* 2-4 1/2 UNC and over cannot be machined, because no inserts are available for the TPI.			44.69	

Unified Fine Thread : UNF

Nominal Thread	TPI	Internal Threading			Min. Bore Dia.(mm)	
		Toolholder	Insert			
			Partial Profile	Full Profile		
0-80 UNF	80	No Tools Available	-	-	1.18	
6-40 UNF	40		-	-	2.82	
8-36 UNF	36		-	EZTR030025-60-002	-	3.4
10-32 UNF	32		-	EZTR030025-60-002	-	3.97
1/4-28 UNF	28		-	EZTR050040-60-004	-	5.37
5/16-24 UNF	24	-	VNTR045-11	-	6.79	
		-	VNTR060-11	-		
3/8-24 UNF	24	SINR0612S-06E	06IR60005	-	8.38	
		SINR0612S-06E	EZTR070060-60-004	-		
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74	
1/2-20 UNF	20				11.33	
9/16-18 UNF	18	SINR1216S-11E	11IRA60	-	12.76	
5/8-18 UNF	18		11IR60005	-	14.35	
3/4-16 UNF	16	SINR1516S-11	11IRA60	-	17.33	
		SINR1616S-16	11IR60005	-		
7/8-14 UNF	14	SINR2016S-16		16IR16UN(□□)	20.26	
1-12 UNF	12	SINR2016S-16		16IR14UN(□□)	23.10	
1 1/8-12 UNF	12	SINR2420S-16	16IRAG60		26.28	
1 1/4-12 UNF	12		16IRG60		29.46	
1 3/8-12 UNF	12	CINR3025S-16	16IR6001	16IR12UN(□□)	32.63	
1 1/2-12 UNF	12				36.81	

Whitworth Coarse Thread : W

Nominal Thread	TPI	Internal Threading			Min. Bore Dia.(mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available	-	-	4.91
W 5/16	18		-	-	6.34
W 3/8	16		-	-	7.73
W 7/16	14		-	-	9.06
W 1/2	12		No Tools Available			10.30
W 9/16	12	No Tools Available			11.89
W 5/8	11	No Tools Available			13.26
W 3/4	10	SINR1616S-16	16IRAG55	-	16.17
W 7/8	9		16IRG55	-	19.03
W 1	8	SINR2016S-16		-	21.08
W 1 1/8	7	SINR2420S-22	22IRN55	-	24.47
W 1 1/4	7				27.64
W 1 3/8	6	CINR3025S-22	22IRN55	-	30.13
W 1 1/2	6				33.30
W 1 5/8	5				35.52
W 1 3/4	5	CINR3732S-22	22IRN55	-	38.69
W 1 7/8	4 1/2	No Tools Available			41.23
W 2	4	No Tools Available			44.41
W 2 1/4	4	No Tools Available			49.96

• Above shows the usage example of applicable Toolholders / Inserts.

Whitworth Fine Thread : W

Nominal Thread	TPI	Internal Threading			Min. Bore Dia.(mm)	
		Toolholder	Insert			
			Partial Profile	Full Profile		
W9.5 TPI 24	24	SINR0816S-08E	08IR5501	-	8.30	
W10 TPI 24		-	EZTR060050-55-008	-	8.80	
W10.5 TPI 24		-	-	-	9.30	
W9.5 TPI 20	20	SINR0816S-08E	08IR5501	-	8.06	
W10 TPI 20		-	-	-	8.56	
W10.5 TPI 20		-	-	-	9.06	
W11 TPI 20		-	-	-	9.56	
W11.5 TPI 20		-	-	-	10.06	
W12 TPI 20		-	-	-	10.56	
W12.5 TPI 20	20	-	EZTR080070-55-008	-	11.06	
W13 TPI 20		-	-	-	11.56	
W13.5 TPI 20		SINR1216S-11E	11IRA55	11IR55005	-	12.06
W11 TPI 18	18	No Tools Available			9.40	
W11.5 TPI 18		No Tools Available			9.90	
W12 TPI 18		No Tools Available			10.40	
W12.5 TPI 18		No Tools Available			10.90	
W14 TPI 18	18	SINR1216S-11E	11IRA55	-	12.40	
W14.5 TPI 18			11IR55005	-	12.90	
W15 TPI 18				-	13.40	
W16 TPI 18				-	14.40	
W13 TPI 16	16	No Tools Available			11.20	
W13.5 TPI 16		No Tools Available			11.70	
W14 TPI 16		SINR1216S-11E	11IRA55	-	12.20	
W14.5 TPI 16			11IR55005	-	12.70	
W15 TPI 16	16	SINR1516S-11E		-	13.20	
W17 TPI 16				-	15.20	
W18 TPI 16	16	SINR1616S-16	16IRAG55	(16IR16W-□□)	16.20	
W19 TPI 16			16IRG55		17.20	
W20 TPI 16			16IR5501		18.20	
W16 TPI 14	14	SINR1216S-11E	11IRA55	-	13.94	
W17 TPI 14	14		11IR55005	-	14.94	
W18 TPI 14	14	SINR1516S-11		-	15.94	
W21 TPI 14	14	SINR1616S-16		-	18.94	
W22 TPI 14	14		16IRAG55	(16IR14W-□□)	19.94	
W23 TPI 14			16IRG55	(16IR14W)	20.94	
W24 TPI 14		SINR2016S-16	16IR5501		21.94	
W25 TPI 14			16IR5502		22.94	
W26 TPI 14	12			-	23.94	
W19 TPI 12		SINR1616S-16		-	16.60	
W20 TPI 12				-	17.60	
W21 TPI 12				-	18.60	
W22 TPI 12				-	19.60	
W28 TPI 12		SINR2420S-16		-	25.60	
W30 TPI 12				-	27.60	
W32 TPI 12				-	29.60	
W34 TPI 12		12	CINR3025S-16	16IRAG55	-	31.60
W35 TPI 12				16IRG55	-	32.60
W36 TPI 12			16IR5501	-	33.60	
W38 TPI 12			16IR5502	-	35.60	
W40 TPI 12	12			-	37.60	
W42 TPI 12		CINR3732S-16		-	39.60	
W44 TPI 12				-	41.60	
W45 TPI 12				-	42.60	
W46 TPI 12				-	43.60	
W48 TPI 12				-	45.60	
W50 TPI 12			-	47.60		
Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.					•	
					•	
					•	
W23 TPI 10	10	SINR2016S-16	16IRAG55	-	20.12	
W24 TPI 10			16IRG55	-	21.12	
W25 TPI 10				-	22.12	
W26 TPI 10				-	23.12	
W28 TPI 9	9	SINR2420S-16		-	24.80	
W30 TPI 9				-	26.80	
W32 TPI 9				-	28.80	
W34 TPI 8	8			-	30.40	
W35 TPI 8		CINR3025S-16	16IRAG55	-	31.40	
W36 TPI 8			16IRG55	-	32.40	
W38 TPI 8				-	34.40	
W40 TPI 8				-	36.40	
W42 TPI 8				-	38.40	
W44 TPI 7	7	CINR3732S-22	22IRN55	-	39.89	
W45 TPI 7				-	40.89	
W46 TPI 7				-	41.89	
W48 TPI 7				-	43.89	
W50 TPI 7				-	45.89	
W52 TPI 7	6			-	47.89	
W55 TPI 6		CINR3732S-22	22IRN55	-	50.20	
W58 TPI 6				-	53.20	
W60 TPI 6				-	55.20	
W62 TPI 6	6			-	57.20	
W72 TPI 6				-	67.20	
W75 TPI 5		CINR3732S-22	22IRN55	-	69.24	
W105 TPI 5	4	No Tools Available			99.24	
W110 TPI 4		No Tools Available			102.8	

External Threading (R-hand Thread / L-hand Thread)

		External Threading			
		Right-Hand Thread		Left-Hand Thread	
Toolholder	(R) R-hand			Toolholder	(L) L-hand
Insert	(R) R-hand			Insert	(L) L-hand
The direction of spindle revolution	M03			The direction of spindle revolution	M04
Toolholder	(L) L-hand	Insert	(R) R-hand		
Insert	(L) L-hand	The direction of spindle revolution	M04		
The direction of spindle revolution	M03			Toolholder	(L) L-hand
Toolholder	(R) R-hand			Insert	(L) L-hand
Insert	(R) R-hand			The direction of spindle revolution	M03
The direction of spindle revolution	M04				
Toolholder	(L) L-hand	Insert	(R) R-hand		
Insert	(L) L-hand	The direction of spindle revolution	M04		
The direction of spindle revolution	M03					Toolholder	(L) L-hand
Toolholder	(R) R-hand			Insert	(L) L-hand
Insert	(R) R-hand			The direction of spindle revolution	M03
The direction of spindle revolution	M04				

※ These tables are based on KTN / KTNS / KTT / KTTX Toolholder.

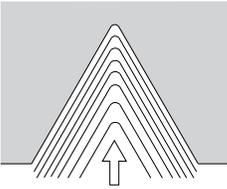
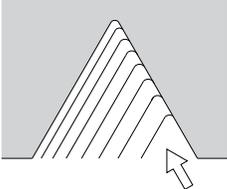
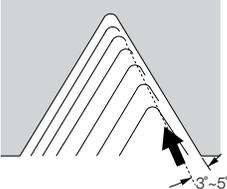
Internal Threading (R-hand Thread / L-hand Thread)

		Internal Threading			
		Right-Hand Thread		Left-Hand Thread	
	Toolholder	(R) R-hand		Toolholder	(L) L-hand
	Insert	(R) R-hand		Insert	(L) L-hand
	The direction of spindle revolution	M03		The direction of spindle revolution	M04
	Toolholder	(L) L-hand		Toolholder	(R) R-hand
	Insert	(L) L-hand		Insert	(R) R-hand
	The direction of spindle revolution	M04		The direction of spindle revolution	M03

※ These tables are based on SIN / CIN type Toolholder.

For KITG type (for large internal threading), Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

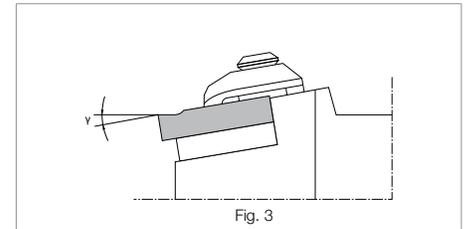
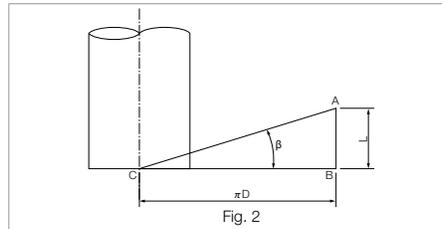
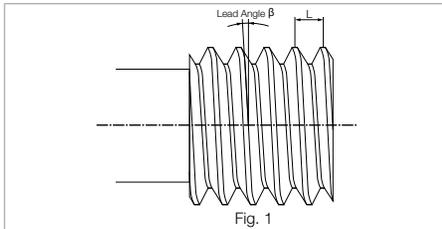
Infeed Methods

Infeed Methods	Features
 <p>Radial Infeed</p>	<ul style="list-style-type: none"> The cutting edge moves toward the center of the workpiece every pass. Suitable for relatively small pitch size threading. V-shape chips are generated and chip control may be difficult depending on workpiece material. Chips prevent coolant from reaching tool tip causing poor tool life.
 <p>Flank Infeed</p>	<ul style="list-style-type: none"> Used for large pitch size threading. No DOC on right side of the figure causes insert wear and on materials that work harden will cause hardening of this surface. Chips flow to one side.
 <p>Flank Compound Infeed</p>	<ul style="list-style-type: none"> Recommended method to reduce work hardening and improve insert life. 3-5 degrees for steel and up to 12 degrees for stainless materials. Chips flow to one side allowing coolant to reach insert tip. This method is recommended to threading by 2-thread insert.

Lead Angle of Thread

Thread's Lead Angle β as shown in Fig. 1 decides from the Work Diameter (Pitch Dia.) "D" and Lead "L"(in case of Single-start Thread, it is the same as Pitch "P"). Rolling a right-angled Triangle around a Cylinder and the Angle ACB in Fig. 2 becomes the Lead Angle β . The Calculation Formula is shown as follows.

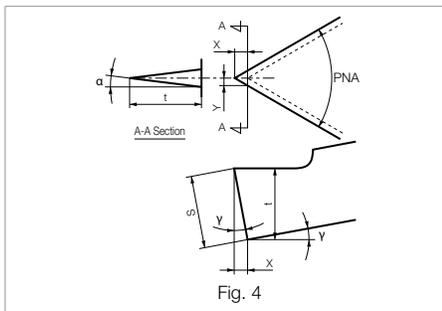
$$\tan \beta = \frac{L}{\pi D} = \frac{nTP}{\pi D} \quad \left[\begin{array}{l} \beta: \text{Lead Angle } D: \text{Pitch Dia. } n: \text{Number of Thread (such as double-start thread) } P: \text{Pitch} \\ L: \text{Lead (In case of single-start thread, it is equal to P. In case of n-start thread, it is equal to } n \times P) \end{array} \right]$$



Relief Angle of Thread

Against this Lead Angle, the Threading Insert needs Side Relief Angle α . TNN type Threading Insert is a negative Insert and it does not prepare the Relief Angle originally. But when installing the Insert on the Toolholder, the Edge Inclination Angle γ is prepared as shown in Fig. 3, and it generates both the front Relief Angle and the Side Relief Angle α . This Side Relief Angle is obtained by the Formula as follows. (See Fig. 4)

$$\tan \alpha = \tan \gamma \times \tan \left(\frac{\theta}{2} \right)$$



Symbol	e.g.)
α : Side Relief Angle	
γ : Inclination Angle after Installing Insert	External Insert : 10° Internal Insert : 15°
PNA: Insert's Thread Angle	Metric : 60° Tapered Pipe : 55° 30° Trapezoidal : 30°
T: Insert Thickness	

$$\begin{cases} X = S \cdot \sin \gamma \\ Y = X \cdot \tan (\theta/2) = t \cdot \tan \alpha \\ t = S \cdot \cos \gamma \end{cases}$$

Table 1

Inserts	Side Relief Angle α	
	External	Internal
60° Thread (M, UN, NPT)	5° 49'	8° 47'
55° Thread (W, G, PT)	5° 14'	7° 56'
30° Trapezoidal (Tr)	2° 43'	5° 7'

See table 1 for the Side Relief Angle depending on the insert. However, the Side Relief Angle for 1° is set by the toolholder itself, and the actual Side Relief Angle becomes $\alpha + 1^\circ$.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Thread Types & Basic Profile / Applicable Toolholders & Inserts

Thread Type	Basic Profile	Symbol (Previous Symbol)	Thread Type	Applicable Insert	Applicable Toolholder
Metric		M e.g.) M30	External Thread	○○E%○○○ISO(-TF/TQ) ○○ER60(-TF/TQ) 16ER60○○	KTN%○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○I%○○○ISO(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SIN%○○○○S-○○(E) CIN%○○○○S-○○
Unified		UN UNC UNF UNEF e.g.) 3/4 -16 UNF	External Thread	○○E%○○○UN(-TF/TQ) ○○ER□□60(-TF/TQ) 16ER60○○	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○IRO○○UN(-TF/TQ) ○○IR□□60 ○○IR60○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
Parallel Pipe		External Threading: G(PF) Internal Threading: G(PF) Rp(PS) e.g.) G3/4 (PF3/4)	External Thread	○○E%○○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○IRO○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
Whitworth		W e.g.) W3/8	External Thread	○○E%○○○W(-TF/TQ) ○○ER□□55 16ER55○○	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○IRO○○W(-TF/TQ) ○○IR□□55 ○○IR55○○(○)	SINR○○○○S-○○(E) CINR○○○○S-○○
Tapered Pipe		External Threading: R(PT) (BSPT) Internal Threading: Rc(PT) (BSPT) e.g.) R1/2 (PT1/2)	External Thread	16ER○○BSPT(-TF/TQ)	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○IRO○○BSPT(-TF/TQ)	SINR○○○○S-○○(E) CINR○○○○S-○○
American National Pipe		NPT e.g.) 3/8 -18 NPT	External Thread	16ER○○(○)NPT	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	16IRO○○(○)NPT	SINR○○○○S-○○ CINR○○○○S-○○
30° Trapezoidal		Tr e.g.) Tr 26x3	External Thread	○○E%○○○TR	KTNR○○○○□-○○ KTN\$R○○○○□-16
			Internal Thread	○○IRO○○TR	SINR○○○○S-○○ CINR○○○○S-○○

• Above shows the usage example of applicable Toolholders / Inserts.

*...For the case when the thread root's corner-R(RE) can be smaller than the standard.

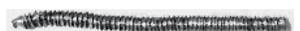
DRILLING

K

K1 - K119

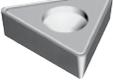
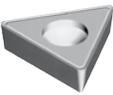
PRODUCT LINEUP			K2
DRA MAGIC DRILL			K4 - K23
SF-DRA	Inch Size - 1.5xD / 3xD	Flange Shank	K9
SF-DRA	Inch Size - 5xD / 8xD	Flange Shank	K10
SS-DRA	Inch Size - 1.5xD / 3xD	Straight Shank	K11
SS-DRA	Inch Size - 5xD / 8xD	Straight Shank	K12
SF-DRA	Metric Size - 1.5xD / 3xD	Flange Shank	K13
SF-DRA	Metric Size - 5xD / 8xD / 12xD	Flange Shank	K14
SS-DRA	Metric Size - 1.5xD / 3xD	Straight Shank	K16
SS-DRA	Metric Size - 5xD / 8xD	Straight Shank	K17
DRC MAGIC DRILL			K24 - K39
SS-DRC	Metric Size - 3xD	Straight Shank	K27
SS-DRC	Metric Size - 5xD	Straight Shank	K28
SS-DRC	Metric Size - 8xD	Straight Shank	K29
Chamfering Attachment	for Straight Shank SS-DRC		K30
SF-DRC	Metric Size - 3xD	Flange Shank	K32
SF-DRC	Metric Size - 5xD	Flange Shank	K33
SF-DRC	Metric Size - 8xD	Flange Shank	K34
DRV MAGIC DRILL			K40 - K65
DRV	Inch Size - 2xD / 3xD	Ø0.500"~Ø2.000"	K45
DRV	Inch Size - 4xD / 5xD	Ø0.500"~Ø2.000"	K47
DRV	Inch Size - 6xD	Ø0.500"~Ø2.000"	K49
DRV	Metric Size - 2xD~6xD	Ø12mm~Ø60mm	K50-K58
DRS / DRZ / DRX MAGIC DRILL			K66 - K101
DRS Magic Drill Mini	Inch / Metric Size	Ø10mm~Ø12.5mm	K67
DRZ	Inch Size - 2xD~4xD	Ø0.562"~Ø2.000"	K68
DRZ	Inch Size - 5xD	Ø1.062"~Ø2.000"	K71
DRZ	Metric Dia. / Inch Shank 3xD	Ø13mm~49mm	K72
DRZ	Metric Size - 2xD~5xD	Ø13mm~59mm	K74
DRX	Inch Size - 5xD	Ø0.562"~Ø1.000"	K85
DRX	Metric Size - 2xD~5xD	Ø12mm~Ø60mm	K86
TROUBLESHOOTING	DRV / DRZ / DRX / DRS		K95
ADJUSTABLE SLEEVES	DRV / DRZ / DRX / DRS		K96
HOLESHOT™ DRILL			K102 - K108
COREMASTER COREDRILL			K109 - K112
STINGER DRILL			K113 - K115
COUNTERBORES / COUNTERSINKS			K116 - K117
CUSTOM DRILLS			K118 - K119

Product Lineup

Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DRA Magic Drill ⊕ K4	 Screw Clamp	Ø0.313"~Ø1.004" Ø7.94mm~Ø25.5mm (1.5D / 3D / 5D / 8D / 12D)	Replaceable Insert Tip with Double Margins  DA	Lineup  SS-DRA SF-DRA
DRC Magic Drill ⊕ K24	 Self-Clamping	Ø0.313"~Ø1.023" Ø7.94mm~Ø25.99mm (3D / 5D / 8D)	Replaceable Insert Tip with Double Margins  DC	Lineup  SS-DRC SF-DRC Chamfering Attachment
DRV Magic Drill ⊕ K40	 Silver Coating	Ø0.500"~Ø2.000" Ø12mm~Ø60mm (2D / 3D / 4D / 5D / 6D)	Individually Designed Inner & Outer Edges  Outer Edge Inside Edge SCMT	Chip Shape (Workpiece: 1049) Drill Dia. Ø20mm Chip from Outer Edge  Chip from Inside Edge 
DRS Magic Drill Mini ⊕ K67	 Silver Coating	Ø0.394"~Ø0.492" Ø10mm~Ø12.5mm (3.5D)	Inside and Outside Edge on One Insert  DS	Chip Shape (Workpiece: 1049) Drill Dia. Ø10mm Chip from Outer Edge  Chip from Inside Edge 
DRZ Magic Drill ⊕ K68	 Silver Coating	Ø0.562"~Ø2.000" Ø13mm~Ø59mm (2D / 3D) Ø0.562"~Ø2.000" Ø13mm~Ø50mm (4D) Ø0.1.062"~Ø2.000" Ø27mm~Ø50mm (5D)	Inside and Outside Edge on One Insert  ZCMT	Chip Shape (Workpiece: 1049) Drill Dia. Ø23mm Chip from Outer Edge  Chip from Inside Edge 
DRX Magic Drill ⊕ K83	 Silver Coating	Ø12mm, Ø12.5mm, Ø13mm (2D / 3D / 4D) Ø12mm, Ø13mm (5D) Ø13.5mm~Ø60mm (2D / 3D / 4D) Ø0.562"~Ø1.000" Ø14mm~Ø60mm (5D)	2 Cutting Edges per Insert  Outer Edge Inside Edge ZXMT03  ZXMT	Chip Shape (Workpiece: 1049) Drill Dia. Ø12mm Chip from Outer Edge  Chip from Inside Edge  Chip Shape (Workpiece: 1049) Drill Dia. Ø24mm Chip from Outer Edge  Chip from Inside Edge 

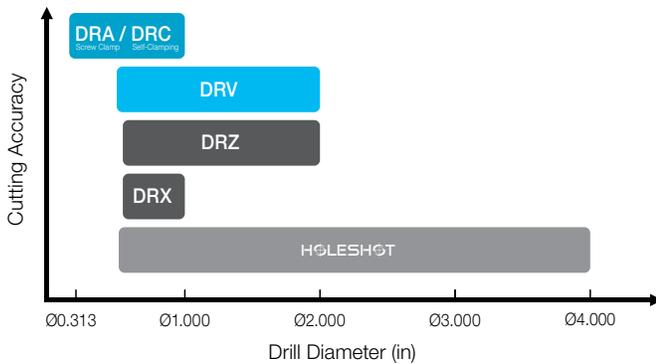
K
DRILLING

Product Lineup

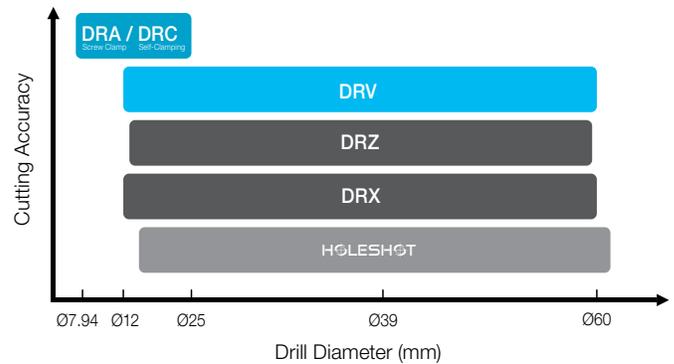
Series Name	Image	Drill Dia. (Drilling Depth)	Cutting Edge	Notes
DR HOLESHOT ◎ K102		Ø0.515"~Ø4.000"	 WCMX	<ul style="list-style-type: none"> Flute design optimized for maximum rigidity and good chip evacuation Swept back design enables drilling of stacked plates and welded assemblies 
CD Coremaster Coredrill ◎ K109		Ø0.825"~Ø3.150"	 WCMX	<ul style="list-style-type: none"> Available in both fixed pocket and adjustable cartridge providing 0.150" adjustment capability on diameter. Fast, effective way to expand pre-existing holes. Two effective flutes allow high feed-rates for improved productivity.
SDR Stinger Drill ◎ K113		Ø0.484"~Ø0.844"	Three cutting edges per insert  TCMT	<ul style="list-style-type: none"> Economical alternative to the Magic Drill Perfect for job shops or small quantity production Ideal for low horsepower machines
Counterbore Countersink ◎ K116 ◎ K117			Three cutting edges per insert  TCMT	Counterbores <ul style="list-style-type: none"> For socket head cap screws 1/4" to 3/4" and 6mm to 16mm Countersinks <ul style="list-style-type: none"> For flat head cap screw sizes #10 to 3/4"

Magic Drill Series Application Map

Inch Size Lineup



Metric Size Lineup



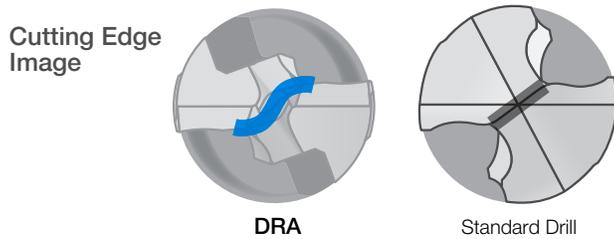
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRA Magic Drill

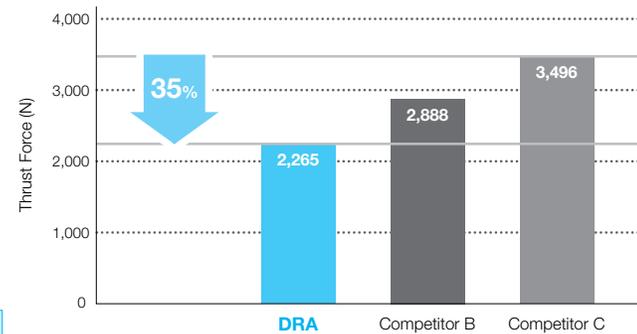
Excellent Hole Accuracy with a Low Cutting Force Design
5 Advantages to Efficiently Solve Common Drilling Difficulties

1 Low Cutting Force Design Improves Hole Accuracy

The special chisel edge with S-curve reduces thrust force and controls vibration



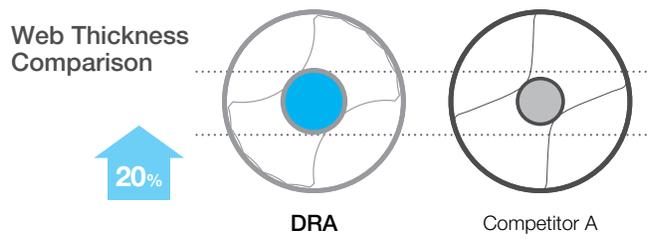
Low Cutting Force Comparison (Internal Evaluation)



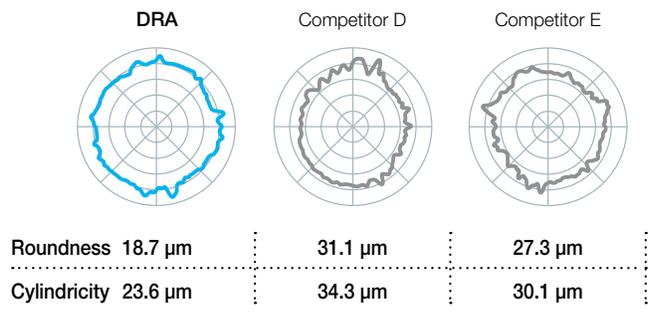
Cutting Conditions : Vc = 390 sfm, f = 0.010 ipr
Drilling Diameter Ø0.551", Drilling Depth 1.772", Wet Workpiece : 1049 Steel

2 Optimal Web Thickness Limits Deflection

The hole accuracy is improved by controlling drill deflection with a 20% thicker web compared with Competitor A



Roundness · Cylindricity Comparison (Internal Evaluation)

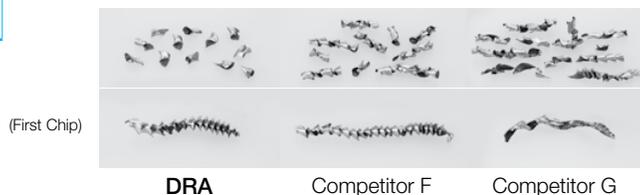


Cutting Conditions : Vc = 390 sfm, f = 0.012 ipr
Drilling Diameter Ø0.551", Measurement Position 2.165", Wet Workpiece : 1049 Steel

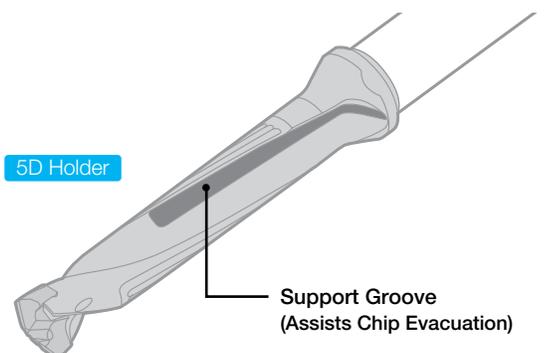
3 Fine Chip Breaking Even in Deep Hole Drilling Applications

Optimized chip thinning for stable chip evacuation
Support groove with wider flute (5D, 8D) enables smooth chip evacuation

Chip Comparison (Internal Evaluation)



Cutting Conditions : Vc = 200 sfm, f = 0.008 ipr, Drilling Diameter 0.551"
Drilling Depth 2.756", Wet Workpiece : 304 Stainless Steel

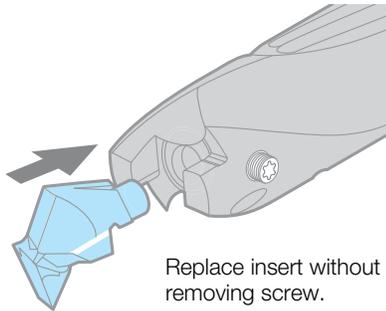


- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER COREDRILL
- STINGER DRILL
- COUNTERBORE COUNTERSINK

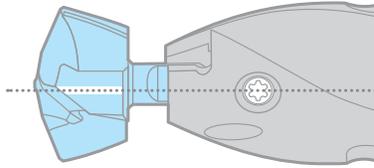
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

4 Easy Insert Replacement

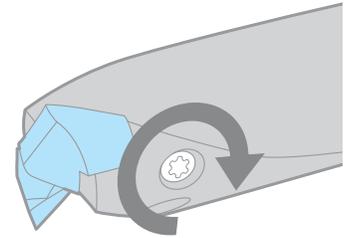
Replace insert without removing screw



Replace insert without removing screw.



Install the insert onto toolholder. (Align insert guide line with screw position)



Fix the insert by tightening the screw.

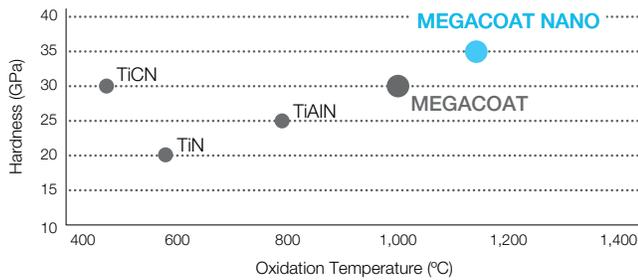
5 Long Tool Life and Stable Machining of Various Workpieces

MEGACOAT NANO grade PR1535 is used to machine various materials from steel to stainless steel, with the combination of a tough substrate and a special nano layer coating

1st Recommendations

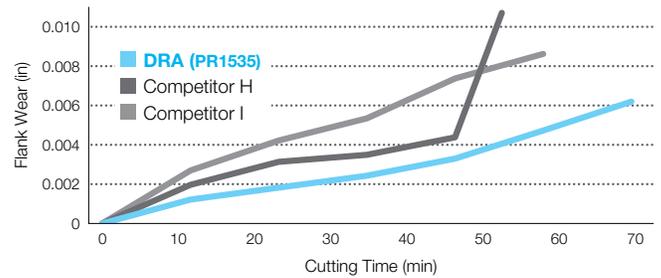
Steel PR1535	Cast Iron PR1525
-----------------	---------------------

Coating Properties



Wear Resistance Comparison

(Internal Evaluation)

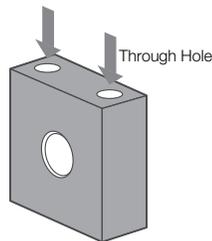


Cutting Conditions : Vc = 330 sfm, f = 0.010 ipr
Drilling Diameter Ø0.551", Cutting Depth 1.772", Wet Workpiece : 4140H

Case Studies

Attachment - Structural Steel

Vc = 230 sfm (n = 1,240 rpm)
f = 0.009 ipr (Vf = 11.221 in/min)
Cutting Depth 3.937"
Wet (Internal Coolant)
With Center Hole Drilling
SF0750-DRA180M-8
DA1800M-GM PR1535



Cutting Time

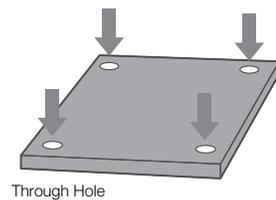


Competitor J applied a peck cycle to avoid chip clogging.
DRA controlled chip evacuation without pecking.

(User Evaluation)

Plate - Stainless Steel

Vc = 195 sfm (n = 2,120 rpm)
f = 0.005 ipr (Vf = 10 in/min)
Cutting Depth 0.591"
Wet (Internal Coolant)
SS0375-DRA090M-3
DA0900M-GM PR1535



No. of Holes

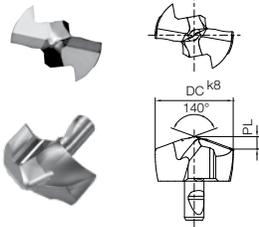


DRA extended the tool life by 5 times compared to Competitor K.
DRA maintained stable machining and excellent surface finish with less cutting noise.

(User Evaluation)

DRA MAGIC DRILL INSERTS

Applicable Inserts (GM - General Purpose)



k8 Tolerance

DC (in)	k8 (in)	DC (mm)	k8 (mm)
0.313~ 0.394	+0.0009 0	7.94~ 10.00	+0.022 0
0.398~ 0.709	+0.0011 0	10.10~ 18.00	+0.027 0
0.713~ 1.004	+0.0013 0	18.10~ 25.50	+0.033 0

k8 is the dimension tolerance of the insert.
It is not the tolerance of the cutting diameter.

Inserts

PR1535 (Steel / Stainless Steel)

PR1525 (Cast Iron)

Part Number	Dimensions		PL (in)	Grade		Applicable Toolholder
	DC			PR1535	PR1525	
	in	mm				
DA 0794M-GM	0.313	7.94	0.053	●	●	SS0375-DRA080M-O SF0500-DRA080M-O (SS10-DRA080M-O) (SF12-DRA080M-O)
0800M-GM	0.315	8.00	0.053	●	●	
0810M-GM	0.319	8.10	0.054	●	●	
0818M-GM	0.322	8.18	0.054	●	□	
0820M-GM	0.323	8.20	0.055	●	●	SS0375-DRA085M-O SF0500-DRA085M-O (SS10-DRA085M-O) (SF12-DRA085M-O)
0830M-GM	0.327	8.30	0.055	●	●	
0840M-GM	0.331	8.40	0.056	●	●	
0850M-GM	0.335	8.50	0.057	●	●	
0860M-GM	0.339	8.60	0.057	●	●	SS0375-DRA090M-O SF0500-DRA090M-O (SS10-DRA090M-O) (SF12-DRA090M-O)
0870M-GM	0.343	8.70	0.058	●	●	
0880M-GM	0.346	8.80	0.059	●	●	
0890M-GM	0.350	8.90	0.060	●	●	
DA 0900M-GM	0.354	9.00	0.060	●	●	SS0500-DRA095M-O SF0500-DRA095M-O (SS10-DRA095M-O) (SF12-DRA095M-O)
0910M-GM	0.358	9.10	0.061	●	●	
0920M-GM	0.362	9.20	0.061	●	●	
0930M-GM	0.366	9.30	0.062	●	●	
0940M-GM	0.370	9.40	0.063	●	●	SS0500-DRA100M-O SF0625-DRA100M-O (SS12-DRA100M-O) (SF16-DRA100M-O)
DA 0950M-GM	0.374	9.50	0.063	●	□	
0953M-GM	0.375	9.53	0.064	●	●	
0960M-GM	0.378	9.60	0.064	●	●	
0970M-GM	0.382	9.70	0.065	●	●	SS0500-DRA105M-O SF0625-DRA105M-O (SS12-DRA105M-O) (SF16-DRA105M-O)
0980M-GM	0.386	9.80	0.066	●	●	
0990M-GM	0.390	9.90	0.066	●	●	
DA 1000M-GM	0.394	10.00	0.067	●	●		SS0500-DRA110M-O SF0625-DRA110M-O (SS12-DRA110M-O) (SF16-DRA110M-O)
1010M-GM	0.398	10.10	0.068	●	●	
1020M-GM	0.402	10.20	0.068	●	●	
1030M-GM	0.406	10.30	0.069	●	●	
1040M-GM	0.409	10.40	0.070	●	●	SS0500-DRA115M-O SF0625-DRA115M-O (SS12-DRA115M-O) (SF16-DRA115M-O)
DA 1050M-GM	0.413	10.50	0.071	●	●	
1060M-GM	0.417	10.60	0.071	●	●	
1070M-GM	0.421	10.70	0.072	●	●	
1072M-GM	0.422	10.72	0.072	●	□	SS0625-DRA120M-O SF0625-DRA120M-O (SS14-DRA120M-O) (SF16-DRA120M-O)
1080M-GM	0.425	10.80	0.073	●	●	
1090M-GM	0.429	10.90	0.073	●	●	
DA 1100M-GM	0.433	11.00	0.074	●	●		SS0625-DRA125M-O SF0625-DRA125M-O (SS14-DRA125M-O) (SF16-DRA125M-O)
1110M-GM	0.437	11.10	0.074	●	●	
1120M-GM	0.441	11.20	0.075	●	●	
1130M-GM	0.445	11.30	0.076	●	●	
1140M-GM	0.449	11.40	0.076	●	●	SS0625-DRA130M-O SF0625-DRA130M-O (SS14-DRA130M-O) (SF16-DRA130M-O)
DA 1150M-GM	0.453	11.50	0.077	●	●	
1160M-GM	0.457	11.60	0.078	●	●	
1170M-GM	0.461	11.70	0.079	●	●	
1180M-GM	0.465	11.80	0.079	●	●	SS0625-DRA135M-O SF0625-DRA135M-O (SS14-DRA135M-O) (SF16-DRA135M-O)
1190M-GM	0.469	11.90	0.080	●	●	
DA 1200M-GM	0.472	12.00	0.080	●	●	
1210M-GM	0.476	12.10	0.081	●	●	
1220M-GM	0.480	12.20	0.081	●	●	SS0625-DRA140M-O SF0625-DRA140M-O (SS16-DRA140M-O) (SF16-DRA140M-O)
1230M-GM	0.484	12.30	0.082	●	●	
1240M-GM	0.488	12.40	0.083	●	●	
DA 1250M-GM	0.492	12.50	0.083	●	●	
1260M-GM	0.496	12.60	0.084	●	●	SS0625-DRA145M-O SF0625-DRA145M-O (SS16-DRA145M-O) (SF16-DRA145M-O)
1270M-GM	0.500	12.70	0.085	●	●	
1280M-GM	0.504	12.80	0.086	●	●	
1290M-GM	0.508	12.90	0.086	●	●	
DA 1300M-GM	0.512	13.00	0.087	●	●	SS0625-DRA150M-O SF0625-DRA150M-O (SS16-DRA150M-O) (SF16-DRA150M-O)
1310M-GM	0.516	13.10	0.087	●	●	
1320M-GM	0.520	13.20	0.088	●	●	
1330M-GM	0.524	13.30	0.089	●	●	
1340M-GM	0.528	13.40	0.089	●	●	SS0625-DRA155M-O SF0625-DRA155M-O (SS16-DRA155M-O) (SF16-DRA155M-O)
DA 1350M-GM	0.531	13.50	0.090	●	●	
1360M-GM	0.535	13.60	0.091	●	●	
1370M-GM	0.539	13.70	0.092	●	●	
1380M-GM	0.543	13.80	0.092	●	●	SS0625-DRA160M-O SF0625-DRA160M-O (SS18-DRA160M-O) (SF20-DRA160M-O)
1390M-GM	0.547	13.90	0.093	●	●	
DA 1400M-GM	0.551	14.00	0.092	●	●	
1410M-GM	0.555	14.10	0.092	●	●	
1420M-GM	0.559	14.20	0.093	●	●	SS0625-DRA165M-O SF0625-DRA165M-O (SS18-DRA165M-O) (SF20-DRA165M-O)
1430M-GM	0.563	14.30	0.094	●	●	
1440M-GM	0.567	14.40	0.094	●	●	
DA 1450M-GM	0.571	14.50	0.095	●	●	
1460M-GM	0.575	14.60	0.096	●	●	SS1000-DRA170M-O SF0750-DRA170M-O (SS18-DRA170M-O) (SF20-DRA170M-O)
1468M-GM	0.578	14.68	0.096	●	□	

*Applicable Toolholders in () are metric

Part Number	Dimensions		PL (in)	Grade		Applicable Toolholder	
	DC			PR1535	PR1525		
	in	mm					
DA 1470M-GM	0.579	14.70	0.097	●	●	SS0625-DRA145M-O SF0625-DRA145M-O (SS16-DRA145M-O) (SF16-DRA145M-O)	
1480M-GM	0.583	14.80	0.097	●	●		
1490M-GM	0.590	14.90	0.098	●	●		
DA 1500M-GM	0.591	15.00	0.099	●	●	SS0625-DRA150M-O SF0750-DRA150M-O (SS16-DRA150M-O) (SF20-DRA150M-O)	
1510M-GM	0.594	15.10	0.100	●	●		
1520M-GM	0.598	15.20	0.101	●	●		
1530M-GM	0.602	15.30	0.101	●	●		
1540M-GM	0.606	15.40	0.102	●	●		
1550M-GM	0.610	15.50	0.103	●	●		
1560M-GM	0.614	15.60	0.103	●	●		
1570M-GM	0.618	15.70	0.104	●	●		
1580M-GM	0.622	15.80	0.105	●	●		
1588M-GM	0.625	15.88	0.106	●	□		
1590M-GM	0.626	15.90	0.106	●	●	SS0750-DRA160M-O SF0750-DRA160M-O (SS18-DRA160M-O) (SF20-DRA160M-O)	
DA 1600M-GM	0.630	16.00	0.106	●	●		
1610M-GM	0.634	16.10	0.107	●	●		
1620M-GM	0.638	16.20	0.107	●	●		
1630M-GM	0.642	16.30	0.108	●	●		
1640M-GM	0.646	16.40	0.109	●	●		
1650M-GM	0.650	16.50	0.110	●	●		
1660M-GM	0.654	16.60	0.110	●	●		
1667M-GM	0.656	16.67	0.111	●	□		
1670M-GM	0.657	16.70	0.111	●	●		
1680M-GM	0.661	16.80	0.112	●	●	SS0750-DRA170M-O SF0750-DRA170M-O (SS18-DRA170M-O) (SF20-DRA170M-O)	
1690M-GM	0.665	16.90	0.112	●	●		
DA 1700M-GM	0.669	17.00	0.113	●	●		
1710M-GM	0.673	17.10	0.113	●	●		
1720M-GM	0.677	17.20	0.114	●	●		
1730M-GM	0.681	17.30	0.115	●	●		
1740M-GM	0.685	17.40	0.116	●	●		
1746M-GM	0.687	17.46	0.116	●	□		
1750M-GM	0.689	17.50	0.116	●	●		
1760M-GM	0.693	17.60	0.117	●	●		
1770M-GM	0.697	17.70	0.118	●	●	SS0750-DRA180M-O SF0750-DRA180M-O (SS20-DRA180M-O) (SF25-DRA180M-O)	
1780M-GM	0.701	17.80	0.118	●	●		
1790M-GM	0.705	17.90	0.119	●	●		
DA 1800M-GM	0.709	18.00	0.120	●	●		
1810M-GM	0.713	18.10	0.120	●	●		
1820M-GM	0.717	18.20	0.121	●	●		
1830M-GM	0.720	18.30	0.122	●	●		
1840M-GM	0.724	18.40	0.122	●	●		
1850M-GM	0.728	18.50	0.123	●	●		
1860M-GM	0.732	18.60	0.124	●	●		
1870M-GM	0.736	18.70	0.125	●	●	SS1000-DRA190M-O SF0750-DRA190M-O (SS20-DRA190M-O) (SF25-DRA190M-O)	
1880M-GM	0.740	18.80	0.125	●	●		
1890M-GM	0.744	18.90	0.126	●	●		
DA 1900M-GM	0.748	19.00	0.126	●	●		
1905M-GM	0.750	19.05	0.127	●	□		
1910M-GM	0.752	19.10	0.127	●	●		
1920M-GM	0.756	19.20	0.128	●	●		
1930M-GM	0.760	19.30	0.129	●	●		
1940M-GM	0.764	19.40	0.129	●	●		
1950M-GM	0.768	19.50	0.130	●	●		
1960M-GM	0.772	19.60	0.131	●	●	SS1000-DRA200M-O SF1000-DRA200M-O (SS25-DRA200M-O) (SF25-DRA200M-O)	
1970M-GM	0.776	19.70	0.132	●	●		
1980M-GM	0.780	19.80	0.132	●	●		
1990M-GM	0.783	19.90	0.133	●	●		
DA 2000M-GM	0.787	20.00	0.133	●	●		
2010M-GM	0.791	20.10	0.134	●	●		
2020M-GM	0.795	20.20	0.134	●	●		
2030M-GM	0.799	20.30	0.135	●	●		
2040M-GM	0.803	20.40	0.136	●	●		
2050M-GM	0.807	20.50	0.136	●	●		
2060M-GM	0.811	20.60	0.137	●	●	SS1000-DRA210M-O SF1000-DRA210M-O (SS25-DRA210M-O) (SF25-DRA210M-O)	
2064M-GM	0.813	20.64	0.137	●	□		
2070M-GM	0.815	20.70	0.138	●	●		
2080M-GM	0.819	20.80	0.139	●	●		
2090M-GM	0.823	20.90	0.139	●	●		
DA 2100M-GM	0.827	21.00	0.140	●	●		
2150M-GM	0.846	21.50	0.143	●	●		SS1000-DRA220M-O SF1000-DRA220M-O (SS25-DRA220M-O) (SF25-DRA220M-O)
DA 2200M-GM	0.866	22.00	0.146	●	●		
2223M-GM	0.875	22.23	0.148	●	●		
2250M-GM	0.886	22.50	0.150	●	●		SS1000-DRA230M-O SF1000-DRA230M-O (SS25-DRA230M-O) (SF25-DRA230M-O)
DA 2300M-GM	0.906	23.00	0.153	●	●		
2350M-GM	0.925	23.50	0.156	●	●		
2381M-GM	0.937	23.81	0.158	●	□	SS1000-DRA240M-O SF1000-DRA240M-O (SS25-DRA240M-O) (SF25-DRA240M-O)	
DA 2400M-GM	0.945	24.00	0.159	●	●		
2450M-GM	0.965	24.50	0.163	●	●		SS1000-DRA250M-O SF1000-DRA250M-O (SS32-DRA250M-O) (SF25-DRA250M-O)
DA 2500M-GM	0.984	25.00	0.165	●	●		
2540M-GM	1.000	25.40	0.168	●	□		
2550M-GM	1.004	25.50	0.169	●	●		

Recommended Cutting Conditions K18

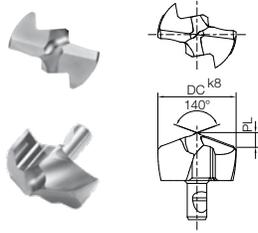
Inserts are sold in 1 piece boxes

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

DRA MAGIC DRILL INSERTS

Applicable Inserts (KM - Cast Iron)



k8 Tolerance

DC (in)	k8 (in)	DC (mm)	k8 (mm)
0.313~ 0.394	+0.0009 0	7.94~ 10.00	+0.022 0
0.398~ 0.709	+0.0011 0	10.10~ 18.00	+0.027 0
0.713~ 1.004	+0.0013 0	18.10~ 25.50	+0.033 0

k8 is the dimension tolerance of the insert.
It is not the tolerance of the cutting diameter.

Inserts

PR1525 (Cast Iron)

Part Number	Dimensions		PL (in)	Grade PR1525	Applicable Toolholder
	DC in	DC mm			
DA 0794M-KM	0.313	7.94	0.072	●	SS0375-DRA080M-O SF0500-DRA080M-O (SF12-DRA080M-O)
DA 0800M-KM	0.315	8.00	0.073	●	
DA 0810M-KM	0.319	8.10	0.074	●	
DA 0820M-KM	0.323	8.20	0.076	●	
DA 0830M-KM	0.327	8.30	0.078	●	SS0375-DRA085M-O SF0500-DRA085M-O (SF12-DRA085M-O)
DA 0840M-KM	0.331	8.40	0.080	●	
DA 0850M-KM	0.335	8.50	0.081	●	
DA 0860M-KM	0.339	8.60	0.083	●	
DA 0870M-KM	0.343	8.70	0.084	●	SS0375-DRA090M-O SF0500-DRA090M-O (SF12-DRA090M-O)
DA 0880M-KM	0.346	8.80	0.086	●	
DA 0890M-KM	0.350	8.90	0.088	●	
DA 0900M-KM	0.354	9.00	0.080	●	
DA 0910M-KM	0.358	9.10	0.081	●	SS0500-DRA095M-O SF0500-DRA095M-O (SF12-DRA095M-O)
DA 0920M-KM	0.362	9.20	0.083	●	
DA 0930M-KM	0.366	9.30	0.085	●	
DA 0940M-KM	0.370	9.40	0.086	●	
DA 0950M-KM	0.374	9.50	0.088	●	SS0500-DRA100M-O SF0625-DRA100M-O (SF16-DRA100M-O)
DA 0960M-KM	0.378	9.60	0.089	●	
DA 0970M-KM	0.382	9.70	0.091	●	
DA 0980M-KM	0.386	9.80	0.093	●	
DA 0990M-KM	0.390	9.90	0.094	●	SS0500-DRA105M-O SF0625-DRA105M-O (SF16-DRA105M-O)
DA 1000M-KM	0.394	10.00	0.087	●	
DA 1010M-KM	0.398	10.10	0.088	●	
DA 1020M-KM	0.402	10.20	0.090	●	
DA 1030M-KM	0.406	10.30	0.091	●	SS0500-DRA110M-O SF0625-DRA110M-O (SF16-DRA110M-O)
DA 1040M-KM	0.409	10.40	0.093	●	
DA 1050M-KM	0.413	10.50	0.095	●	
DA 1060M-KM	0.417	10.60	0.096	●	
DA 1070M-KM	0.421	10.70	0.098	●	SS0500-DRA115M-O SF0625-DRA115M-O (SF16-DRA115M-O)
DA 1080M-KM	0.425	10.80	0.100	●	
DA 1090M-KM	0.429	10.90	0.101	●	
DA 1100M-KM	0.433	11.00	0.098	●	
DA 1110M-KM	0.437	11.10	0.100	●	SS0625-DRA120M-O SF0625-DRA120M-O (SF16-DRA120M-O)
DA 1120M-KM	0.441	11.20	0.102	●	
DA 1130M-KM	0.445	11.30	0.104	●	
DA 1140M-KM	0.449	11.40	0.105	●	
DA 1150M-KM	0.453	11.50	0.107	●	SS0625-DRA125M-O SF0625-DRA125M-O (SF16-DRA125M-O)
DA 1160M-KM	0.457	11.60	0.108	●	
DA 1170M-KM	0.461	11.70	0.110	●	
DA 1180M-KM	0.465	11.80	0.112	●	
DA 1190M-KM	0.469	11.90	0.113	●	SS1000-DRA130M-O SF1000-DRA130M-O (SF25-DRA130M-O)
DA 1200M-KM	0.472	12.00	0.106	●	
DA 1210M-KM	0.476	12.10	0.107	●	
DA 1220M-KM	0.480	12.20	0.109	●	
DA 1230M-KM	0.484	12.30	0.110	●	SS1000-DRA200M-O SF1000-DRA200M-O (SF25-DRA200M-O)
DA 1240M-KM	0.488	12.40	0.112	●	
DA 1250M-KM	0.492	12.50	0.114	●	
DA 1260M-KM	0.496	12.60	0.115	●	
DA 1270M-KM	0.500	12.70	0.117	●	SS1000-DRA210M-O SF1000-DRA210M-O (SF25-DRA210M-O)
DA 1280M-KM	0.504	12.80	0.119	●	
DA 1290M-KM	0.508	12.90	0.120	●	
DA 1300M-KM	0.512	13.00	0.111	●	
DA 1310M-KM	0.516	13.10	0.113	●	SS1000-DRA220M-O SF1000-DRA220M-O (SF25-DRA220M-O)
DA 1320M-KM	0.520	13.20	0.115	●	
DA 1330M-KM	0.524	13.30	0.117	●	
DA 1340M-KM	0.528	13.40	0.118	●	
DA 1350M-KM	0.531	13.50	0.120	●	SS1000-DRA230M-O SF1000-DRA230M-O (SF25-DRA230M-O)
DA 1360M-KM	0.535	13.60	0.121	●	
DA 1370M-KM	0.539	13.70	0.123	●	
DA 1380M-KM	0.543	13.80	0.125	●	
DA 1390M-KM	0.547	13.90	0.126	●	SS1000-DRA240M-O SF1000-DRA240M-O (SF25-DRA240M-O)
DA 1400M-KM	0.551	14.00	0.120	●	
DA 1410M-KM	0.555	14.10	0.122	●	
DA 1420M-KM	0.559	14.20	0.123	●	
DA 1430M-KM	0.563	14.30	0.125	●	SS1000-DRA250M-O SF1000-DRA250M-O (SF25-DRA250M-O)
DA 1440M-KM	0.567	14.40	0.126	●	
DA 1450M-KM	0.571	14.50	0.128	●	
DA 1460M-KM	0.575	14.60	0.130	●	
DA 1470M-KM	0.579	14.70	0.131	●	SS32-DRA250M-O (SF25-DRA250M-O)
DA 1480M-KM	0.583	14.80	0.133	●	
DA 1490M-KM	0.590	14.90	0.135	●	

*Applicable Toolholders in () are metric

Part Number	Dimensions		PL (in)	Grade PR1525	Applicable Toolholder
	DC in	DC mm			
DA 1500M-KM	0.591	15.00	0.128	●	SS0625-DRA150M-O SF0750-DRA150M-O (SF20-DRA150M-O)
DA 1510M-KM	0.594	15.10	0.129	●	
DA 1520M-KM	0.598	15.20	0.131	●	
DA 1530M-KM	0.602	15.30	0.133	●	
DA 1540M-KM	0.606	15.40	0.134	●	
DA 1550M-KM	0.610	15.50	0.136	●	
DA 1560M-KM	0.614	15.60	0.137	●	
DA 1570M-KM	0.618	15.70	0.139	●	
DA 1580M-KM	0.622	15.80	0.141	●	
DA 1590M-KM	0.626	15.90	0.143	●	
DA 1600M-KM	0.630	16.00	0.135	●	SS0750-DRA160M-O SF0750-DRA160M-O (SF20-DRA160M-O)
DA 1610M-KM	0.634	16.10	0.137	●	
DA 1620M-KM	0.638	16.20	0.138	●	
DA 1630M-KM	0.642	16.30	0.140	●	
DA 1640M-KM	0.646	16.40	0.142	●	
DA 1650M-KM	0.650	16.50	0.143	●	
DA 1660M-KM	0.654	16.60	0.145	●	
DA 1670M-KM	0.657	16.70	0.146	●	
DA 1680M-KM	0.661	16.80	0.148	●	
DA 1690M-KM	0.665	16.90	0.150	●	
DA 1700M-KM	0.669	17.00	0.142	●	SS0750-DRA170M-O SF0750-DRA170M-O (SF20-DRA170M-O)
DA 1710M-KM	0.673	17.10	0.144	●	
DA 1720M-KM	0.677	17.20	0.145	●	
DA 1730M-KM	0.681	17.30	0.147	●	
DA 1740M-KM	0.685	17.40	0.149	●	
DA 1750M-KM	0.689	17.50	0.150	●	
DA 1760M-KM	0.693	17.60	0.152	●	
DA 1770M-KM	0.697	17.70	0.154	●	
DA 1780M-KM	0.701	17.80	0.156	●	
DA 1790M-KM	0.705	17.90	0.157	●	
DA 1800M-KM	0.709	18.00	0.149	●	SS0750-DRA180M-O SF0750-DRA180M-O (SF25-DRA180M-O)
DA 1810M-KM	0.713	18.10	0.151	●	
DA 1820M-KM	0.717	18.20	0.153	●	
DA 1830M-KM	0.720	18.30	0.154	●	
DA 1840M-KM	0.724	18.40	0.156	●	
DA 1850M-KM	0.728	18.50	0.157	●	
DA 1860M-KM	0.732	18.60	0.159	●	
DA 1870M-KM	0.736	18.70	0.161	●	
DA 1880M-KM	0.740	18.80	0.163	●	
DA 1890M-KM	0.744	18.90	0.164	●	
DA 1900M-KM	0.748	19.00	0.156	●	SS1000-DRA190M-O SF0750-DRA190M-O (SF25-DRA190M-O)
DA 1910M-KM	0.752	19.10	0.158	●	
DA 1920M-KM	0.756	19.20	0.159	●	
DA 1930M-KM	0.760	19.30	0.161	●	
DA 1940M-KM	0.764	19.40	0.163	●	
DA 1950M-KM	0.768	19.50	0.165	●	
DA 1960M-KM	0.772	19.60	0.166	●	
DA 1970M-KM	0.776	19.70	0.168	●	
DA 1980M-KM	0.780	19.80	0.169	●	
DA 1990M-KM	0.783	19.90	0.171	●	
DA 2000M-KM	0.787	20.00	0.165	●	SS1000-DRA200M-O SF1000-DRA200M-O (SF25-DRA200M-O)
DA 2010M-KM	0.791	20.10	0.167	●	
DA 2020M-KM	0.795	20.20	0.169	●	
DA 2030M-KM	0.799	20.30	0.170	●	
DA 2040M-KM	0.803	20.40	0.172	●	
DA 2050M-KM	0.807	20.50	0.174	●	
DA 2060M-KM	0.811	20.60	0.175	●	
DA 2070M-KM	0.815	20.70	0.177	●	
DA 2080M-KM	0.819	20.80	0.179	●	
DA 2090M-KM	0.823	20.90	0.180	●	
DA 2100M-KM	0.827	21.00	0.172	●	SS1000-DRA210M-O SF1000-DRA210M-O (SF25-DRA210M-O)
DA 2150M-KM	0.846	21.50	0.181	●	
DA 2200M-KM	0.866	22.00	0.179	●	SS1000-DRA220M-O SF1000-DRA220M-O (SF25-DRA220M-O)
DA 2250M-KM	0.886	22.50	0.187	●	
DA 2300M-KM	0.906	23.00	0.187	●	SS1000-DRA230M-O SF1000-DRA230M-O (SF25-DRA230M-O)
DA 2350M-KM	0.925	23.50	0.194	●	
DA 2400M-KM	0.945	24.00	0.193	●	SS1000-DRA240M-O SF1000-DRA240M-O (SF25-DRA240M-O)
DA 2450M-KM	0.965	24.50	0.202	●	
DA 2500M-KM	0.984	25.00	0.200	●	SS1000-DRA250M-O SF1000-DRA250M-O (SF25-DRA250M-O)
DA 2550M-KM	1.004	25.50	0.208	●	

Recommended Cutting Conditions K19

Inserts are sold in 1 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com



DRA MAGIC DRILL INSERTS

Applicable Inserts (FTP - Flat Bottom / Counterboring)

* Uncut area remains in hole due to chamfered cutting edge

0.016" 60° Chamfer Height

k8 Tolerance

DC (in)	k8 (in)	DC (mm)	k8 (mm)
0.313~0.394	+0.0009 0	8.00~10.00	+0.022 0
0.398~0.709	+0.0011 0	10.30~18.00	+0.027 0
0.713~1.004	+0.0013 0	18.50~25.40	+0.033 0

k8 is the dimension tolerance of the insert. It is not the tolerance of the cutting diameter.

Note
Applicable to 1.5D, 3D, 5D and 8D holders. Guide hole (0.5xDC) is needed when using 8D holder

Inserts

PR1535 (Steel / Stainless Steel)

PR1525 (Cast Iron)

Part Number	Dimensions				PL (in)	Grade		Applicable Toolholder
	DC		DC ₂			PR1535	PR1525	
	in	mm	in	mm				
DA 0800M-FTP	0.315	8.00	0.114	2.90	0.016	●	●	SS0375-DRA080M-O SF0500-DRA080M-O (SS10-DRA080M-O) (SF12-DRA080M-O)
0830M-FTP	0.327	8.30						
DA 0850M-FTP	0.335	8.50						
0880M-FTP	0.346	8.80	0.118	3.00	0.017	●	●	SS0375-DRA085M-O SF0500-DRA085M-O (SS10-DRA085M-O) (SF12-DRA085M-O)
DA 0900M-FTP	0.354	9.00						
0930M-FTP	0.366	9.30						
DA 0950M-FTP	0.374	9.50	0.130	3.30	0.018	●	●	SS0500-DRA095M-O SF0500-DRA095M-O (SS10-DRA095M-O) (SF12-DRA095M-O)
DA 1000M-FTP	0.394	10.00						
1030M-FTP	0.406	10.30						
DA 1050M-FTP	0.413	10.50	0.134	3.40	0.020	●	●	SS0500-DRA105M-O SF0625-DRA105M-O (SS12-DRA105M-O) (SF16-DRA105M-O)
1080M-FTP	0.425	10.80						
DA 1100M-FTP	0.433	11.00						
DA 1150M-FTP	0.453	11.50	0.146	3.70	0.021	●	●	SS0500-DRA110M-O SF0625-DRA110M-O (SS12-DRA110M-O) (SF16-DRA110M-O)
DA 1200M-FTP	0.472	12.00						
DA 1250M-FTP	0.492	12.50						
1270M-FTP	0.500	12.70	0.154	3.90	0.022	●	●	SS0625-DRA125M-O SF0625-DRA125M-O (SS14-DRA125M-O) (SF16-DRA125M-O)
DA 1300M-FTP	0.512	13.00						
1350M-FTP	0.531	13.50						
DA 1350M-FTP	0.531	13.50	0.260	6.60	0.041	●	●	SS0625-DRA135M-O SF0625-DRA135M-O (SS14-DRA135M-O) (SF16-DRA135M-O)
DA 1400M-FTP	0.551	14.00						
DA 1450M-FTP	0.571	14.50						
DA 1500M-FTP	0.591	15.00	0.224	5.70	0.035	●	●	SS0625-DRA150M-O SF0750-DRA150M-O (SS16-DRA150M-O) (SF20-DRA150M-O)
1550M-FTP	0.610	15.50						
DA 1600M-FTP	0.630	16.00						
1650M-FTP	0.650	16.50	0.236	6.00	0.037	●	●	SS0750-DRA160M-O SF0750-DRA160M-O (SF18-DRA160M-O) (SF20-DRA160M-O)
DA 1700M-FTP	0.669	17.00						
1750M-FTP	0.689	17.50						
DA 1800M-FTP	0.709	18.00	0.252	6.40	0.039	●	●	SS0750-DRA170M-O SF0750-DRA170M-O (SS18-DRA170M-O) (SF20-DRA170M-O)
1850M-FTP	0.728	18.50						
DA 1900M-FTP	0.748	19.00						
1950M-FTP	0.768	19.50	0.268	6.80	0.043	●	●	SS0750-DRA180M-O SF0750-DRA180M-O (SS20-DRA180M-O) (SF25-DRA180M-O)
DA 2000M-FTP	0.787	20.00						
2050M-FTP	0.807	20.50						
DA 2100M-FTP	0.827	21.00	0.276	7.00	0.047	●	●	SS1000-DRA190M-O SF0750-DRA190M-O (SS20-DRA190M-O) (SF25-DRA190M-O)
2150M-FTP	0.846	21.50						
DA 2200M-FTP	0.866	22.00						
2250M-FTP	0.886	22.50	0.280	7.10	0.047	●	●	SS1000-DRA200M-O SF1000-DRA200M-O (SS25-DRA200M-O) (SF25-DRA200M-O)
DA 2300M-FTP	0.906	23.00						
2350M-FTP	0.925	23.50						
DA 2400M-FTP	0.945	24.00	0.280	7.10	0.047	●	●	SS1000-DRA210M-O SF1000-DRA210M-O (SS25-DRA210M-O) (SF25-DRA210M-O)
2450M-FTP	0.965	24.50						
DA 2500M-FTP	0.984	25.00						
2540M-FTP	1.000	25.40				●	●	SS1000-DRA220M-O SF1000-DRA220M-O (SS25-DRA220M-O) (SF25-DRA220M-O)
DA 2500M-FTP	0.984	25.00				●	●	SS1000-DRA230M-O SF1000-DRA230M-O (SS25-DRA230M-O) (SF25-DRA230M-O)
2540M-FTP	1.000	25.40				●	●	SS1000-DRA240M-O SF1000-DRA240M-O (SS25-DRA240M-O) (SF25-DRA240M-O)
DA 2500M-FTP	0.984	25.00				●	●	SS1000-DRA250M-O SF1000-DRA250M-O (SS32-DRA250M-O) (SF25-DRA250M-O)
2540M-FTP	1.000	25.40				●	●	SS1000-DRA250M-O SF1000-DRA250M-O (SS32-DRA250M-O) (SF25-DRA250M-O)

*Applicable Toolholders in () are metric

Recommended Cutting Conditions **K19**

Applicable Workpieces for FTP Inserts

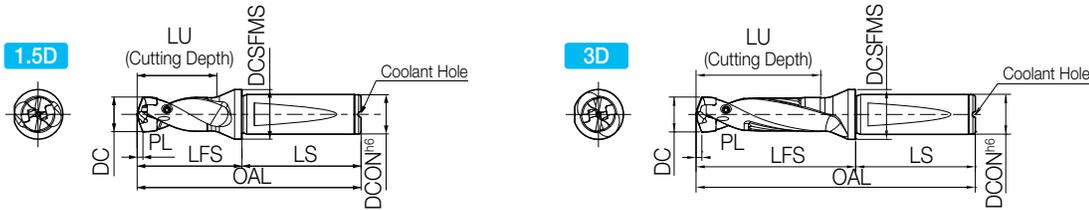
Plain Surface	Stacked Plates	Tubing	*Hole Expansion	Existing Hole	Concave Surface	Slant Surface	Half Cylindrical
1.5D Holder Recommended							NOT Recommended
Over 3D Holder Recommended			Over 3D Holder NOT Recommended				

*Overlap should be under 1/3xD for hole expansion with 1.5D holder

Inserts are sold in 1 piece boxes

SF-DRA (Drilling Depth: 1.5xDC / 3xDC)

Flange Shank



For PL dimension, reference insert dimension table.

Toolholder Dimensions - 1.5D (Inch Size)

Part Number	Stock	Dimensions (in)							Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS		DCSFMS	Clamp Screw	Wrench
min.	max.										
SF0500-DRA080M-1.5	●	0.313	0.334	0.500	2.805	1.033	0.504	1.772	0.630	DA0794M-... ~ DA0840M-...	HS-2524TRP
SF0500-DRA085M-1.5	●	0.335	0.353		2.854	1.083	0.531				
SF0500-DRA090M-1.5	●	0.354	0.373		2.904	1.132	0.563				
SF0500-DRA095M-1.5	●	0.374	0.393		2.953	1.181	0.591				
SF0625-DRA100M-1.5	●	0.394	0.412	0.625	3.120	1.230	0.622	1.890	0.787	DA1000M-... ~ DA1040M-...	FTP-5
SF0625-DRA105M-1.5	●	0.413	0.432		3.169	1.280	0.650				
SF0625-DRA110M-1.5	●	0.433	0.452		3.258	1.368	0.681				
SF0625-DRA115M-1.5	●	0.453	0.471		3.307	1.417	0.709				
SF0625-DRA120M-1.5	●	0.472	0.491		3.356	1.467	0.740				
SF0625-DRA125M-1.5	●	0.492	0.511		3.406	1.516	0.768				
SF0625-DRA130M-1.5	●	0.512	0.530		3.455	1.565	0.799				
SF0625-DRA135M-1.5	●	0.531	0.550		3.504	1.614	0.827				
SF0625-DRA140M-1.5	●	0.551	0.570	0.750	3.553	1.663	0.858	1.969	0.984	DA1400M-... ~ DA1440M-...	HS-3048TRP
SF0625-DRA145M-1.5	●	0.571	0.590		3.602	1.713	0.886				
SF0750-DRA150M-1.5	●	0.591	0.629		3.819	1.850	0.917				
SF0750-DRA160M-1.5	●	0.630	0.668		3.957	1.988	0.976				
SF0750-DRA170M-1.5	●	0.669	0.708	1.000	4.055	2.087	1.035	2.205	1.260	DA1700M-... ~ DA1790M-...	HS-4067TRP
SF0750-DRA180M-1.5	●	0.709	0.747		4.193	2.224	1.094				
SF0750-DRA190M-1.5	●	0.748	0.786		4.291	2.323	1.154				
SF1000-DRA200M-1.5	●	0.787	0.826		4.626	2.421	1.213				
SF1000-DRA210M-1.5	●	0.827	0.865	1.000	4.724	2.520	1.272	2.205	1.260	DA2000M-... ~ DA2090M-...	DTP-6
SF1000-DRA220M-1.5	●	0.866	0.905		4.862	2.657	1.331				
SF1000-DRA230M-1.5	●	0.906	0.944		4.961	2.756	1.390				
SF1000-DRA240M-1.5	●	0.945	0.983		5.059	2.854	1.449				
SF1000-DRA250M-1.5	●	0.984	1.004		5.157	2.953	1.508				

Toolholder Dimensions - 3D (Inch Size)

Part Number	Stock	Dimensions (in)							Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS		DCSFMS	Clamp Screw	Wrench
min.	max.										
SF0500-DRA080M-3	●	0.313	0.334	0.500	3.307	1.535	1.004	1.772	0.630	DA0794M-... ~ DA0840M-...	HS-2524TRP
SF0500-DRA085M-3	●	0.335	0.353		3.386	1.614	1.063				
SF0500-DRA090M-3	●	0.354	0.373		3.465	1.693	1.122				
SF0500-DRA095M-3	●	0.374	0.393		3.543	1.772	1.181				
SF0625-DRA100M-3	●	0.394	0.412	0.625	3.740	1.850	1.240	1.890	0.787	DA1000M-... ~ DA1040M-...	FTP-5
SF0625-DRA105M-3	●	0.413	0.432		3.819	1.929	1.299				
SF0625-DRA110M-3	●	0.433	0.452		3.937	2.047	1.358				
SF0625-DRA115M-3	●	0.453	0.471		4.016	2.126	1.417				
SF0625-DRA120M-3	●	0.472	0.491		4.094	2.205	1.476				
SF0625-DRA125M-3	●	0.492	0.511		4.173	2.283	1.535				
SF0625-DRA130M-3	●	0.512	0.530		4.252	2.362	1.594				
SF0625-DRA135M-3	●	0.531	0.550		4.331	2.441	1.654				
SF0625-DRA140M-3	●	0.551	0.570	0.750	4.409	2.520	1.713	1.969	0.984	DA1400M-... ~ DA1440M-...	HS-3048TRP
SF0625-DRA145M-3	●	0.571	0.590		4.488	2.598	1.772				
SF0750-DRA150M-3	●	0.591	0.629		4.764	2.795	1.890				
SF0750-DRA160M-3	●	0.630	0.668		4.961	2.992	2.008				
SF0750-DRA170M-3	●	0.669	0.708	1.000	5.118	3.150	2.126	2.205	1.260	DA1700M-... ~ DA1790M-...	HS-4067TRP
SF0750-DRA180M-3	●	0.709	0.747		5.315	3.346	2.244				
SF0750-DRA190M-3	●	0.748	0.786		5.472	3.504	2.362				
SF1000-DRA200M-3	●	0.787	0.826		5.866	3.661	2.480				
SF1000-DRA210M-3	●	0.827	0.865	1.000	6.024	3.819	2.598	2.205	1.260	DA2000M-... ~ DA2090M-...	DTP-7
SF1000-DRA220M-3	●	0.866	0.905		6.220	4.016	2.717				
SF1000-DRA230M-3	●	0.906	0.944		6.378	4.173	2.835				
SF1000-DRA240M-3	●	0.945	0.983		6.535	4.331	2.953				
SF1000-DRA250M-3	●	0.984	1.004		6.693	4.488	3.071				

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K6-K8](#) for actual cutting diameters (DC).

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

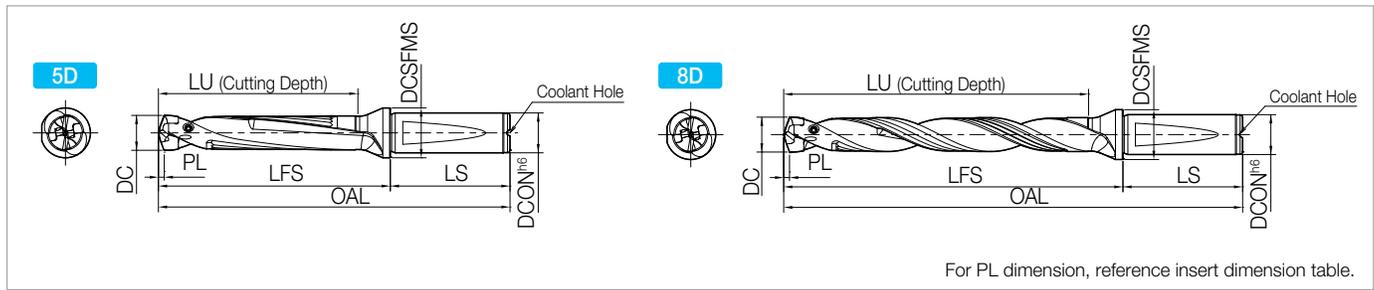
SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

SF-DRA (Drilling Depth: 5xDC / 8xDC)

Flange Shank



For PL dimension, reference insert dimension table.

● Toolholder Dimensions - 5D (Inch Size)

Part Number	Stock	Dimensions (in)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF0500-DRA080M-5	●	0.313	0.334	0.500	3.976	2.205	1.673	1.772	0.630	DA0794M-... ~ DA0840M-...	HS-2524TRP	FTP-5
SF0500-DRA085M-5	●	0.335	0.353		4.094	2.323	1.772			DA0850M-... ~ DA0890M-...		
SF0500-DRA090M-5	●	0.354	0.373		4.213	2.441	1.870			DA0900M-... ~ DA0940M-...		
SF0500-DRA095M-5	●	0.374	0.393		4.331	2.559	1.969			DA0950M-... ~ DA0990M-...		
SF0625-DRA100M-5	●	0.394	0.412		4.567	2.677	2.067			DA1000M-... ~ DA1040M-...		
SF0625-DRA105M-5	●	0.413	0.432	0.625	4.685	2.795	2.165	1.890	0.787	DA1050M-... ~ DA1090M-...	HS-2534TRP	FTP-5
SF0625-DRA110M-5	●	0.433	0.452		4.843	2.953	2.264			DA1100M-... ~ DA1140M-...		
SF0625-DRA115M-5	●	0.453	0.471		4.961	3.071	2.362			DA1150M-... ~ DA1190M-...		
SF0625-DRA120M-5	●	0.472	0.491		5.079	3.189	2.461			DA1200M-... ~ DA1240M-...		
SF0625-DRA125M-5	●	0.492	0.511		5.197	3.307	2.559			DA1250M-... ~ DA1290M-...		
SF0625-DRA130M-5	●	0.512	0.530		5.315	3.425	2.657			DA1300M-... ~ DA1340M-...		
SF0625-DRA135M-5	●	0.531	0.550		5.433	3.543	2.756			DA1350M-... ~ DA1390M-...		
SF0625-DRA140M-5	●	0.551	0.570		5.551	3.661	2.854			DA1400M-... ~ DA1440M-...		
SF0625-DRA145M-5	●	0.571	0.590		5.669	3.780	2.953			DA1450M-... ~ DA1490M-...		
SF0750-DRA150M-5	●	0.591	0.629		6.024	4.055	3.150			DA1500M-... ~ DA1590M-...		
SF0750-DRA160M-5	●	0.630	0.668	0.750	6.299	4.331	3.346	1.969	0.984	DA1600M-... ~ DA1690M-...	HS-3048TRP	DTP-6
SF0750-DRA170M-5	●	0.669	0.708		6.535	4.567	3.543			DA1700M-... ~ DA1790M-...		
SF0750-DRA180M-5	●	0.709	0.747		6.811	4.843	3.740			DA1800M-... ~ DA1890M-...		
SF0750-DRA190M-5	●	0.748	0.786		7.047	5.079	3.937			DA1900M-... ~ DA1990M-...		
SF1000-DRA200M-5	●	0.787	0.826		7.520	5.315	4.134			DA2000M-... ~ DA2090M-...		
SF1000-DRA210M-5	●	0.827	0.865	1.000	7.756	5.551	4.331	2.205	1.260	DA2100M-... ~ DA2150M-...	HS-4067TRP	DTP-7
SF1000-DRA220M-5	●	0.866	0.905		8.031	5.827	4.528			DA2200M-... ~ DA2250M-...		
SF1000-DRA230M-5	●	0.906	0.944		8.268	6.063	4.724			DA2300M-... ~ DA2381M-...		
SF1000-DRA240M-5	●	0.945	0.983		8.504	6.299	4.921			DA2400M-... ~ DA2450M-...		
SF1000-DRA250M-5	●	0.984	1.004		8.740	6.535	5.116			DA2500M-... ~ DA2550M-...		

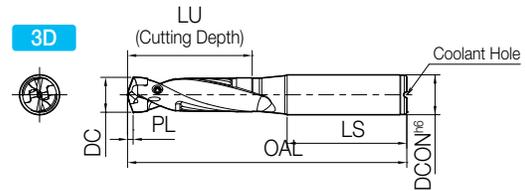
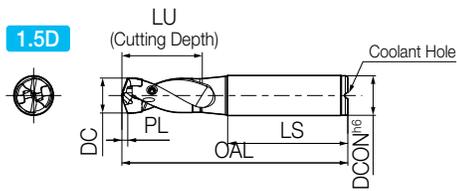
● Toolholder Dimensions - 8D (Inch Size)

Part Number	Stock	Dimensions (in)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF0500-DRA080M-8	●	0.313	0.334	0.500	4.961	3.189	2.677	1.772	0.630	DA0794M-... ~ DA0840M-...	HS-2524TRP	FTP-5
SF0500-DRA085M-8	●	0.335	0.353		5.157	3.386	2.835			DA0850M-... ~ DA0890M-...		
SF0500-DRA090M-8	●	0.354	0.373		5.315	3.543	2.992			DA0900M-... ~ DA0940M-...		
SF0500-DRA095M-8	●	0.374	0.393		5.512	3.740	3.150			DA0950M-... ~ DA0990M-...		
SF0625-DRA100M-8	●	0.394	0.412		5.787	3.898	3.307			DA1000M-... ~ DA1040M-...		
SF0625-DRA105M-8	●	0.413	0.432	0.625	5.984	4.094	3.465	1.890	0.787	DA1050M-... ~ DA1090M-...	HS-2534TRP	FTP-5
SF0625-DRA110M-8	●	0.433	0.452		6.181	4.291	3.622			DA1100M-... ~ DA1140M-...		
SF0625-DRA115M-8	●	0.453	0.471		6.378	4.488	3.780			DA1150M-... ~ DA1190M-...		
SF0625-DRA120M-8	●	0.472	0.491		6.535	4.646	3.937			DA1200M-... ~ DA1240M-...		
SF0625-DRA125M-8	●	0.492	0.511		6.732	4.843	4.094			DA1250M-... ~ DA1290M-...		
SF0625-DRA130M-8	●	0.512	0.530		6.890	5.000	4.252			DA1300M-... ~ DA1340M-...		
SF0625-DRA135M-8	●	0.531	0.550		7.087	5.197	4.409			DA1350M-... ~ DA1390M-...		
SF0625-DRA140M-8	●	0.551	0.570		7.244	5.354	4.567			DA1400M-... ~ DA1440M-...		
SF0625-DRA145M-8	●	0.571	0.590		7.441	5.551	4.724			DA1450M-... ~ DA1490M-...		
SF0750-DRA150M-8	●	0.591	0.629		7.913	5.945	5.039			DA1500M-... ~ DA1590M-...		
SF0750-DRA160M-8	●	0.630	0.668	0.750	8.307	6.339	5.354	1.969	0.984	DA1600M-... ~ DA1690M-...	HS-3048TRP	DTP-6
SF0750-DRA170M-8	●	0.669	0.708		8.661	6.693	5.669			DA1700M-... ~ DA1790M-...		
SF0750-DRA180M-8	●	0.709	0.747		9.055	7.087	5.984			DA1800M-... ~ DA1890M-...		
SF0750-DRA190M-8	●	0.748	0.786		9.409	7.441	6.299			DA1900M-... ~ DA1990M-...		
SF1000-DRA200M-8	●	0.787	0.826		10.000	7.795	6.614			DA2000M-... ~ DA2090M-...		
SF1000-DRA210M-8	●	0.827	0.865	1.000	10.354	8.150	6.929	2.205	1.260	DA2100M-... ~ DA2150M-...	HS-4067TRP	DTP-7
SF1000-DRA220M-8	●	0.866	0.905		10.748	8.543	7.244			DA2200M-... ~ DA2250M-...		
SF1000-DRA230M-8	●	0.906	0.944		11.102	8.898	7.559			DA2300M-... ~ DA2381M-...		
SF1000-DRA240M-8	●	0.945	0.983		11.457	9.252	7.874			DA2400M-... ~ DA2450M-...		
SF1000-DRA250M-8	●	0.984	1.004		11.811	9.606	8.189			DA2500M-... ~ DA2550M-...		

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K6-K8 for actual cutting diameters (DC).

SS-DRA (Drilling Depth: 1.5xDC/ 3xDC)

Straight Shank



For PL dimension, reference insert dimension table.

Toolholder Dimensions - 1.5D (Inch Size)

Part Number	Stock	Dimensions (in)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS0375-DRA080M-1.5	●	0.313	0.334	0.375	2.608	0.504	DA0794M-... ~ DA0840M-...	HS-2524TRP		
SS0375-DRA085M-1.5	●	0.335	0.353		2.657	0.531				DA0850M-... ~ DA0890M-...
SS0375-DRA090M-1.5	●	0.354	0.373		2.707	0.563				DA0900M-... ~ DA0940M-...
SS0500-DRA095M-1.5	●	0.374	0.393	0.500	2.953	0.591	DA0950M-... ~ DA0990M-...	HS-2534TRP	FTP-5	
SS0500-DRA100M-1.5	●	0.394	0.412		3.002	0.622				DA1000M-... ~ DA1040M-...
SS0500-DRA105M-1.5	●	0.413	0.432		3.051	0.650				DA1050M-... ~ DA1090M-...
SS0500-DRA110M-1.5	●	0.433	0.452	0.625	3.140	0.681	DA1100M-... ~ DA1140M-...	HS-3048TRP	DTP-6	
SS0500-DRA115M-1.5	●	0.453	0.471		3.189	0.709				DA1150M-... ~ DA1190M-...
SS0625-DRA120M-1.5	●	0.472	0.491		3.356	0.740				DA1200M-... ~ DA1240M-...
SS0625-DRA125M-1.5	●	0.492	0.511	0.750	3.406	0.768	DA1250M-... ~ DA1290M-...	HS-4067TRP	DTP-7	
SS0625-DRA130M-1.5	●	0.512	0.530		3.455	0.799				DA1300M-... ~ DA1340M-...
SS0625-DRA135M-1.5	●	0.531	0.550		3.504	0.827				DA1350M-... ~ DA1390M-...
SS0625-DRA140M-1.5	●	0.551	0.570	1.000	3.553	0.858	DA1400M-... ~ DA1440M-...	HS-3048TRP	DTP-6	
SS0625-DRA145M-1.5	●	0.571	0.590		3.602	0.886				DA1450M-... ~ DA1490M-...
SS0625-DRA150M-1.5	●	0.591	0.629		3.740	0.917				DA1500M-... ~ DA1590M-...
SS0750-DRA160M-1.5	●	0.630	0.668	0.750	3.957	0.976	DA1600M-... ~ DA1690M-...	HS-3048TRP	DTP-6	
SS0750-DRA170M-1.5	●	0.669	0.708		4.055	1.035				DA1700M-... ~ DA1790M-...
SS0750-DRA180M-1.5	●	0.709	0.747		4.193	1.094				DA1800M-... ~ DA1890M-...
SS1000-DRA190M-1.5	●	0.748	0.786	1.000	4.528	1.154	DA1900M-... ~ DA1990M-...	HS-4067TRP	DTP-7	
SS1000-DRA200M-1.5	●	0.787	0.826		4.626	1.213				DA2000M-... ~ DA2090M-...
SS1000-DRA210M-1.5	●	0.827	0.865		4.724	1.272				DA2100M-... ~ DA2150M-...
SS1000-DRA220M-1.5	●	0.866	0.905	1.000	4.862	1.331	DA2200M-... ~ DA2250M-...	HS-4067TRP	DTP-7	
SS1000-DRA230M-1.5	●	0.906	0.944		4.961	1.390				DA2300M-... ~ DA2381M-...
SS1000-DRA240M-1.5	●	0.945	0.983		5.059	1.449				DA2400M-... ~ DA2450M-...
SS1000-DRA250M-1.5	●	0.984	1.004		5.157	1.508	DA2500M-... ~ DA2550M-...			

Toolholder Dimensions - 3D (Inch Size)

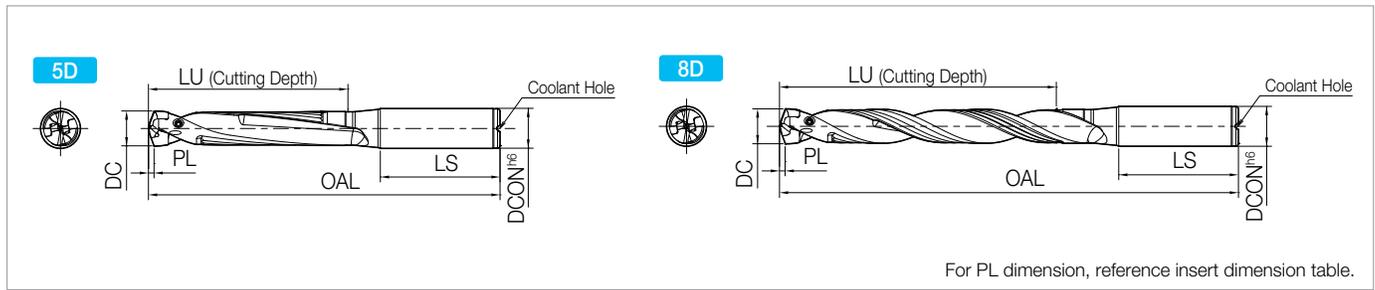
Part Number	Stock	Dimensions (in)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS0375-DRA080M-3	●	0.313	0.334	0.375	3.110	1.004	DA0794M-... ~ DA0840M-...	HS-2524TRP		
SS0375-DRA085M-3	●	0.335	0.353		3.189	1.063				DA0850M-... ~ DA0890M-...
SS0375-DRA090M-3	●	0.354	0.373		3.268	1.122				DA0900M-... ~ DA0940M-...
SS0500-DRA095M-3	●	0.374	0.393	0.500	3.543	1.181	DA0950M-... ~ DA0990M-...	HS-2534TRP	FTP-5	
SS0500-DRA100M-3	●	0.394	0.412		3.622	1.240				DA1000M-... ~ DA1040M-...
SS0500-DRA105M-3	●	0.413	0.432		3.701	1.299				DA1050M-... ~ DA1090M-...
SS0500-DRA110M-3	●	0.433	0.452	0.625	3.819	1.358	DA1100M-... ~ DA1140M-...	HS-3048TRP	DTP-6	
SS0500-DRA115M-3	●	0.453	0.471		3.898	1.417				DA1150M-... ~ DA1190M-...
SS0625-DRA120M-3	●	0.472	0.491		4.094	1.476				DA1200M-... ~ DA1240M-...
SS0625-DRA125M-3	●	0.492	0.511	0.750	4.173	1.535	DA1250M-... ~ DA1290M-...	HS-3048TRP	DTP-6	
SS0625-DRA130M-3	●	0.512	0.530		4.252	1.594				DA1300M-... ~ DA1340M-...
SS0625-DRA135M-3	●	0.531	0.550		4.331	1.654				DA1350M-... ~ DA1390M-...
SS0625-DRA140M-3	●	0.551	0.570	1.000	4.409	1.713	DA1400M-... ~ DA1440M-...	HS-4067TRP	DTP-7	
SS0625-DRA145M-3	●	0.571	0.590		4.488	1.772				DA1450M-... ~ DA1490M-...
SS0625-DRA150M-3	●	0.591	0.629		4.685	1.890				DA1500M-... ~ DA1590M-...
SS0750-DRA160M-3	●	0.630	0.668	0.750	4.961	2.008	DA1600M-... ~ DA1690M-...	HS-3048TRP	DTP-6	
SS0750-DRA170M-3	●	0.669	0.708		5.118	2.126				DA1700M-... ~ DA1790M-...
SS0750-DRA180M-3	●	0.709	0.747		5.315	2.244				DA1800M-... ~ DA1890M-...
SS1000-DRA190M-3	●	0.748	0.786	1.000	5.472	2.362	DA1900M-... ~ DA1990M-...	HS-4067TRP	DTP-7	
SS1000-DRA200M-3	●	0.787	0.826		5.866	2.480				DA2000M-... ~ DA2090M-...
SS1000-DRA210M-3	●	0.827	0.865		6.024	2.598				DA2100M-... ~ DA2150M-...
SS1000-DRA220M-3	●	0.866	0.905	1.000	6.220	2.717	DA2200M-... ~ DA2250M-...	HS-4067TRP	DTP-7	
SS1000-DRA230M-3	●	0.906	0.944		6.378	2.835				DA2300M-... ~ DA2381M-...
SS1000-DRA240M-3	●	0.945	0.983		6.535	2.953				DA2400M-... ~ DA2450M-...
SS1000-DRA250M-3	●	0.984	1.004		6.693	3.070	DA2500M-... ~ DA2550M-...			

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page **K6-K8** for actual cutting diameters (DC).

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX

SS-DRA (Drilling Depth: 5xDC / 8xDC)

Straight Shank



For PL dimension, reference insert dimension table.

Toolholder Dimensions - 5D (Inch Size)

Part Number	Stock	Dimensions (in)					Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.								
SS0375-DRA080M-5	●	0.313	0.334	0.375	3.780	1.673	1.575	HS-2524TRP	FTP-5
SS0375-DRA085M-5	●	0.335	0.353		3.898	1.772			
SS0375-DRA090M-5	●	0.354	0.373		4.016	1.870			
SS0500-DRA095M-5	●	0.374	0.393	0.500	4.331	1.969	1.772	HS-2534TRP	
SS0500-DRA100M-5	●	0.394	0.412		4.449	2.067			
SS0500-DRA105M-5	●	0.413	0.432		4.567	2.165			
SS0500-DRA110M-5	●	0.433	0.452	0.625	4.724	2.264	1.890	HS-3048TRP	
SS0500-DRA115M-5	●	0.453	0.471		4.843	2.362			
SS0625-DRA120M-5	●	0.472	0.491		5.079	2.461			
SS0625-DRA125M-5	●	0.492	0.511	0.750	5.197	2.559	1.969	HS-4067TRP	
SS0625-DRA130M-5	●	0.512	0.530		5.315	2.657			
SS0625-DRA135M-5	●	0.531	0.550		5.433	2.756			
SS0625-DRA140M-5	●	0.551	0.570	1.000	5.551	2.854	2.205	HS-4067TRP	
SS0625-DRA145M-5	●	0.571	0.590		5.669	2.953			
SS0625-DRA150M-5	●	0.591	0.629		5.945	3.150			
SS0750-DRA160M-5	●	0.630	0.668	0.750	6.299	3.346	1.969	HS-3048TRP	
SS0750-DRA170M-5	●	0.669	0.708		6.535	3.543			
SS0750-DRA180M-5	●	0.709	0.747		6.811	3.740			
SS1000-DRA190M-5	●	0.748	0.786	1.000	7.047	3.937	2.205	HS-4067TRP	
SS1000-DRA200M-5	●	0.787	0.826		7.520	4.134			
SS1000-DRA210M-5	●	0.827	0.865		7.756	4.331			
SS1000-DRA220M-5	●	0.866	0.905	1.000	8.031	4.528	2.205	HS-4067TRP	
SS1000-DRA230M-5	●	0.906	0.944		8.268	4.724			
SS1000-DRA240M-5	●	0.945	0.983		8.504	4.921			
SS1000-DRA250M-5	●	0.984	1.004		8.740	5.116			

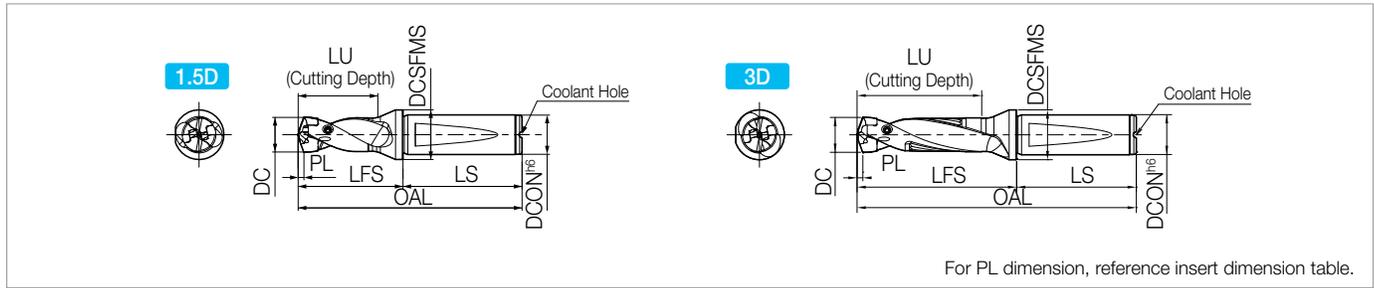
Toolholder Dimensions - 8D (Inch Size)

Part Number	Stock	Dimensions (in)					Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.								
SS0375-DRA080M-8	●	0.313	0.334	0.375	4.764	2.677	1.575	HS-2524TRP	FTP-5
SS0375-DRA085M-8	●	0.335	0.353		4.961	2.835			
SS0375-DRA090M-8	●	0.354	0.373		5.118	2.992			
SS0500-DRA095M-8	●	0.374	0.393	0.500	5.512	3.150	1.772	HS-2534TRP	
SS0500-DRA100M-8	●	0.394	0.412		5.669	3.307			
SS0500-DRA105M-8	●	0.413	0.432		5.866	3.465			
SS0500-DRA110M-8	●	0.433	0.452	0.625	6.063	3.622	1.890	HS-3048TRP	
SS0500-DRA115M-8	●	0.453	0.471		6.260	3.780			
SS0625-DRA120M-8	●	0.472	0.491		6.535	3.937			
SS0625-DRA125M-8	●	0.492	0.511	0.750	6.732	4.094	1.969	HS-4067TRP	
SS0625-DRA130M-8	●	0.512	0.530		6.890	4.252			
SS0625-DRA135M-8	●	0.531	0.550		7.087	4.409			
SS0625-DRA140M-8	●	0.551	0.570	1.000	7.244	4.567	2.205	HS-4067TRP	
SS0625-DRA145M-8	●	0.571	0.590		7.441	4.724			
SS0625-DRA150M-8	●	0.591	0.629		7.835	5.039			
SS0750-DRA160M-8	●	0.630	0.668	0.750	8.307	5.354	1.969	HS-3048TRP	
SS0750-DRA170M-8	●	0.669	0.708		8.661	5.669			
SS0750-DRA180M-8	●	0.709	0.747		9.055	5.984			
SS1000-DRA190M-8	●	0.748	0.786	1.000	9.409	6.299	2.205	HS-4067TRP	
SS1000-DRA200M-8	●	0.787	0.826		10.000	6.614			
SS1000-DRA210M-8	●	0.827	0.865		10.354	6.929			
SS1000-DRA220M-8	●	0.866	0.905	1.000	10.748	7.244	2.205	HS-4067TRP	
SS1000-DRA230M-8	●	0.906	0.944		11.102	7.559			
SS1000-DRA240M-8	●	0.945	0.983		11.457	7.874			
SS1000-DRA250M-8	●	0.984	1.004		11.969	8.189			

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K6-K8 for actual cutting diameters (DC).

SF-DRA (Drilling Depth: 1.5xDC / 3xDC)

Flange Shank



Toolholder Dimensions - 1.5D (Metric Size)

Part Number	Stock	Dimensions (mm)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF12-DRA080M-1.5	●	7.94	8.49	12	71.2	26.2	12.8	45	16	DA0794M-...-DA0840M-...	HS-2524TRP	
SF12-DRA085M-1.5	●	8.50	8.99		72.5	27.5	13.5			DA0850M-...-DA0890M-...		
SF12-DRA090M-1.5	●	9.00	9.49		73.7	28.7	14.3			DA0900M-...-DA0940M-...		
SF12-DRA095M-1.5	●	9.50	9.99	75.0	30.0	15.0	DA0950M-...-DA0990M-...	16	20	DA1000M-...-DA1040M-...	HS-2534TRP	FTP-5
SF16-DRA100M-1.5	●	10.00	10.49	79.2	31.2	15.8	DA1050M-...-DA1090M-...					
SF16-DRA105M-1.5	●	10.50	10.99	80.5	32.5	16.5	DA1100M-...-DA1140M-...					
SF16-DRA110M-1.5	●	11.00	11.49	82.7	34.7	17.3	DA1150M-...-DA1190M-...	48	20	DA1200M-...-DA1240M-...	HS-2534TRP	FTP-5
SF16-DRA115M-1.5	●	11.50	11.99	84.0	36.0	18.0	DA1250M-...-DA1290M-...					
SF16-DRA120M-1.5	●	12.00	12.49	85.2	37.2	18.8	DA1300M-...-DA1340M-...					
SF16-DRA125M-1.5	●	12.50	12.99	86.5	38.5	19.5	DA1350M-...-DA1390M-...	50	25	DA1400M-...-DA1440M-...	HS-3048TRP	DTP-6
SF16-DRA130M-1.5	●	13.00	13.49	87.7	39.7	20.3	DA1450M-...-DA1490M-...					
SF16-DRA135M-1.5	●	13.50	13.99	89.0	41.0	21.0	DA1500M-...-DA1590M-...					
SF16-DRA140M-1.5	●	14.00	14.49	90.2	42.2	21.8	DA1600M-...-DA1690M-...	56	32	DA1700M-...-DA1790M-...	HS-4067TRP	DTP-7
SF16-DRA145M-1.5	●	14.50	14.99	91.5	43.5	22.5	DA1800M-...-DA1890M-...					
SF16-DRA150M-1.5	●	15.00	15.99	97.0	47.0	24.0	DA1900M-...-DA1990M-...					
SF20-DRA160M-1.5	●	16.00	16.99	100.5	50.5	25.5	DA2000M-...-DA2090M-...	56	32	DA2100M-...-DA2150M-...	HS-4067TRP	DTP-7
SF20-DRA170M-1.5	●	17.00	17.99	103.0	53.0	27.0	DA2200M-...-DA2250M-...					
SF25-DRA180M-1.5	●	18.00	18.99	112.5	56.5	28.5	DA2300M-...-DA2350M-...					
SF25-DRA190M-1.5	●	19.00	19.99	115.0	59.0	30.0	DA2400M-...-DA2450M-...	56	32	DA2500M-...-DA2550M-...	HS-4067TRP	DTP-7
SF25-DRA200M-1.5	●	20.00	20.99	117.5	61.5	31.5						
SF25-DRA210M-1.5	●	21.00	21.99	120.0	64.0	33.0						
SF25-DRA220M-1.5	●	22.00	22.99	123.5	67.5	34.5						
SF25-DRA230M-1.5	●	23.00	23.99	126.0	70.0	36.0						
SF25-DRA240M-1.5	●	24.00	24.99	128.5	72.5	37.5						
SF25-DRA250M-1.5	●	25.00	25.50	131.0	75.0	39.0						

Toolholder Dimensions - 3D (Metric Size)

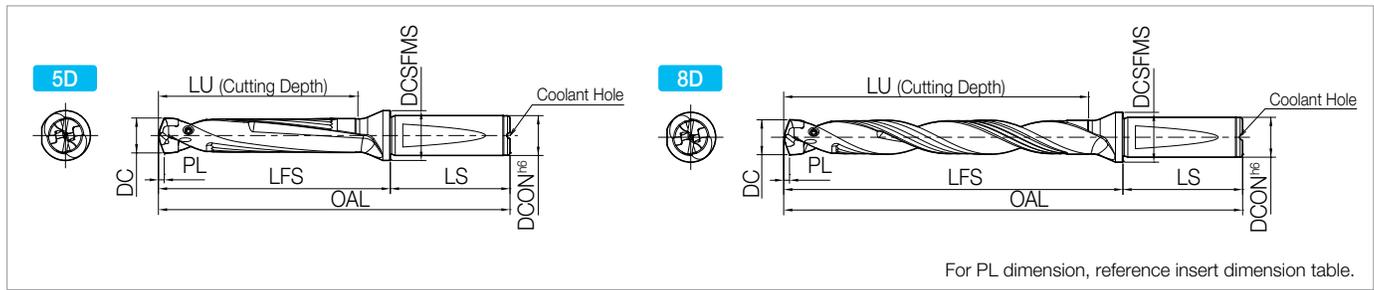
Part Number	Stock	Dimensions (mm)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF12-DRA080M-3	●	7.94	8.49	12	84	39	25.5	45	16	DA0794M-...-DA0840M-...	HS-2524TRP	
SF12-DRA085M-3	●	8.50	8.99		86	41	27.0			DA0850M-...-DA0890M-...		
SF12-DRA090M-3	●	9.00	9.49		88	43	28.5			DA0900M-...-DA0940M-...		
SF12-DRA095M-3	●	9.50	9.99	90	45	30.0	DA0950M-...-DA0990M-...	48	20	DA1000M-...-DA1040M-...	HS-2534TRP	FTP-5
SF16-DRA100M-3	●	10.00	10.49	95	47	31.5	DA1050M-...-DA1090M-...					
SF16-DRA105M-3	●	10.50	10.99	97	49	33.0	DA1100M-...-DA1140M-...					
SF16-DRA110M-3	●	11.00	11.49	100	52	34.5	DA1150M-...-DA1190M-...	50	25	DA1200M-...-DA1240M-...	HS-3048TRP	DTP-6
SF16-DRA115M-3	●	11.50	11.99	102	54	36.0	DA1250M-...-DA1290M-...					
SF16-DRA120M-3	●	12.00	12.49	104	56	37.5	DA1300M-...-DA1340M-...					
SF16-DRA125M-3	●	12.50	12.99	106	58	39.0	DA1350M-...-DA1390M-...	56	32	DA1400M-...-DA1440M-...	HS-4067TRP	DTP-7
SF16-DRA130M-3	●	13.00	13.49	108	60	40.5	DA1450M-...-DA1490M-...					
SF16-DRA135M-3	●	13.50	13.99	110	62	42.0	DA1500M-...-DA1590M-...					
SF16-DRA140M-3	●	14.00	14.49	112	64	43.5	DA1600M-...-DA1690M-...	56	32	DA1700M-...-DA1790M-...	HS-4067TRP	DTP-7
SF16-DRA145M-3	●	14.50	14.99	114	66	45.0	DA1800M-...-DA1890M-...					
SF20-DRA150M-3	●	15.00	15.99	121	71	48.0	DA1900M-...-DA1990M-...					
SF20-DRA160M-3	●	16.00	16.99	126	76	51.0	DA2000M-...-DA2090M-...	56	32	DA2100M-...-DA2150M-...	HS-4067TRP	DTP-7
SF20-DRA170M-3	●	17.00	17.99	130	80	54.0	DA2200M-...-DA2250M-...					
SF25-DRA180M-3	●	18.00	18.99	141	85	57.0	DA2300M-...-DA2350M-...					
SF25-DRA190M-3	●	19.00	19.99	145	89	60.0	DA2400M-...-DA2450M-...	56	32	DA2500M-...-DA2550M-...	HS-4067TRP	DTP-7
SF25-DRA200M-3	●	20.00	20.99	149	93	63.0						
SF25-DRA210M-3	●	21.00	21.99	153	97	66.0						
SF25-DRA220M-3	●	22.00	22.99	158	102	69.0						
SF25-DRA230M-3	●	23.00	23.99	162	106	72.0						
SF25-DRA240M-3	●	24.00	24.99	166	110	75.0						
SF25-DRA250M-3	●	25.00	25.50	170	114	78.0						

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K6-K8](#) for actual cutting diameters (DC).

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SF-DRA (Drilling Depth: 5xDC / 8xDC)

Flange Shank



Toolholder Dimensions - 5D (Metric Size)

Part Number	Stock	Dimensions (mm)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF12-DRA080M-5	●	7.94	8.49	12	101	56	42.5	45	16	DA0794M-... - DA0840M-...	HS-2524TRP	FTP-5
SF12-DRA085M-5	●	8.50	8.99		104	59	45.0			DA0850M-... - DA0890M-...		
SF12-DRA090M-5	●	9.00	9.49		107	62	47.5			DA0900M-... - DA0940M-...		
SF12-DRA095M-5	●	9.50	9.99	16	110	65	50.0	48	20	DA0950M-... - DA0990M-...	HS-2534TRP	FTP-5
SF16-DRA100M-5	●	10.00	10.49		116	68	52.5			DA1000M-... - DA1040M-...		
SF16-DRA105M-5	●	10.50	10.99		119	71	55.0			DA1050M-... - DA1090M-...		
SF16-DRA110M-5	●	11.00	11.49	123	75	57.5	DA1100M-... - DA1140M-...	48	20	DA1150M-... - DA1190M-...	HS-2534TRP	FTP-5
SF16-DRA115M-5	●	11.50	11.99	126	78	60.0	DA1150M-... - DA1190M-...					
SF16-DRA120M-5	●	12.00	12.49	129	81	62.5	DA1200M-... - DA1240M-...					
SF16-DRA125M-5	●	12.50	12.99	20	132	84	65.0	50	25	DA1250M-... - DA1290M-...	HS-3048TRP	DTP-6
SF16-DRA130M-5	●	13.00	13.49		135	87	67.5			DA1300M-... - DA1340M-...		
SF16-DRA135M-5	●	13.50	13.99		138	90	70.0			DA1350M-... - DA1390M-...		
SF16-DRA140M-5	●	14.00	14.49	25	141	93	72.5	56	32	DA1400M-... - DA1440M-...	HS-4067TRP	DTP-7
SF16-DRA145M-5	●	14.50	14.99		144	96	75.0			DA1450M-... - DA1490M-...		
SF20-DRA150M-5	●	15.00	15.99		153	103	80.0			DA1500M-... - DA1590M-...		
SF20-DRA160M-5	●	16.00	16.99	20	160	110	85.0	50	25	DA1600M-... - DA1690M-...	HS-3048TRP	DTP-6
SF20-DRA170M-5	●	17.00	17.99		166	116	90.0			DA1700M-... - DA1790M-...		
SF25-DRA180M-5	●	18.00	18.99		179	123	95.0			DA1800M-... - DA1890M-...		
SF25-DRA190M-5	●	19.00	19.99	25	185	129	100.0	56	32	DA1900M-... - DA1990M-...	HS-4067TRP	DTP-7
SF25-DRA200M-5	●	20.00	20.99		191	135	105.0			DA2000M-... - DA2090M-...		
SF25-DRA210M-5	●	21.00	21.99		197	141	110.0			DA2100M-... - DA2150M-...		
SF25-DRA220M-5	●	22.00	22.99	20	204	148	115.0	50	25	DA2200M-... - DA2250M-...	HS-3048TRP	DTP-6
SF25-DRA230M-5	●	23.00	23.99		210	154	120.0			DA2300M-... - DA2350M-...		
SF25-DRA240M-5	●	24.00	24.99		216	160	125.0			DA2400M-... - DA2450M-...		
SF25-DRA250M-5	●	25.00	25.50	222	166	130.0	DA2500M-... - DA2550M-...					

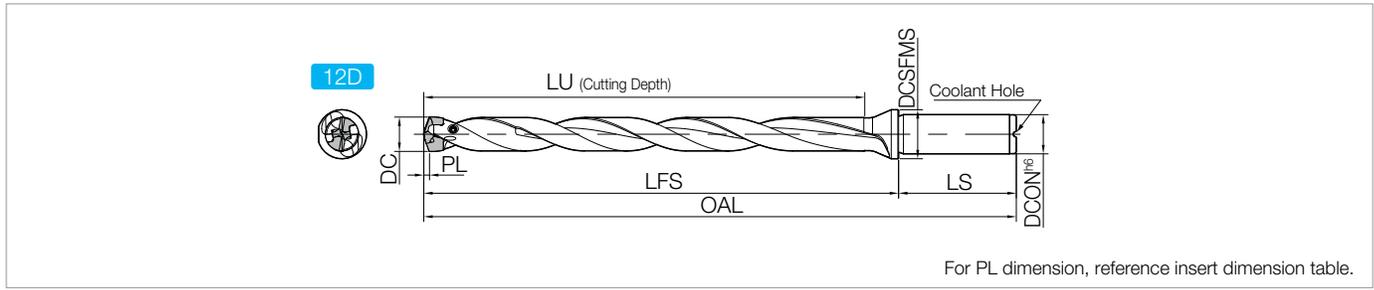
Toolholder Dimensions - 8D (Metric Size)

Part Number	Stock	Dimensions (mm)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF12-DRA080M-8	●	7.94	8.49	12	126	81	68.0	45	16	DA0794M-... - DA0840M-...	HS-2524TRP	FTP-5
SF12-DRA085M-8	●	8.50	8.99		131	86	72.0			DA0850M-... - DA0890M-...		
SF12-DRA090M-8	●	9.00	9.49		135	90	76.0			DA0900M-... - DA0940M-...		
SF12-DRA095M-8	●	9.50	9.99	16	140	95	80.0	48	20	DA0950M-... - DA0990M-...	HS-2534TRP	FTP-5
SF16-DRA100M-8	●	10.00	10.49		147	99	84.0			DA1000M-... - DA1040M-...		
SF16-DRA105M-8	●	10.50	10.99		152	104	88.0			DA1050M-... - DA1090M-...		
SF16-DRA110M-8	●	11.00	11.49	157	109	92.0	DA1100M-... - DA1140M-...	48	20	DA1150M-... - DA1190M-...	HS-2534TRP	FTP-5
SF16-DRA115M-8	●	11.50	11.99	162	114	96.0	DA1150M-... - DA1190M-...					
SF16-DRA120M-8	●	12.00	12.49	166	118	100.0	DA1200M-... - DA1240M-...					
SF16-DRA125M-8	●	12.50	12.99	20	171	123	104.0	50	25	DA1250M-... - DA1290M-...	HS-3048TRP	DTP-6
SF16-DRA130M-8	●	13.00	13.49		175	127	108.0			DA1300M-... - DA1340M-...		
SF16-DRA135M-8	●	13.50	13.99		180	132	112.0			DA1350M-... - DA1390M-...		
SF16-DRA140M-8	●	14.00	14.49	25	184	136	116.0	56	32	DA1400M-... - DA1440M-...	HS-4067TRP	DTP-7
SF16-DRA145M-8	●	14.50	14.99		189	141	120.0			DA1450M-... - DA1490M-...		
SF20-DRA150M-8	●	15.00	15.99		201	151	128.0			DA1500M-... - DA1590M-...		
SF20-DRA160M-8	●	16.00	16.99	20	211	161	136.0	50	25	DA1600M-... - DA1690M-...	HS-3048TRP	DTP-6
SF20-DRA170M-8	●	17.00	17.99		220	170	144.0			DA1700M-... - DA1790M-...		
SF25-DRA180M-8	●	18.00	18.99		236	180	152.0			DA1800M-... - DA1890M-...		
SF25-DRA190M-8	●	19.00	19.99	25	245	189	160.0	56	32	DA1900M-... - DA1990M-...	HS-4067TRP	DTP-7
SF25-DRA200M-8	●	20.00	20.99		254	198	168.0			DA2000M-... - DA2090M-...		
SF25-DRA210M-8	●	21.00	21.99		263	207	176.0			DA2100M-... - DA2150M-...		
SF25-DRA220M-8	●	22.00	22.99	20	273	217	184.0	50	25	DA2200M-... - DA2250M-...	HS-3048TRP	DTP-6
SF25-DRA230M-8	●	23.00	23.99		282	226	192.0			DA2300M-... - DA2350M-...		
SF25-DRA240M-8	●	24.00	24.99		291	235	200.0			DA2400M-... - DA2450M-...		
SF25-DRA250M-8	●	25.00	25.50	300	244	208.0	DA2500M-... - DA2550M-...					

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K6-K8](#) for actual cutting diameters (DC).

SF-DRA (Drilling Depth: 12xDC) NEW

Flange Shank



Toolholder Dimensions - 12D (Metric Size)

Part Number	Stock	Dimensions (mm)								Applicable Insert See Page K6-K8	Spare Parts	
		DC		DCON (h6)	OAL	LFS	LU	LS	DCSFMS		Clamp Screw	Wrench
		min.	max.									
SF16-DRA120M-12	●	12	12.49	16	216	168	150	48	20	DA1200M-... ~ DA1240M-...	HS-2534TRP	FTP-5
SF16-DRA125M-12	●	12.5	12.99		223	175	156			DA1250M-... ~ DA1290M-...		
SF16-DRA130M-12	●	13	13.49		229	181	162			DA1300M-... ~ DA1340M-...		
SF16-DRA135M-12	●	13.5	13.99		236	188	168			DA1350M-... ~ DA1390M-...		
SF16-DRA140M-12	●	14	14.49		242	194	174			DA1400M-... ~ DA1440M-...		
SF16-DRA145M-12	●	14.5	14.99		249	201	180			DA1450M-... ~ DA1490M-...		
SF20-DRA150M-12	●	15	15.99	20	265	215	192	50	25	DA1500M-... ~ DA1590M-...	HS-3048TRP	DTP-6
SF20-DRA160M-12	●	16	16.99		279	229	204			DA1600M-... ~ DA1690M-...		
SF20-DRA170M-12	●	17	17.99		292	242	216			DA1700M-... ~ DA1790M-...		
SF25-DRA180M-12	●	18	18.99	25	312	256	228	56	32	DA1800M-... ~ DA1890M-...	HS-4067TRP	DTP-7
SF25-DRA190M-12	●	19	19.99		325	269	240			DA1900M-... ~ DA1990M-...		
SF25-DRA200M-12	●	20	20.99		338	282	252			DA2000M-... ~ DA2090M-...		
SF25-DRA210M-12	●	21	21.99		351	295	264			DA2100M-... ~ DA2150M-...		
SF25-DRA220M-12	●	22	22.99		365	309	276			DA2200M-... ~ DA2250M-...		
SF25-DRA230M-12	●	23	23.99		378	322	288			DA2300M-... ~ DA2350M-...		
SF25-DRA240M-12	●	24	24.99		391	335	300			DA2400M-... ~ DA2450M-...		
SF25-DRA250M-12	●	25	25.5	404	348	312	DA2500M-... ~ DA2550M-...					

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K6-K8](#) for actual cutting diameters (DC).

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

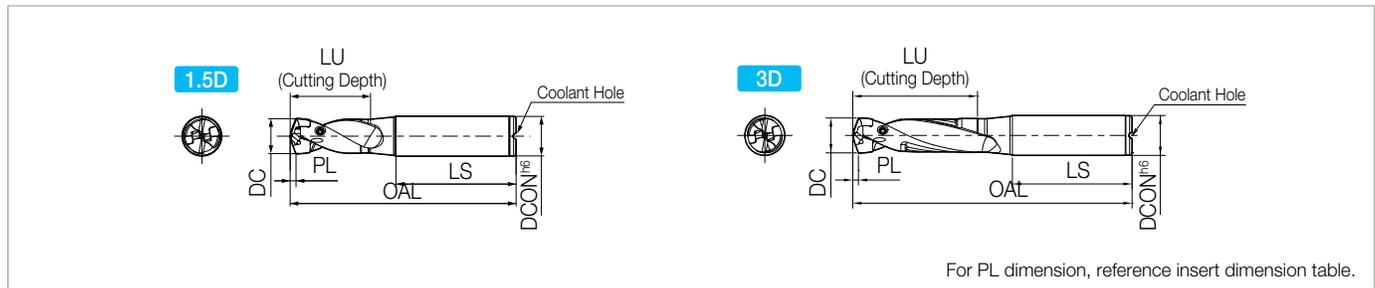
SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

SS-DRA (Drilling Depth: 1.5xDC / 3xDC)

Straight Shank



For PL dimension, reference insert dimension table.

Toolholder Dimensions - 1.5D (Metric Size)

Part Number	Stock	Dimensions (mm)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS10-DRA080M-1.5	●	7.94	8.49	10	66.2	12.8	40	DA0794M-...-DA0840M-...	HS-2524TRP	FTP-5
SS10-DRA085M-1.5	●	8.50	8.99		67.5	13.5		DA0850M-...-DA0890M-...		
SS10-DRA090M-1.5	●	9.00	9.49		68.7	14.3		DA0900M-...-DA0940M-...		
SS10-DRA095M-1.5	●	9.50	9.99	12	70.0	15.0	45	DA0950M-...-DA0990M-...	HS-2534TRP	FTP-5
SS12-DRA100M-1.5	●	10.00	10.49		76.2	15.8		DA1000M-...-DA1040M-...		
SS12-DRA105M-1.5	●	10.50	10.99		77.5	16.5		DA1050M-...-DA1090M-...		
SS12-DRA110M-1.5	●	11.00	11.49	14	79.7	17.3	48	DA1100M-...-DA1140M-...	HS-3048TRP	DTP-6
SS12-DRA115M-1.5	●	11.50	11.99		81.0	18.0		DA1150M-...-DA1190M-...		
SS14-DRA120M-1.5	●	12.00	12.49		82.2	18.8		DA1200M-...-DA1240M-...		
SS14-DRA125M-1.5	●	12.50	12.99	16	83.5	19.5	50	DA1250M-...-DA1290M-...	HS-4067TRP	DTP-7
SS14-DRA130M-1.5	●	13.00	13.49		84.7	20.3		DA1300M-...-DA1340M-...		
SS14-DRA135M-1.5	●	13.50	13.99		86.0	21.0		DA1350M-...-DA1390M-...		
SS16-DRA140M-1.5	●	14.00	14.49	18	90.2	21.8	56	DA1400M-...-DA1440M-...	HS-4067TRP	DTP-7
SS16-DRA145M-1.5	●	14.50	14.99		91.5	22.5		DA1450M-...-DA1490M-...		
SS16-DRA150M-1.5	●	15.00	15.99		95.0	24.0		DA1500M-...-DA1590M-...		
SS18-DRA160M-1.5	●	16.00	16.99	20	98.5	25.5	60	DA1600M-...-DA1690M-...	HS-4067TRP	DTP-7
SS18-DRA170M-1.5	●	17.00	17.99		101.0	27.0		DA1700M-...-DA1790M-...		
SS20-DRA180M-1.5	●	18.00	18.99		106.5	28.5		DA1800M-...-DA1890M-...		
SS20-DRA190M-1.5	●	19.00	19.99	25	109.0	30.0	60	DA1900M-...-DA1990M-...	HS-4067TRP	DTP-7
SS25-DRA200M-1.5	●	20.00	20.99		117.5	31.5		DA2000M-...-DA2090M-...		
SS25-DRA210M-1.5	●	21.00	21.99		120.0	33.0		DA2100M-...-DA2150M-...		
SS25-DRA220M-1.5	●	22.00	22.99	32	123.5	34.5	60	DA2200M-...-DA2250M-...	HS-4067TRP	DTP-7
SS25-DRA230M-1.5	●	23.00	23.99		126.0	36.0		DA2300M-...-DA2350M-...		
SS25-DRA240M-1.5	●	24.00	24.99		128.5	37.5		DA2400M-...-DA2450M-...		
SS32-DRA250M-1.5	●	25.00	25.50		135.0	39.0		DA2500M-...-DA2550M-...		

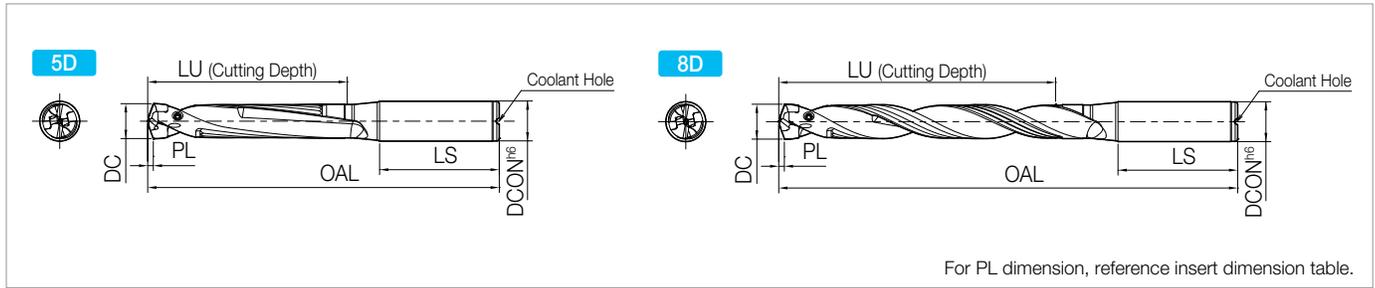
Toolholder Dimensions - 3D (Metric Size)

Part Number	Stock	Dimensions (mm)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS10-DRA080M-3	●	7.94	8.49	10	79	25.5	40	DA0794M-...-DA0840M-...	HS-2524TRP	FTP-5
SS10-DRA085M-3	●	8.50	8.99		81	27.0		DA0850M-...-DA0890M-...		
SS10-DRA090M-3	●	9.00	9.49		83	28.5		DA0900M-...-DA0940M-...		
SS10-DRA095M-3	●	9.50	9.99	12	85	30.0	45	DA0950M-...-DA0990M-...	HS-2534TRP	FTP-5
SS12-DRA100M-3	●	10.00	10.49		92	31.5		DA1000M-...-DA1040M-...		
SS12-DRA105M-3	●	10.50	10.99		94	33.0		DA1050M-...-DA1090M-...		
SS12-DRA110M-3	●	11.00	11.49	14	97	34.5	48	DA1100M-...-DA1140M-...	HS-3048TRP	DTP-6
SS12-DRA115M-3	●	11.50	11.99		99	36.0		DA1150M-...-DA1190M-...		
SS14-DRA120M-3	●	12.00	12.49		101	37.5		DA1200M-...-DA1240M-...		
SS14-DRA125M-3	●	12.50	12.99	16	103	39.0	50	DA1250M-...-DA1290M-...	HS-4067TRP	DTP-7
SS14-DRA130M-3	●	13.00	13.49		105	40.5		DA1300M-...-DA1340M-...		
SS14-DRA135M-3	●	13.50	13.99		107	42.0		DA1350M-...-DA1390M-...		
SS16-DRA140M-3	●	14.00	14.49	18	112	43.5	56	DA1400M-...-DA1440M-...	HS-4067TRP	DTP-7
SS16-DRA145M-3	●	14.50	14.99		114	45.0		DA1450M-...-DA1490M-...		
SS16-DRA150M-3	●	15.00	15.99		119	48.0		DA1500M-...-DA1590M-...		
SS18-DRA160M-3	●	16.00	16.99	20	124	51.0	60	DA1600M-...-DA1690M-...	HS-4067TRP	DTP-7
SS18-DRA170M-3	●	17.00	17.99		128	54.0		DA1700M-...-DA1790M-...		
SS20-DRA180M-3	●	18.00	18.99		135	57.0		DA1800M-...-DA1890M-...		
SS20-DRA190M-3	●	19.00	19.99	25	139	60.0	60	DA1900M-...-DA1990M-...	HS-4067TRP	DTP-7
SS25-DRA200M-3	●	20.00	20.99		149	63.0		DA2000M-...-DA2090M-...		
SS25-DRA210M-3	●	21.00	21.99		153	66.0		DA2100M-...-DA2150M-...		
SS25-DRA220M-3	●	22.00	22.99	32	158	69.0	60	DA2200M-...-DA2250M-...	HS-4067TRP	DTP-7
SS25-DRA230M-3	●	23.00	23.99		162	72.0		DA2300M-...-DA2350M-...		
SS25-DRA240M-3	●	24.00	24.99		166	75.0		DA2400M-...-DA2450M-...		
SS32-DRA250M-3	●	25.00	25.50		174	78.0		DA2500M-...-DA2550M-...		

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K6-K8](#) for actual cutting diameters (DC).

SS-DRA (Drilling Depth: 5xDC / 8xDC)

Straight Shank



Toolholder Dimensions - 5D (Metric Size)

Part Number	Stock	Dimensions (mm)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS10-DRA080M-5	●	7.94	8.49	10	96	42.5	DA0794M-... ~ DA0840M-...	HS-2524TRP	FTP-5	
SS10-DRA085M-5	●	8.50	8.99		99	45.0				DA0850M-... ~ DA0890M-...
SS10-DRA090M-5	●	9.00	9.49		102	47.5				DA0900M-... ~ DA0940M-...
SS10-DRA095M-5	●	9.50	9.99	12	105	50.0	DA0950M-... ~ DA0990M-...	HS-2534TRP	FTP-5	
SS12-DRA100M-5	●	10.00	10.49		113	52.5				DA1000M-... ~ DA1040M-...
SS12-DRA105M-5	●	10.50	10.99		116	55.0				DA1050M-... ~ DA1090M-...
SS12-DRA110M-5	●	11.00	11.49	14	120	57.5	DA1100M-... ~ DA1140M-...	HS-2534TRP	FTP-5	
SS12-DRA115M-5	●	11.50	11.99		123	60.0				DA1150M-... ~ DA1190M-...
SS14-DRA120M-5	●	12.00	12.49		126	62.5				DA1200M-... ~ DA1240M-...
SS14-DRA125M-5	●	12.50	12.99	16	129	65.0	DA1250M-... ~ DA1290M-...	HS-3048TRP	DTP-6	
SS14-DRA130M-5	●	13.00	13.49		132	67.5				DA1300M-... ~ DA1340M-...
SS14-DRA135M-5	●	13.50	13.99		135	70.0				DA1350M-... ~ DA1390M-...
SS16-DRA140M-5	●	14.00	14.49	18	141	72.5	DA1400M-... ~ DA1440M-...	HS-3048TRP	DTP-6	
SS16-DRA145M-5	●	14.50	14.99		144	75.0				DA1450M-... ~ DA1490M-...
SS16-DRA150M-5	●	15.00	15.99		151	80.0				DA1500M-... ~ DA1590M-...
SS18-DRA160M-5	●	16.00	16.99	20	158	85.0	DA1600M-... ~ DA1690M-...	HS-4067TRP	DTP-7	
SS18-DRA170M-5	●	17.00	17.99		164	90.0				DA1700M-... ~ DA1790M-...
SS20-DRA180M-5	●	18.00	18.99		173	95.0				DA1800M-... ~ DA1890M-...
SS20-DRA190M-5	●	19.00	19.99	25	179	100.0	DA1900M-... ~ DA1990M-...	HS-4067TRP	DTP-7	
SS25-DRA200M-5	●	20.00	20.99		191	105.0				DA2000M-... ~ DA2090M-...
SS25-DRA210M-5	●	21.00	21.99		197	110.0				DA2100M-... ~ DA2150M-...
SS25-DRA220M-5	●	22.00	22.99	32	204	115.0	DA2200M-... ~ DA2250M-...	HS-4067TRP	DTP-7	
SS25-DRA230M-5	●	23.00	23.99		210	120.0				DA2300M-... ~ DA2350M-...
SS25-DRA240M-5	●	24.00	24.99		216	125.0				DA2400M-... ~ DA2450M-...
SS32-DRA250M-5	●	25.00	25.50		226	130.0	DA2500M-... ~ DA2550M-...			

Toolholder Dimensions - 8D (Metric Size)

Part Number	Stock	Dimensions (mm)					Applicable Insert See Page K6-K8	Spare Parts		
		DC		DCON (h6)	OAL	LU		LS	Clamp Screw	Wrench
min.	max.									
SS10-DRA080M-8	●	7.94	8.49	10	121	68.0	DA0794M-... ~ DA0840M-...	HS-2524TRP	FTP-5	
SS10-DRA085M-8	●	8.50	8.99		126	72.0				DA0850M-... ~ DA0890M-...
SS10-DRA090M-8	●	9.00	9.49		130	76.0				DA0900M-... ~ DA0940M-...
SS10-DRA095M-8	●	9.50	9.99	12	135	80.0	DA0950M-... ~ DA0990M-...	HS-2534TRP	FTP-5	
SS12-DRA100M-8	●	10.00	10.49		144	84.0				DA1000M-... ~ DA1040M-...
SS12-DRA105M-8	●	10.50	10.99		149	88.0				DA1050M-... ~ DA1090M-...
SS12-DRA110M-8	●	11.00	11.49	14	154	92.0	DA1100M-... ~ DA1140M-...	HS-2534TRP	FTP-5	
SS12-DRA115M-8	●	11.50	11.99		159	96.0				DA1150M-... ~ DA1190M-...
SS14-DRA120M-8	●	12.00	12.49		163	100.0				DA1200M-... ~ DA1240M-...
SS14-DRA125M-8	●	12.50	12.99	16	168	104.0	DA1250M-... ~ DA1290M-...	HS-3048TRP	DTP-6	
SS14-DRA130M-8	●	13.00	13.49		172	108.0				DA1300M-... ~ DA1340M-...
SS14-DRA135M-8	●	13.50	13.99		177	112.0				DA1350M-... ~ DA1390M-...
SS16-DRA140M-8	●	14.00	14.49	18	184	116.0	DA1400M-... ~ DA1440M-...	HS-3048TRP	DTP-6	
SS16-DRA145M-8	●	14.50	14.99		189	120.0				DA1450M-... ~ DA1490M-...
SS16-DRA150M-8	●	15.00	15.99		199	128.0				DA1500M-... ~ DA1590M-...
SS18-DRA160M-8	●	16.00	16.99	20	209	136.0	DA1600M-... ~ DA1690M-...	HS-4067TRP	DTP-7	
SS18-DRA170M-8	●	17.00	17.99		218	144.0				DA1700M-... ~ DA1790M-...
SS20-DRA180M-8	●	18.00	18.99		230	152.0				DA1800M-... ~ DA1890M-...
SS20-DRA190M-8	●	19.00	19.99	25	239	160.0	DA1900M-... ~ DA1990M-...	HS-4067TRP	DTP-7	
SS25-DRA200M-8	●	20.00	20.99		254	168.0				DA2000M-... ~ DA2090M-...
SS25-DRA210M-8	●	21.00	21.99		263	176.0				DA2100M-... ~ DA2150M-...
SS25-DRA220M-8	●	22.00	22.99	32	273	184.0	DA2200M-... ~ DA2250M-...	HS-4067TRP	DTP-7	
SS25-DRA230M-8	●	23.00	23.99		282	192.0				DA2300M-... ~ DA2350M-...
SS25-DRA240M-8	●	24.00	24.99		291	200.0				DA2400M-... ~ DA2450M-...
SS32-DRA250M-8	●	25.00	25.50		304	208.0	DA2500M-... ~ DA2550M-...			

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page **K6-K8** for actual cutting diameters (DC).

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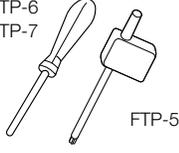
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DRA RECOMMENDED CUTTING CONDITIONS

Spare Parts

Clamp Screw	Part Number
	HS-2524TRP
	HS-2534TRP
	HS-3048TRP
	HS-4067TRP

Wrench	Part Number	Torque
	FTP-5	0.5 Nm (4.4 in/lb)
	DTP-6	0.8 Nm (7.1 in/lb)
	DTP-7	1.2 Nm (10.6 in/lb)

GM Insert - Recommended Cutting Conditions

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)					Notes
	PR1535	PR1525			1.5D	3D	5D	8D	12D	
Low Carbon Steel	★ 330-590	☆ 330-590	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066			Coolant See K22
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085			
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099			
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110			
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124			
Carbon Steel	★ 330-490	☆ 330-490	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066			
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085			
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099			
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110			
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124			
Alloy Steel	★ 230-390	☆ 230-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066			
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085			
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099			
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110			
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124			
Tool Steel	★ 160-300	☆ 160-300	0.313 - 0.429	7.94 - 10.90	0.0031 - 0.0067	0.0025 - 0.0054	0.0022 - 0.0047			
			0.433 - 0.547	11.00 - 13.90	0.0031 - 0.0087	0.0025 - 0.0069	0.0022 - 0.0061			
			0.551 - 0.705	14.00 - 17.90	0.0043 - 0.0098	0.0035 - 0.0079	0.0030 - 0.0069			
			0.709 - 0.846	18.00 - 21.50	0.0043 - 0.0110	0.0035 - 0.0088	0.0030 - 0.0077			
			0.866 - 0.965	22.00 - 24.50	0.0055 - 0.0126	0.0044 - 0.0101	0.0039 - 0.0088			
Stainless Steel ※	★ 130-230	☆ 130-230	0.313 - 0.429	7.94 - 10.90	0.0039 - 0.0094	0.0031 - 0.0076	0.0028 - 0.0066			
			0.433 - 0.547	11.00 - 13.90	0.0039 - 0.0094	0.0031 - 0.0076	0.0028 - 0.0066			
			0.551 - 0.705	14.00 - 17.90	0.0047 - 0.0118	0.0038 - 0.0094	0.0033 - 0.0083			
			0.709 - 0.846	18.00 - 21.50	0.0059 - 0.0118	0.0047 - 0.0094	0.0041 - 0.0083			
			0.866 - 0.965	22.00 - 24.50	0.0059 - 0.0118	0.0047 - 0.0094	0.0041 - 0.0083			
Gray Cast Iron	☆ 300-560	★ 300-560	0.313 - 0.429	7.94 - 10.90	0.0055 - 0.0114	0.0044 - 0.0091	0.0039 - 0.0080			
			0.433 - 0.547	11.00 - 13.90	0.0055 - 0.0146	0.0044 - 0.0117	0.0039 - 0.0102			
			0.551 - 0.705	14.00 - 17.90	0.0075 - 0.0169	0.0060 - 0.0135	0.0052 - 0.0119			
			0.709 - 0.846	18.00 - 21.50	0.0075 - 0.0177	0.0060 - 0.0142	0.0052 - 0.0124			
			0.866 - 0.965	22.00 - 24.50	0.0094 - 0.0177	0.0076 - 0.0142	0.0066 - 0.0124			
Nodular Cast Iron	☆ 130-390	★ 130-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066			
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085			
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099			
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110			
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124			
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124			

As drilling depth increases (1.5D → 3D → 5D → 8D), feed rates should be reduced.
 Recommended Feed Rate: 1.5D/3D = 100%, 5D/8D ≤ 80%, 12D ≤ 70%
 Recommended Cutting Speed: 8D ≤ 80%, 12D ≤ 70%

★ : 1st Recommendation ☆ : 2nd Recommendation

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5DC.

Notes: The recommended cutting conditions are for drilling on plain surfaces.

The conditions for drilling on slant hole shows the depth from the top of workpiece.

Set the feed rate under 50% when inclination angle is under 30°.

Set the feed rate under 30% when inclination angle is over 30°.

Traversing is not recommended.

Applicable to 1.5D, 3D, 5D, 8D and 12D holders. Prepared hole (0.5DC) is needed when using 8D/12D holder.

K
DRILLING

DRA

DRC

DRV

DRS

DRZ

DRX

HOLESHOT

COREMASTER
COREDRILL

STINGER
DRILL

COUNTERBORE
COUNTERSINK

DRA RECOMMENDED CUTTING CONDITIONS

◆ KM Insert - Recommended Cutting Conditions

Workpiece Material	Cutting Speed (sfm)	Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)				Notes
				PR1525				
				1.5D	3D	5D	8D		12D
Gray Cast Iron	★ 300-560	0.313 - 0.429	7.94 - 10.90	0.0067 - 0.0138	0.0054 - 0.0110	0.0047 - 0.0096	Coolant See K22	
		0.433 - 0.547	11.00 - 13.90	0.0075 - 0.0165	0.0060 - 0.0132	0.0052 - 0.0116		
		0.551 - 0.705	14.00 - 17.90	0.0091 - 0.0209	0.0072 - 0.0167	0.0063 - 0.0146		
		0.709 - 0.846	18.00 - 21.50	0.0098 - 0.0236	0.0079 - 0.0189	0.0069 - 0.0165		
		0.866 - 0.965	22.00 - 24.50	0.0126 - 0.0236	0.0101 - 0.0189	0.0088 - 0.0165		
Nodular Cast Iron	★ 130-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066		
		0.433 - 0.547	11.00 - 13.90	0.0067 - 0.0142	0.0054 - 0.0113	0.0047 - 0.0099		
		0.551 - 0.705	14.00 - 17.90	0.0083 - 0.0189	0.0066 - 0.0151	0.0058 - 0.0132		
		0.709 - 0.846	18.00 - 21.50	0.0094 - 0.0236	0.0076 - 0.0189	0.0066 - 0.0165		
		0.866 - 0.965	22.00 - 24.50	0.0106 - 0.0236	0.0085 - 0.0189	0.0074 - 0.0165		
		0.984 - 1.004	25.00 - 25.50	0.0106 - 0.0236	0.0085 - 0.0189	0.0074 - 0.0165		

• As drilling depth increases (3D → 5D → 8D), feed rates should be reduced.

• Recommended Feed Rate: 3D = 100%, 5D ≤ 80%, 8D ≤ 70%

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ FTP Insert - Recommended Cutting Conditions

Workpiece Material	Recommended Grade / Cutting Speed (sfm)		Cutting Dia. DC (in)	Cutting Dia. DC (mm)	Holder Type (Cutting Depth) Feed Rate (ipr)				Notes
	PR1535	PR1525			PR1525				
	1.5D	3D			5D	8D	12D		
Low Carbon Steel	★ 330-590	☆ 330-590	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066	Coolant See K22	
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085		
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099		
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110		
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124		
Carbon Steel	★ 330-490	☆ 330-490	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066		
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085		
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099		
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110		
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124		
Alloy Steel	★ 230-390	☆ 230-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066		
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085		
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099		
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110		
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124		
Tool Steel	★ 160-300	☆ 160-300	0.313 - 0.429	7.94 - 10.90	0.0031 - 0.0067	0.0025 - 0.0054	0.0022 - 0.0047		
			0.433 - 0.547	11.00 - 13.90	0.0031 - 0.0087	0.0025 - 0.0069	0.0022 - 0.0061		
			0.551 - 0.705	14.00 - 17.90	0.0043 - 0.0098	0.0035 - 0.0079	0.0030 - 0.0069		
			0.709 - 0.846	18.00 - 21.50	0.0043 - 0.0110	0.0035 - 0.0088	0.0030 - 0.0077		
			0.866 - 0.965	22.00 - 24.50	0.0055 - 0.0118	0.0044 - 0.0094	0.0039 - 0.0083		
Stainless Steel※	★ 130-230	☆ 130-230	0.313 - 0.429	7.94 - 10.90	0.0039 - 0.0079	0.0031 - 0.0063	0.0028 - 0.0055		
			0.433 - 0.547	11.00 - 13.90	0.0039 - 0.0079	0.0031 - 0.0063	0.0028 - 0.0055		
			0.551 - 0.705	14.00 - 17.90	0.0039 - 0.0094	0.0031 - 0.0076	0.0028 - 0.0066		
			0.709 - 0.846	18.00 - 21.50	0.0059 - 0.0094	0.0047 - 0.0076	0.0041 - 0.0066		
			0.866 - 0.965	22.00 - 24.50	0.0059 - 0.0094	0.0047 - 0.0076	0.0041 - 0.0066		
Gray Cast Iron	☆ 300-560	★ 300-560	0.313 - 0.429	7.94 - 10.90	0.0055 - 0.0114	0.0044 - 0.0091	0.0039 - 0.0080		
			0.433 - 0.547	11.00 - 13.90	0.0055 - 0.0146	0.0044 - 0.0117	0.0039 - 0.0102		
			0.551 - 0.705	14.00 - 17.90	0.0075 - 0.0169	0.0060 - 0.0135	0.0052 - 0.0119		
			0.709 - 0.846	18.00 - 21.50	0.0075 - 0.0177	0.0060 - 0.0142	0.0052 - 0.0124		
			0.866 - 0.965	22.00 - 24.50	0.0094 - 0.0177	0.0076 - 0.0142	0.0066 - 0.0124		
Nodular Cast Iron	☆ 130-390	★ 130-390	0.313 - 0.429	7.94 - 10.90	0.0047 - 0.0094	0.0038 - 0.0076	0.0033 - 0.0066		
			0.433 - 0.547	11.00 - 13.90	0.0047 - 0.0122	0.0038 - 0.0098	0.0033 - 0.0085		
			0.551 - 0.705	14.00 - 17.90	0.0063 - 0.0142	0.0050 - 0.0113	0.0044 - 0.0099		
			0.709 - 0.846	18.00 - 21.50	0.0063 - 0.0157	0.0050 - 0.0126	0.0044 - 0.0110		
			0.866 - 0.965	22.00 - 24.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124		
			0.984 - 1.004	25.00 - 25.50	0.0079 - 0.0177	0.0063 - 0.0142	0.0055 - 0.0124		

As drilling depth increases (1.5D → 3D → 5D → 8D), feed rates should be reduced.

Recommended Feed Rate: 1.5D/3D = 100%, 5D/8D ≤ 80%, 12D ≤ 70%

Recommended Cutting Speed: 8D ≤ 80%, 12D ≤ 70%

★ : 1st Recommendation ☆ : 2nd Recommendation

※ Feed Rate 0.006 ipr or less is recommended for stainless steel until drilling depth reaches 0.5DC.

Notes: The recommended cutting conditions are for drilling on plain surfaces.

The conditions for drilling on slant hole shows the depth from the top of workpiece.

Set the feed rate under 50% when inclination angle is under 30°.

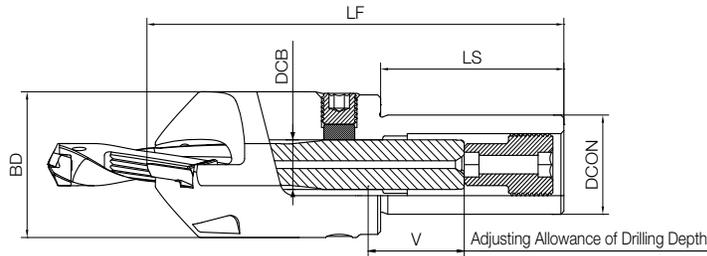
Set the feed rate under 30% when inclination angle is over 30°.

Traversing is not recommended.

Applicable to 1.5D, 3D, 5D, 8D and 12D holders. Prepared hole (0.5DC) is needed when using 8D/12D holder.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRA Chamfering Attachment (for Straight Shank Only)



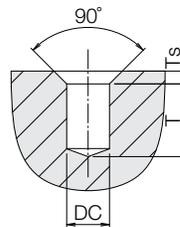
Chamfer Attachment Dimensions (Metric Size)

Part Number	Stock	Applicable Drill Shank Dia. DCB	Dimensions (mm)					Applicable Chamfer Insert
			DCON	BD	LF	LS	V (Max)	
S20-CH10-DRA	●	10	20	39	110	52	18	CT12T3-45DA
S32-CH12-DRA	●	12	32	43	130	62	24	
S32-CH14-DRA	●	14	32	45	130	62	24	
S32-CH16-DRA	●	16	32	47	141	62	24	
S32-CH18-DRA	●	18	32	49	145	62	24	
S32-CH20-DRA	●	20	32	53	150	62	24.5	

Applicable Insert

Shape	Part Number	MEGACOAT NANO	Dimensions (mm)	
		PR1535	W1	S
	CT12T3-45DA	●	13.54	3.97

Drilling & Chamfering Depths



	Cutting Dia. (mm) DC		Drilling Depth (mm)						Chamfering Dimension (mm)		Applicable Chamfering Attachment
	min.	max.	T (3XD)		T (5XD)		T (8XD)		Ts	Tsmax.	
DRA											
DRC	7.94	8.49	12.5	20	18	36	43	60	2.5	8	S20-CH10-DRA
DRV	8.50	8.99	12.5	21.5	21.5	38.5	48	64			
DRS	9.00	9.49	12.5	23	24	41	52	68			
DRZ	9.50	9.99	12.5	24.5	27.5	43.5	57.5	72.5	4	8	S32-CH12-DRA
DRX	10.00	10.49	15.5	26	22	46	52	76			
HOLESHOT	10.50	10.99	16	27.5	24.5	48.5	56	80			
COREMASTER COREDRILL	11.00	11.49	16.5	29	27	51	60	84	4	8	S32-CH14-DRA
STINGER DRILL	11.50	11.99	17.5	30.5	29.5	53.5	64	88			
COUNTERBORE COUNTERSINK	12.00	12.49	18	32	32	56	68	92			
	12.50	12.99	19	34	35	59	72.5	96.5	4	8	S32-CH16-DRA
	13.00	13.49	19.5	35.5	37.5	61.5	76	100			
	13.50	13.99	20	36.5	39.5	63.5	80	104			
	14.00	14.49	21	38.5	42.5	66.5	84.5	108.5	4	8	S32-CH18-DRA
	14.50	14.99	21.5	40	45	69	88.5	112.5			
	15.00	15.99	22.5	41.5	47.5	71.5	92.5	116.5			
	16.00	16.99	24	44.5	52.5	76.5	100.5	124.5	4	8	S32-CH20-DRA
	17.00	17.99	25.5	47.5	57.5	81.5	108.5	132.5			
	18.00	18.99	27.5	51	64	87	121	141			
	19.00	19.99	29.5	54	69	92	129	149	4	8	

Ts: Max. chamfering dimension at the full feed.

Tsmax.: Max. chamfering dimension at a 50% feed reduction.

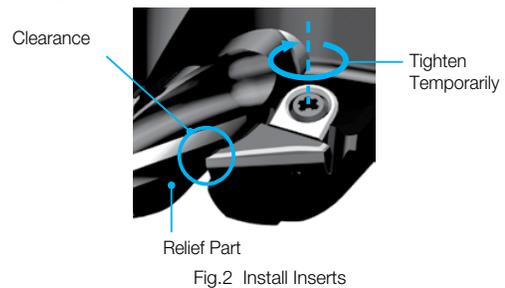
● Spare Parts

Chamfering Attachment	Adjusting Screw		For Fixing Drills				For Mounting Inserts			
			Clamp	Clamp Screw		Plug Screw	Clamp	Clamp Screw	Wrench	
Part Number		Width Across Flat (mm)			Width Across Flat (mm)	Torque [N·m]				
S20-CH10-DRA	AJ-12X22	6	CP-CH10	HS8X8	4	12	BNP6	C09N	W6X18N	DTM-15
S32-CH12-DRA	AJ-16X30		CP-CH12			15				
S32-CH14-DRA	AJ-20X30	8	CP-CH14	HS10X10	5	20				
S32-CH16-DRA		CP-CH16	HS12X10	6	30					
S32-CH18-DRA	AJ-22x35	10	CP-CH18	HS16X10	8	30				
S32-CH20-DRA			CP-CH20			45				

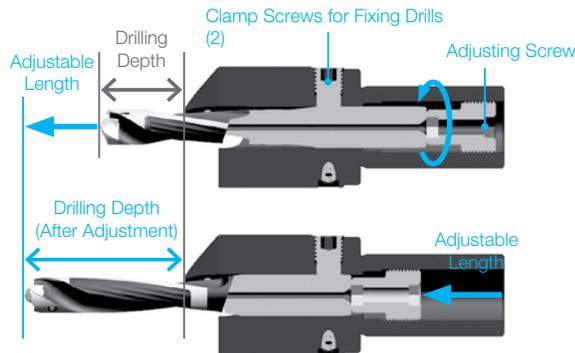
1. Mount DRA drill into the chamfering attachment (Fig.1)



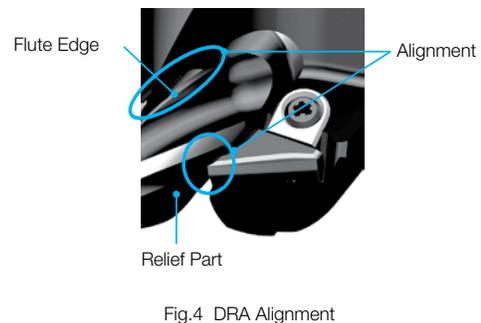
2. Install an insert and tighten temporarily with clearance between the cutting edge and DRA body (Fig.2)



3. Adjust drilling depth by turning adjustment screw with hexagon wrench (Fig.3)



4. Align the flute edge and black relief part of the drill to the position shown by rotating the DRA drill (Fig.4)

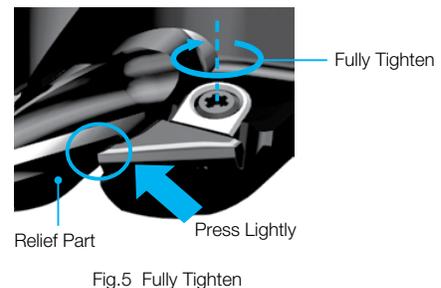


5. Fasten the two clamp screws for DRA (See table 1. for recommended torque)

Table1. Recommended Torque

Chamfering Attachment Part Number	Clamp Screw	
	Recommended Torque (N·m)	Width Across Flat (mm)
S20-CH10-DRA	12	4
S32-CH12-DRA	15	
S32-CH14-DRA	20	5
S32-CH16-DRA	30	6
S32-CH18-DRA	30	
S32-CH20-DRA	45	8

6. Tighten the inserts while lightly pressing the edge of insert against the relief part (Fig.5)



Cautions

- Chamfering attachment is compatible with straight shank SS-DRA. It cannot be used for flanged shank SF-DRA.
- Chamfering requires two chamfering inserts. Using one insert is not recommended.
- Only fully remove clamp screws when replacing them.

- Clamps and clamp screws for mounting inserts need to be replaced regularly.
- Screw locking adhesive is applied to adjustment screw. The effect will eventually wear off if the screws are used for a long time. Regular replacement is recommended.
- Please do not operate the plug screws.

INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING
DRILLING
MILLING
QUICK CHANGE TOOLING
SPARE PARTS
TECHNICAL
INDEX

A
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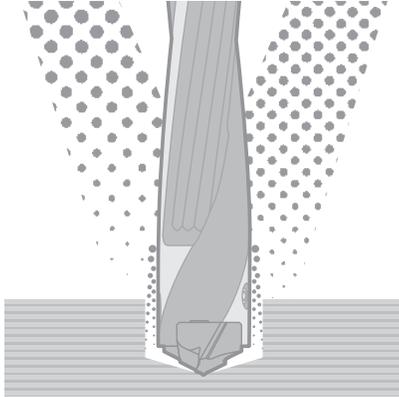
MACHINING WITH THE DRA MAGIC DRILL

Coolant (Machining Dry is Not Recommended)

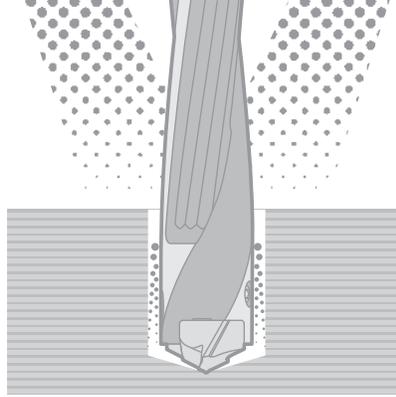
1st Recommendation

Internal + External Coolant

Drilling Depth is
Less than 1D

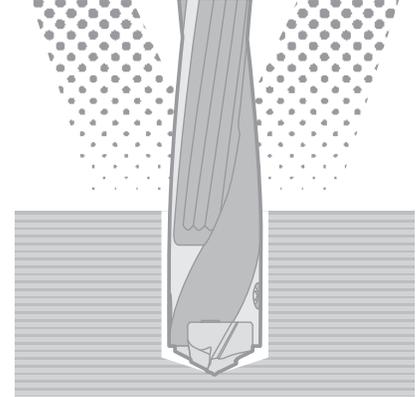


Stainless Steel or
High-feed Machining



※ Dry cutting is not recommended.

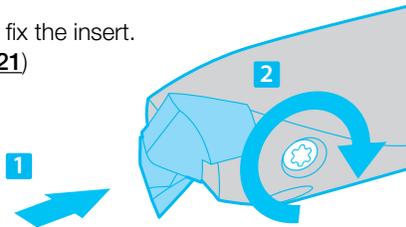
External Coolant



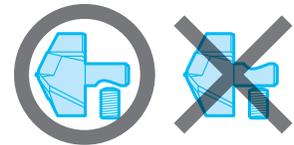
Lathe Application:
Max. Drill Depth 3D
Vertical M/C Application:
Max. Drill Depth 1.5D

How to Attach Inserts

- 1 Install insert onto the toolholder in the right direction.
- 2 Tighten clamp screw to fix the insert.
(Torque: see page [K21](#))



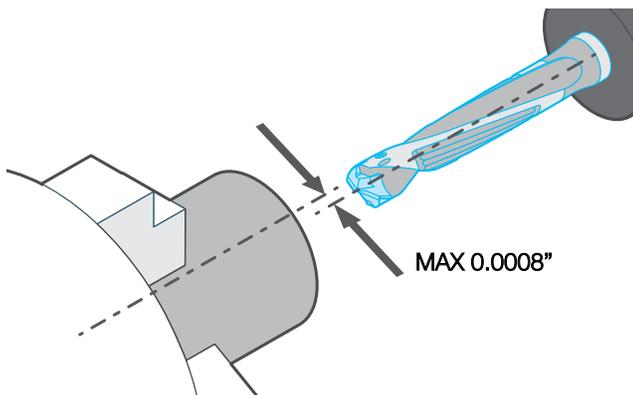
Be Careful of the Insert Direction



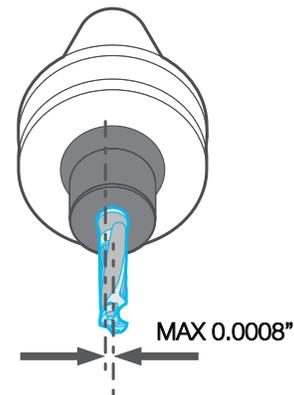
- ※ 1 Remove dust on insert pocket using air blow for every replacement.
- ※ 2 Make sure that the locating surfaces of the insert closely contacts the toolholder.

Core Deviation / Alignment Cautions

If Drill is Stationary



If Drill is Rotating



DRA works with both boring sleeve and collet-chuck. Center line deviation should be less than 0.0008" between workpiece and drill.

Do not use any arbor whose attachment surface is deformed. Center deviation must be less than 0.0008".

K	DRILLING
	DRA
	DRC
	DRV
	DRS
	DRZ
	DRX
	HOLESHOT
	COREMASTER COREDRILL
	STINGER DRILL
COUNTERBORE COUNTERSINK	

Machining Center Installation Cautions

How to Install DRA

1st Recommendation

Hydro-chuck, Power-chuck, Collet-chuck

Hydro-chuck

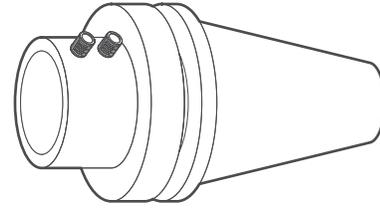
Power-chuck

Collet-chuck

Install DRA Into These Chucks

2nd Recommendation

Side-lock Arbor



Example of Side Lock Arbor

Other Cautions

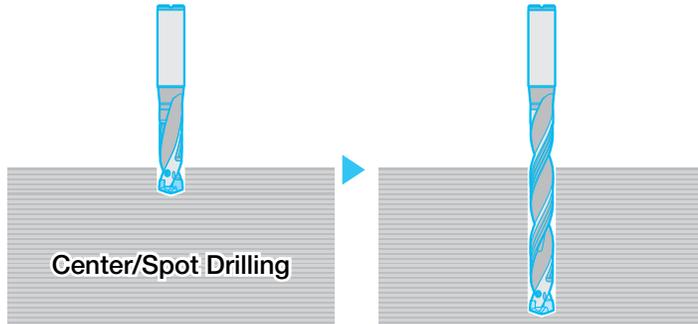
Cautions for Machining with 8D and 12D Holder

Recommended Machining

- 1 Make a center spot using DRA 1.5D/3D/5D
(Center spot should be at least half of cutting diameter)
- 2 Then drill the hole using DRA (8D/12D type).

1 DRA1.5D/3D/5D

2 DRA 8D/12D

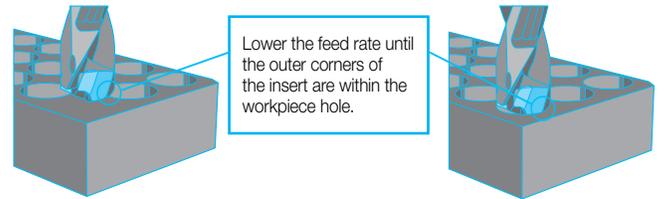


Center/Spot Drilling

Using KM Inserts

When Drilling Cast Iron with KM Inserts

Reduce the feed to 0.006 ipr until the outer corners of the insert are within the workpiece hole.



Lower the feed rate until the outer corners of the insert are within the workpiece hole.

Applicable Workpieces for GM and KM Inserts

Application	Workpiece Shape	Machining Caution
Plain Surface		<ol style="list-style-type: none"> 1. When machining stainless steel, for hole depths of up to 0.5D, keep feed rate at less than 0.006 ipr. 2. Thru coolant is recommended for smooth chip removal. For stainless steel, the combination of thru and external coolant is recommended.
Stacked Plates		<ol style="list-style-type: none"> 1. Fix stacked plates securely to ensure they do not slip while machining.
Concave Surface		<ol style="list-style-type: none"> 1. When machining concave holes, set the feed rate at less than half of recommended feed for continuous hole machining. 2. Utilize a pecking cycle if chips are not broken short at the inlet.
Tubing		<ol style="list-style-type: none"> 1. Hole machining on the centerline of the tubing is possible. 2. Do not machine on curved surface areas. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Good ↓</p> <p>Center Machining</p> </div> <div style="text-align: center;"> <p>Bad ↓</p> <p>Off Center Machining</p> </div> </div>

Not Recommended Workpieces for GM and KM Inserts

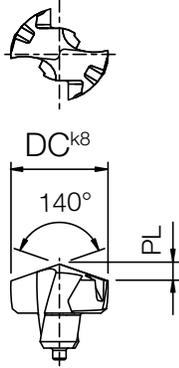
Application	Hole Expansion	Angled Surface	Half Cylindrical	Existing Hole
Workpiece Shape				

For FTP Insert Applicable Workpieces See Page [K8](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRC MAGIC DRILL INSERTS

DC Inserts (Ø0.492"~0.744")

Insert	Part Number	Dimensions			Grade	Applicable Toolholder See Page K27~K29, K32~K34																
		DC		PL (in)																		
		in	mm		PR0315																	
  <p>k8 Tolerance</p> <table border="1"> <thead> <tr> <th>DC (in)</th> <th>k8 (in)</th> <th>DC (mm)</th> <th>k8 (mm)</th> </tr> </thead> <tbody> <tr> <td>0.313~ 0.394</td> <td>+0.0009 0</td> <td>7.94~ 10.00</td> <td>+0.022 0</td> </tr> <tr> <td>0.398~ 0.709</td> <td>+0.0011 0</td> <td>10.10~ 18.00</td> <td>+0.027 0</td> </tr> <tr> <td>0.713~ 1.023</td> <td>+0.0013 0</td> <td>18.10~ 25.99</td> <td>+0.033 0</td> </tr> </tbody> </table> <p>k8 is the dimension tolerance of the insert. It is not the tolerance of the cutting diameter.</p>	DC (in)	k8 (in)	DC (mm)	k8 (mm)	0.313~ 0.394	+0.0009 0	7.94~ 10.00	+0.022 0	0.398~ 0.709	+0.0011 0	10.10~ 18.00	+0.027 0	0.713~ 1.023	+0.0013 0	18.10~ 25.99	+0.033 0	DC 1250M-SC	0.492	12.50	0.085	●	SS14-DRC125M-○ SF16-DRC125M-○
	DC (in)	k8 (in)	DC (mm)	k8 (mm)																		
	0.313~ 0.394	+0.0009 0	7.94~ 10.00	+0.022 0																		
	0.398~ 0.709	+0.0011 0	10.10~ 18.00	+0.027 0																		
	0.713~ 1.023	+0.0013 0	18.10~ 25.99	+0.033 0																		
	1260M-SC	0.496	12.60	0.085	●																	
	1270M-SC	0.500	12.70	0.086	●																	
	1280M-SC	0.504	12.80	0.087	●																	
	1290M-SC	0.508	12.90	0.088	●																	
	DC 1300M-SC	0.512	13.00	0.088	●	SS14-DRC130M-○ SF16-DRC130M-○																
	1310M-SC	0.516	13.10	0.089	●																	
	1320M-SC	0.520	13.20	0.090	●																	
	1330M-SC	0.524	13.30	0.091	●																	
	1340M-SC	0.528	13.40	0.091	●																	
	DC 1350M-SC	0.531	13.50	0.092	●	SS14-DRC135M-○ SF16-DRC135M-○																
	1360M-SC	0.535	13.60	0.093	●																	
	1370M-SC	0.539	13.70	0.093	●																	
	1380M-SC	0.543	13.80	0.094	●																	
	1390M-SC	0.547	13.90	0.094	●																	
	DC 1400M-SC	0.551	14.00	0.095	●	SS16-DRC140M-○ SF16-DRC140M-○																
	1410M-SC	0.555	14.10	0.096	●																	
	1420M-SC	0.559	14.20	0.096	●																	
	1430M-SC	0.563	14.30	0.097	●																	
	1440M-SC	0.567	14.40	0.098	●																	
	DC 1450M-SC	0.571	14.50	0.098	●	SS16-DRC145M-○ SF16-DRC145M-○																
	1460M-SC	0.575	14.60	0.099	●																	
	1470M-SC	0.579	14.70	0.100	●																	
	1480M-SC	0.583	14.80	0.100	●																	
	1490M-SC	0.587	14.90	0.101	●																	
	DC 1500M-SC	0.591	15.00	0.102	●	SS16-DRC150M-○ SF20-DRC150M-○																
	1510M-SC	0.594	15.10	0.102	●																	
	1520M-SC	0.598	15.20	0.103	●																	
	1530M-SC	0.602	15.30	0.104	●																	
	1540M-SC	0.606	15.40	0.105	●																	
	1550M-SC	0.610	15.50	0.106	●																	
	1560M-SC	0.614	15.60	0.106	●																	
	1570M-SC	0.618	15.70	0.107	●																	
	1580M-SC	0.622	15.80	0.107	●																	
	DC 1600M-SC	0.630	16.00	0.109	●		SS18-DRC160M-○ SF20-DRC160M-○															
	1610M-SC	0.634	16.10	0.109	●																	
1620M-SC	0.638	16.20	0.110	●																		
1630M-SC	0.642	16.30	0.111	●																		
1640M-SC	0.646	16.40	0.111	●																		
1650M-SC	0.650	16.50	0.112	●																		
1660M-SC	0.654	16.60	0.113	●																		
1670M-SC	0.657	16.70	0.114	●																		
1680M-SC	0.661	16.80	0.114	●																		
1690M-SC	0.665	16.90	0.115	●																		
DC 1700M-SC	0.669	17.00	0.115	●	SS18-DRC170M-○ SF20-DRC170M-○																	
1710M-SC	0.673	17.10	0.116	●																		
1720M-SC	0.677	17.20	0.117	●																		
1730M-SC	0.681	17.30	0.118	●																		
1740M-SC	0.685	17.40	0.118	●																		
1750M-SC	0.689	17.50	0.119	●																		
1760M-SC	0.693	17.60	0.120	●																		
1770M-SC	0.697	17.70	0.120	●																		
1780M-SC	0.701	17.80	0.121	●																		
1790M-SC	0.705	17.90	0.122	●																		
DC 1800M-SC	0.709	18.00	0.122	●	SS20-DRC180M-○ SF25-DRC180M-○																	
1810M-SC	0.713	18.10	0.123	●																		
1820M-SC	0.717	18.20	0.124	●																		
1830M-SC	0.720	18.30	0.124	●																		
1840M-SC	0.724	18.40	0.125	●																		
1850M-SC	0.728	18.50	0.126	●																		
1860M-SC	0.732	18.60	0.126	●																		
1870M-SC	0.736	18.70	0.127	●																		
1880M-SC	0.740	18.80	0.128	●																		
1890M-SC	0.744	18.90	0.129	●																		

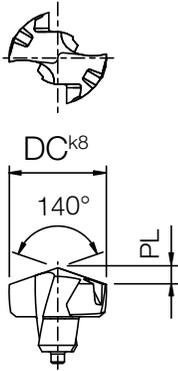
Recommended Cutting Conditions ● K36

Inserts are sold in 1 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRC MAGIC DRILL INSERTS

DC Inserts (Ø0.748"~1.023")

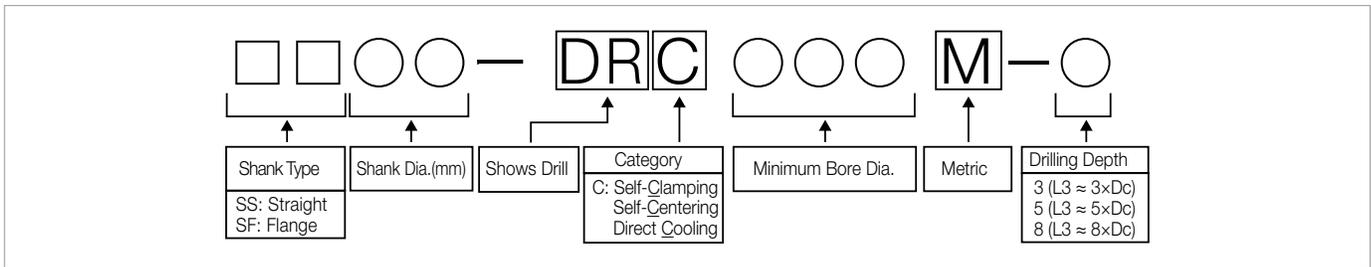
Insert	Part Number	Dimensions			Grade	Applicable Toolholder See Page K27~K29 , K32~K34												
		DC		PL (in)	PR0315													
		in	mm															
  <p>k8 Tolerance</p> <table border="1"> <thead> <tr> <th>DC (in)</th> <th>k8 (in)</th> <th>DC (mm)</th> <th>k8 (mm)</th> </tr> </thead> <tbody> <tr> <td>0.313~0.394</td> <td>+0.0009 0</td> <td>7.94~10.00</td> <td>+0.022 0</td> </tr> <tr> <td>0.398~0.709</td> <td>+0.0011 0</td> <td>10.10~18.00</td> <td>+0.027 0</td> </tr> <tr> <td>0.713~1.023</td> <td>+0.0013 0</td> <td>18.10~25.99</td> <td>+0.033 0</td> </tr> </tbody> </table> <p>k8 is the dimension tolerance of the insert. It is not the tolerance of the cutting diameter.</p>	DC (in)	k8 (in)	DC (mm)	k8 (mm)	0.313~0.394	+0.0009 0	7.94~10.00	+0.022 0	0.398~0.709	+0.0011 0	10.10~18.00	+0.027 0	0.713~1.023	+0.0013 0	18.10~25.99	+0.033 0	DC 1900M-SC 0.748 19.00 0.129 ● 1910M-SC 0.752 19.10 0.130 ● 1920M-SC 0.756 19.20 0.130 ● 1930M-SC 0.760 19.30 0.131 ● 1940M-SC 0.764 19.40 0.132 ● 1950M-SC 0.768 19.50 0.133 ● 1960M-SC 0.772 19.60 0.133 ● 1970M-SC 0.776 19.70 0.134 ● 1980M-SC 0.780 19.80 0.135 ● 1990M-SC 0.783 19.90 0.135 ● DC 2000M-SC 0.787 20.00 0.136 ● 2010M-SC 0.791 20.10 0.137 ● 2020M-SC 0.795 20.20 0.137 ● 2030M-SC 0.799 20.30 0.138 ● 2040M-SC 0.803 20.40 0.139 ● 2050M-SC 0.807 20.50 0.139 ● 2060M-SC 0.811 20.60 0.140 ● 2070M-SC 0.815 20.70 0.141 ● 2080M-SC 0.819 20.80 0.141 ● 2090M-SC 0.823 20.90 0.142 ● 2099M-SC 0.826 20.99 0.143 ● DC 2100M-SC 0.827 21.00 0.143 ● 2150M-SC 0.846 21.50 0.146 ● 2200M-SC 0.866 22.00 0.149 ● 2250M-SC 0.886 22.50 0.153 ● 2300M-SC 0.906 23.00 0.156 ● 2350M-SC 0.925 23.50 0.160 ● 2400M-SC 0.945 24.00 0.163 ● 2450M-SC 0.965 24.50 0.167 ● 2500M-SC 0.984 25.00 0.170 ● 2550M-SC 1.004 25.50 0.173 ●	SS20-DRC190M-○ SF25-DRC190M-○ SS25-DRC200M-○ SF25-DRC200M-○ SS25-DRC210M-○ SF25-DRC210M-○ SS25-DRC220M-○ SF25-DRC220M-○ SS25-DRC230M-○ SF25-DRC230M-○ SS25-DRC240M-○ SF25-DRC240M-○ SS32-DR250M-○ SF25-DRC250M-○
	DC (in)	k8 (in)	DC (mm)	k8 (mm)														
	0.313~0.394	+0.0009 0	7.94~10.00	+0.022 0														
	0.398~0.709	+0.0011 0	10.10~18.00	+0.027 0														
	0.713~1.023	+0.0013 0	18.10~25.99	+0.033 0														

Recommended Cutting Conditions [K36](#)

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

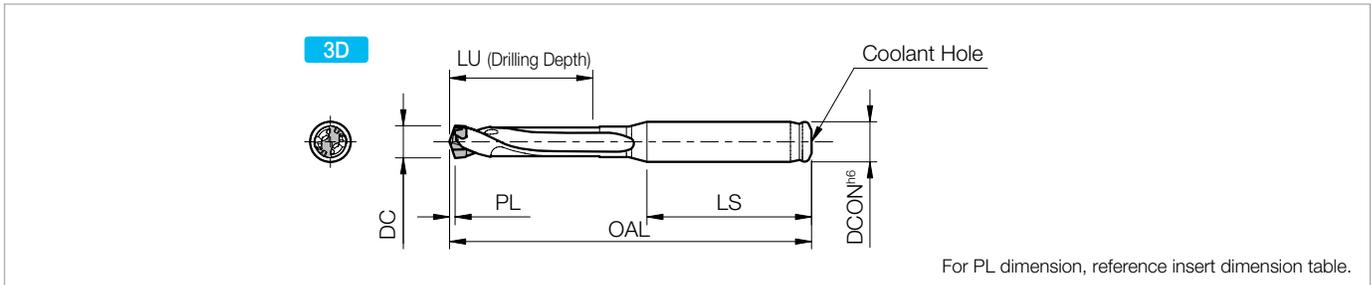
Inserts are sold in 1 piece boxes

DRC Toolholder Identification System



SS-DRC (Drilling Depth: 3xDC)

Straight Shank



Toolholder Dimensions - 3DC (Metric Size)

Part Number	Stock	Dimensions (mm)					Spare Parts Wrench K35	Applicable Insert See Page K24-K26	Applicable Chamfering Attachment and Insert	
		min. DC	max. DC	DCON (h6)	OAL	LU			LS	Chamfer Attachment K30	Chamfer Insert K31
SS10- DRC080M-3	●	7.94	8.49	10	79	25.5	40	WDRC8 (WDRC17)	S20-CH10	CT08T2-45A
	●	8.50	8.99		81	27.0				
	●	9.00	9.49		83	28.5				
	●	9.50	9.99		85	30.0				
SS12- DRC100M-3	●	10.00	10.49	12	92	31.5	45	WDRC10 (WDRC17)	S32-CH12	
	●	10.50	10.99		94	33.0				
	●	11.00	11.49		96	34.5				
	●	11.50	11.99		98	36.0				
SS14- DRC120M-3	●	12.00	12.49	14	101	37.5	48	WDRC12 (WDRC17)	S32-CH14	CT12T3-45A
	●	12.50	12.99		103	39.0				
	●	13.00	13.49		105	40.5				
	●	13.50	13.99		107	42.0				
SS16- DRC140M-3	●	14.00	14.49	16	112	43.5	50	WDRC14 (WDRC17)	S32-CH16	
	●	14.50	14.99		114	45.0				
	●	15.00	15.99		118	48.0				
SS18- DRC160M-3	●	16.00	16.99	18	122	51.0	52	WDRC16 (WDRC17)	S32-CH18	
	●	17.00	17.99		127	54.0				
SS20- DRC180M-3	●	18.00	18.99	20	133	57.0	54	WDRC18 (WDRC17)		
	●	19.00	19.99		137	60.0				
SS25- DRC200M-3	●	20.00	20.99	25	147	63.0	56	WDRC17		
	●	21.00	21.99		151	66.0				
	●	22.00	22.99		156	69.0				
	●	23.00	23.99		160	72.0				
	●	24.00	24.99		164	75.0				
SS32- DRC250M-3	●	25.00	25.50	32	172	78.0	60	WDRC17		

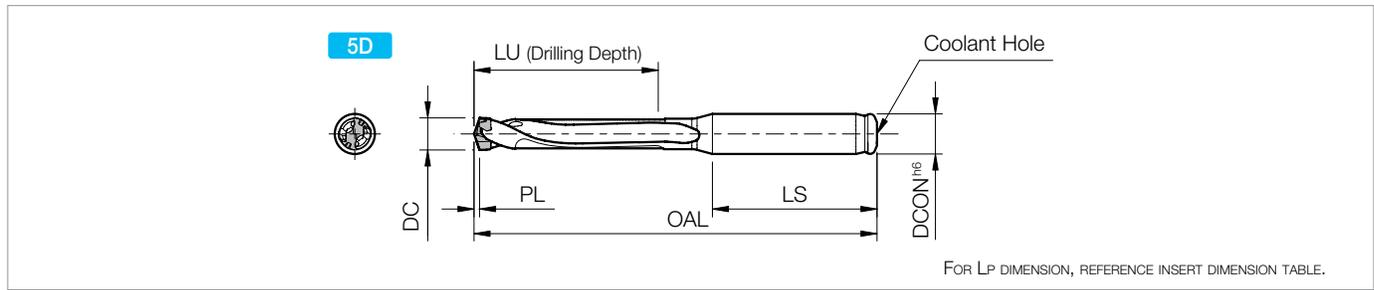
*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K24-K26 for actual cutting diameters (DC).

Recommended Cutting Conditions K36

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX

SS-DRC (DRILLING DEPTH: 5xDC)

STRAIGHT SHANK



TOOLHOLDER DIMENSIONS - 5DC (METRIC SIZE)

Part Number	Stock	Dimensions (mm)					Spare Parts	Applicable Insert See Page K24-K26	Applicable Chamfering Attachment and Insert				
		DC		DCON (h6)	OAL	LU			LS	Wrench K35	Chamfer Attachment K30	Chamfer Insert K31	
		min.	max.										
SS10- DRC080M-5	●	7.94	8.49	10	97	42.5	40	WDRC8 (WDRC17)	DC0794M-SC ~ DC0840M-SC	S20-CH10	CT08T2-45A		
	●	8.50	8.99		100	45.0						DC0850M-SC ~ DC0890M-SC	
	●	9.00	9.49		103	47.5							DC0900M-SC ~ DC0940M-SC
	●	9.50	9.99		107	50.0								DC0950M-SC ~ DC0990M-SC
SS12- DRC100M-5	●	10.00	10.49	12	115	52.5	45	WDRC10 (WDRC17)	DC1000M-SC ~ DC1040M-SC	S32-CH12			
	●	10.50	10.99		118	55.0						DC1050M-SC ~ DC1090M-SC	
	●	11.00	11.49		121	57.5							DC1100M-SC ~ DC1140M-SC
	●	11.50	11.99		124	60.0								DC1150M-SC ~ DC1190M-SC
SS14- DRC120M-5	●	12.00	12.49	14	127	62.5	45	WDRC12 (WDRC17)	DC1200M-SC ~ DC1240M-SC	S32-CH14	CT12T3-45A		
	●	12.50	12.99		130	65.0						DC1250M-SC ~ DC1290M-SC	
	●	13.00	13.49		133	67.5							DC1300M-SC ~ DC1340M-SC
	●	13.50	13.99		137	70.0								DC1350M-SC ~ DC1390M-SC
SS16- DRC140M-5	●	14.00	14.49	16	143	72.5	48	WDRC14 (WDRC17)	DC1400M-SC ~ DC1440M-SC	S32-CH16			
	●	14.50	14.99		146	75.0						DC1450M-SC ~ DC1490M-SC	
	●	15.00	15.99		152	80.0							DC1500M-SC ~ DC1580M-SC
SS18- DRC160M-5	●	16.00	16.99	18	158	85.0	48	WDRC14 (WDRC17)	DC1600M-SC ~ DC1690M-SC	S32-CH18			
	●	17.00	17.99		165	90.0						DC1700M-SC ~ DC1790M-SC	
SS20- DRC180M-5	●	18.00	18.99	20	173	95.0	50	WDRC14 (WDRC17)	DC1800M-SC ~ DC1890M-SC				
	●	19.00	19.99		179	100.0						DC1900M-SC ~ DC1990M-SC	
SS25- DRC200M-5	●	20.00	20.99	25	191	105.0	56	WDRC17	DC2000M-SC ~ DC2099M-SC				
	●	21.00	21.99		198	110.0						DC2100M-SC ~ DC2150M-SC	
	●	22.00	22.99		204	115.0							DC2200M-SC ~ DC2250M-SC
	●	23.00	23.99		210	120.0								DC2300M-SC ~ DC2350M-SC
SS32- DRC240M-5	●	24.00	24.99	32	216	125.0	60	WDRC17	DC2400M-SC ~ DC2450M-SC				
	●	25.00	25.50		227	130.0						DC2500M-SC ~ DC2550M-SC	

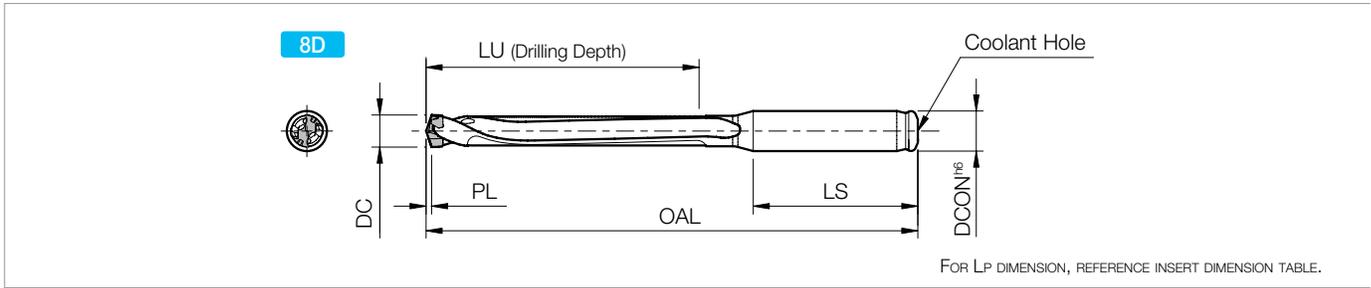
*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page [K24-K26](#) for actual cutting diameters (DC).

Recommended Cutting Conditions [K36](#)

- K** DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER COREDRILL
- STINGER DRILL
- COUNTERBORE COUNTERSINK

SS-DRC (DRILLING DEPTH: 8xDC)

STRAIGHT SHANK



TOOLHOLDER DIMENSIONS - 8DC (METRIC SIZE)

Part Number	Stock	Dimensions (mm)						Spare Parts Wrench K35	Applicable Insert See Page K24-K26	Applicable Chamfering Attachment and Insert	
		DC		DCON (h6)	OAL	LU	LS			Chamfer Attachment K30	Chamfer Insert K31
		min.	max.								
SS10- DRC080M-8	●	7.94	8.49	10	122.5	68	40	WDRC8 (WDRC17)	DC0794M-SC ~ DC0840M-SC	S20-CH10	CT08T2-45A
	●	8.50	8.99		127.0	72			DC0850M-SC ~ DC0890M-SC		
	●	9.00	9.49		131.5	76			DC0900M-SC ~ DC0940M-SC		
	●	9.50	9.99		137.0	80			DC0950M-SC ~ DC0990M-SC		
SS12- DRC100M-8	●	10.00	10.49	12	146.5	84	45	WDRC10 (WDRC17)	DC1000M-SC ~ DC1040M-SC	S32-CH12	
	●	10.50	10.99		151.0	88			DC1050M-SC ~ DC1090M-SC		
	●	11.00	11.49		155.5	92			DC1100M-SC ~ DC1140M-SC		
	●	11.50	11.99		160.0	96			DC1150M-SC ~ DC1190M-SC		
SS14- DRC120M-8	●	12.00	12.49	14	164.5	100	45	WDRC12 (WDRC17)	DC1200M-SC ~ DC1240M-SC	S32-CH14	CT12T3-45A
	●	12.50	12.99		169.0	104			DC1250M-SC ~ DC1290M-SC		
	●	13.00	13.49		173.5	108			DC1300M-SC ~ DC1340M-SC		
	●	13.50	13.99		179.0	112			DC1350M-SC ~ DC1390M-SC		
SS16- DRC140M-8	●	14.00	14.49	16	186.5	116	48	WDRC14 (WDRC17)	DC1400M-SC ~ DC1440M-SC	S32-CH16	
	●	14.50	14.99		191.0	120			DC1450M-SC ~ DC1490M-SC		
	●	15.00	15.99		200.0	128			DC1500M-SC ~ DC1580M-SC		
SS18- DRC160M-8	●	16.00	16.99	18	209.0	136	50	WDRC17	DC1600M-SC ~ DC1690M-SC	S32-CH18	
	●	17.00	17.99		219.0	144			DC1700M-SC ~ DC1790M-SC		
SS20- DRC180M-8	●	18.00	18.99	20	230.0	152	50	WDRC17	DC1800M-SC ~ DC1890M-SC		
	●	19.00	19.99		239.0	160			DC1900M-SC ~ DC1990M-SC		
SS25- DRC200M-8	●	20.00	20.99	25	254.0	168	56	WDRC17	DC2000M-SC ~ DC2099M-SC		
	●	21.00	21.99		264.0	176			DC2100M-SC ~ DC2150M-SC		
	●	22.00	22.99		273.0	184			DC2200M-SC ~ DC2250M-SC		
	●	23.00	23.99		282.0	192			DC2300M-SC ~ DC2350M-SC		
SS32- DRC240M-8	●	24.00	24.99	32	291.0	200	60	WDRC17	DC2400M-SC ~ DC2450M-SC		
	●	25.00	25.50		305.0	208			DC2500M-SC ~ DC2550M-SC		

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K24-K26 for actual cutting diameters (DC).

Recommended Cutting Conditions K36

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

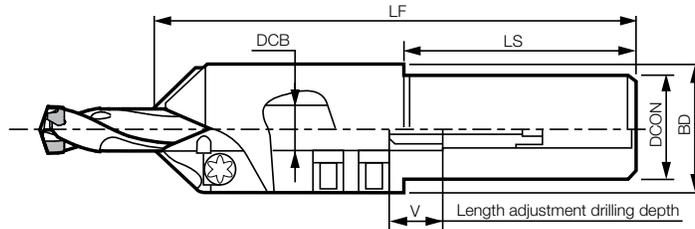
Chamfering Attachment

● Drilling and Chamfering Simultaneously

By using the chamfering attachment, the SS-DRC can perform drilling and chamfering in one set up.



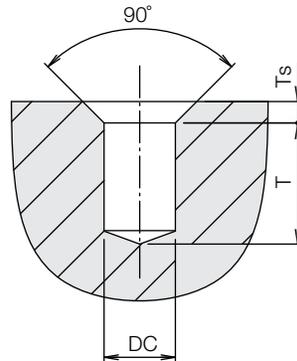
● Toolholder



Part Number	Stock	Applicable Drill Shank Dia. DCB	Dimensions (mm)					Applicable Chamfer Insert
			DCON	BD	LF	LS	V	
S20-CH10	●	10	20	29	122	52	17	CT08T2-45A
S32-CH12	□	12	32	38	133	62	21	CT12T3-45A
S32-CH14	□	14		40	137		16	
S32-CH16	●	16		42	141		19	
S32-CH18	□	18		47	144		15	
							15	

Note) Chamfering attachment is dedicated for Straight Shank SS-DRC type.
It cannot be used for Flanged Shank SF-DRC types.

● Drilling and Chamfering Depths



	Cutting Dia. (in)		Drilling Depth (in)						Chamfering Dimension (in)		Applicable Chamfering Attachment												
	DC		T (3D)		T (5D)		T (8D)		Ts														
	min.	max.	min.	max.	min.	max.	min.	max.	Ts 100	Ts max.													
DRA	0.0313	0.0334	0.433	0.748	0.827	1.457	1.850	2.480	0.0984	0.1969	S20-CH10												
	0.0354	0.0374	0.472	0.906	1.063	1.693	2.205	2.835															
DRC	0.0374	0.0393	0.512	0.984	1.220	1.850	2.402	3.031				0.1378	0.2756	S32-CH12									
	0.0394	0.0413	0.512	1.024	1.102	1.929	2.362	3.189															
DRV	0.0413	0.0433	0.551	1.102	1.220	2.047	2.520	3.346							0.1575	0.3150	S32-CH14						
	0.0433	0.0452	0.551	1.181	1.339	2.165	2.717	3.543															
DRS	0.0453	0.0472	0.591	1.260	1.457	2.283	2.874	3.701										0.1575	0.3150	S32-CH16			
	0.0472	0.0492	0.591	1.181	1.614	2.205	3.110	3.701															
DRZ	0.0492	0.0511	0.669	1.260	1.732	2.323	3.268	3.780													0.1575	0.3150	S32-CH18
	0.0512	0.0531	0.748	1.339	1.850	2.441	3.465	4.055															
DRX	0.0531	0.0551	0.827	1.417	2.008	2.598	3.661	4.252	0.1575	0.3150	S32-CH18												
	0.0551	0.0570	0.748	1.457	1.969	2.677	3.701	4.409															
HOLESHOT	0.0571	0.0590	0.827	1.535	2.087	2.795	3.858	4.567				0.1575	0.3150	S32-CH18									
	0.0591	0.0630	0.984	1.693	2.323	3.031	4.213	4.921															
COREMASTER COREDRILL	0.0630	0.0669	1.181	1.732	2.598	3.150	4.606	5.157							0.1575	0.3150	S32-CH18						
	0.0669	0.0708	1.378	1.929	2.874	3.425	5.000	5.551															

Ts 100: Max. chamfering dimension at the full feed.

Ts max.: Max. chamfering dimension at a 50% feed reduction.

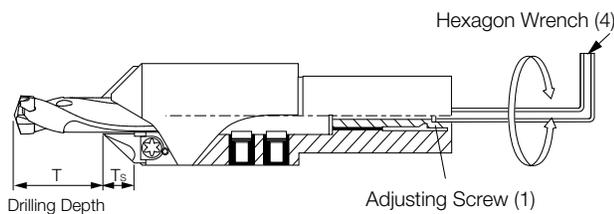
(Max. chamfering dimension of machining possible without step feeding)

● Applicable Inserts

Insert	Part Number	Dimensions (mm)		PVD Coated Carbide PR0315	Applicable Chamfering Attachment
		W1	S		
	CT08T2-45A	8	2.83	●	S20-CH10
	CT12T3-45A	12	3.98	●	S32-CH12 ~ S32-CH18

● Method to use DRC chamfering attachment

1. Drilling Depth Adjustment

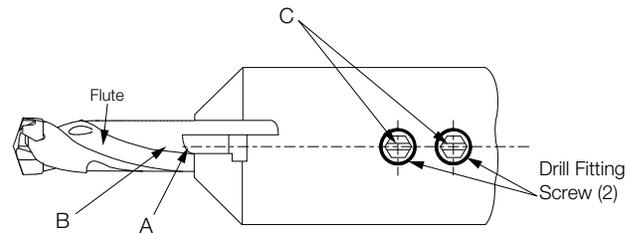


Insert drill into chamfering attachment.

Next, temporarily attach the chamfering insert A.

Turn the adjusting screw (1) with the hexagon wrench (4) to set the drilling depth T.

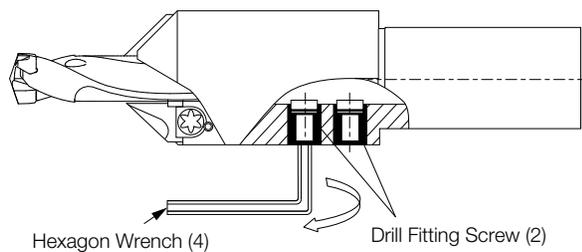
2. Drill Location Check



Rotate the drill so that the lower end of the chamfering insert A is aligned with the body clearance B of the drill.

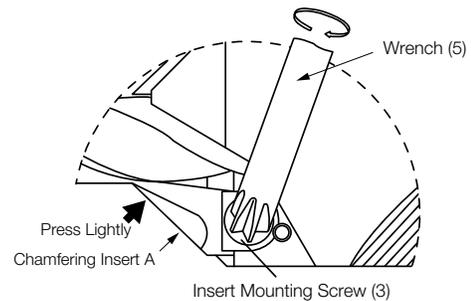
Set it so that slot C and the drill fitting screws (2) are lined up as shown in the figure above.

3. Fix the Drill



Tighten the drill fitting screws (2) with the hexagon wrench (4).
(In the case of using a torque wrench, then please refer to the table below.)

4. Installation of the Chamfering Insert



Press the chamfering insert A lightly into the drill and tighten the insert mounting screw (3) with wrench (5).

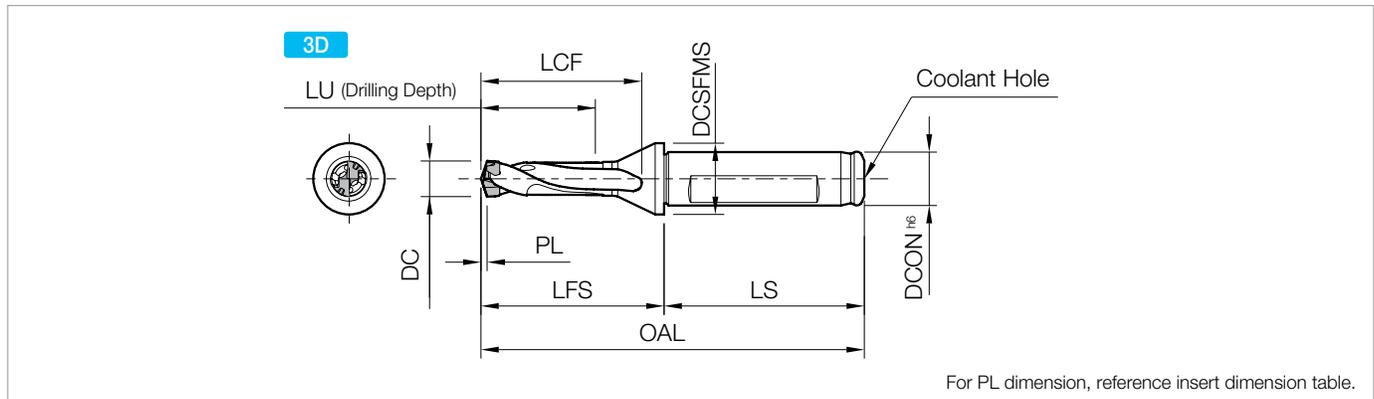
Chamfering Attachment	Torque [Nm]	Adjusting Screw	Drill Fitting Screw	Insert Mounting Screw	Hexagon Wrench	Wrench
S20-CH10	10	AJ-6X38	FS-10	MT-3	LW-3	DT-9
S32-CH12	15	AJ-8X44-9.5	FS-12	MT-4		
S32-CH14	20	AJ-10X46	FS-14		LW-4	DT-15
S32-CH16	30		FS-16		LW-5	
S32-CH18	45		FS-18			

Inserts are sold in 10 piece boxes

INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

SF-DRC (Drilling Depth: 3xD)

Flange Shank



Toolholder Dimensions - 3DC (Metric Size)

Part Number	Stock	Dimensions (mm)									Spare Parts Wrench K35	Applicable Insert See Page K24-K26	
		DC		DCON (h6)	OAL	LFS	LCF	LU	LS	DCSFMS			
		min.	max.										
SF12- DRC080M-3	●	7.94	8.49	12	86	41	35	26	45	16	WDRC8 (WDRC17)	DC0794M-SC ~ DC0840M-SC	
	●	8.50	8.99		88	43	37	27				DC0850M-SC ~ DC0890M-SC	
	●	9.00	9.49		90	45	39	29				DC0900M-SC ~ DC0940M-SC	
	●	9.50	9.99		92	47	41	30				DC0950M-SC ~ DC0990M-SC	
SF16- DRC100M-3	●	10.00	10.49	16	97	49	43	32	48	20	WDRC10 (WDRC17)	DC1000M-SC ~ DC1040M-SC	
	●	10.50	10.99		99	51	45	33				DC1050M-SC ~ DC1090M-SC	
	●	11.00	11.49		101	53	47	35				DC1100M-SC ~ DC1140M-SC	
	●	11.50	11.99		103	55	49	36				DC1150M-SC ~ DC1190M-SC	
	●	12.00	12.49		106	58	52	38			WDRC12 (WDRC17)	DC1200M-SC ~ DC1240M-SC	
	●	12.50	12.99		108	60	54	39				DC1250M-SC ~ DC1290M-SC	
	●	13.00	13.49		110	62	56	41				DC1300M-SC ~ DC1340M-SC	
	●	13.50	13.99		112	64	58	42				DC1350M-SC ~ DC1390M-SC	
	●	14.00	14.49		114	66	60	44				WDRC14 (WDRC17)	DC1400M-SC ~ DC1440M-SC
	●	14.50	14.99		116	68	62	45					DC1450M-SC ~ DC1490M-SC
SF20- DRC150M-3	●	15.00	15.99	20	122	72	66	48	50	25	WDRC14 (WDRC17)	DC1500M-SC ~ DC1580M-SC	
	●	16.00	16.99		126	76	70	51				DC1600M-SC ~ DC1690M-SC	
	●	17.00	17.99		131	81	75	54				DC1700M-SC ~ DC1790M-SC	
SF25- DRC180M-3	●	18.00	18.99	25	141	85	79	57	56	32	WDRC17	DC1800M-SC ~ DC1890M-SC	
	●	19.00	19.99		145	89	83	60				DC1900M-SC ~ DC1990M-SC	
	●	20.00	20.99		149	93	87	63				DC2000M-SC ~ DC2099M-SC	
	●	21.00	21.99		153	97	91	66				DC2100M-SC ~ DC2150M-SC	
	●	22.00	22.99		158	102	96	69				DC2200M-SC ~ DC2250M-SC	
	●	23.00	23.99		162	106	100	72				DC2300M-SC ~ DC2350M-SC	
	●	24.00	24.99		166	110	104	75				DC2400M-SC ~ DC2450M-SC	
	●	25.00	25.50		170	114	108	78				DC2500M-SC ~ DC2550M-SC	

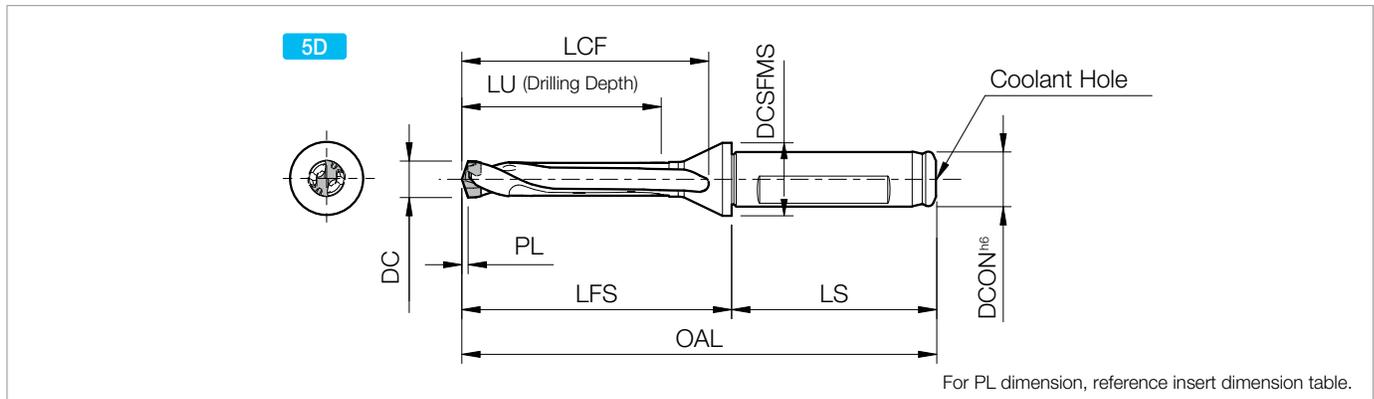
*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K24-K26 for actual cutting diameters (DC).

Recommended Cutting Conditions K36

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER COREDRILL
- STINGER DRILL
- COUNTERBORE COUNTERSINK

SF-DRC (Drilling Depth: 5xDC)

Flange Shank



Toolholder Dimensions - 5DC (Metric Size)

Part Number	Stock	Dimensions (mm)								Spare Parts Wrench K35	Applicable Insert See Page K24-K26		
		DC		DCON (h6)	OAL	LFS	LCF	LU	LS			DCSFMS	
		min.	max.										
SF12- DRC080M-5	●	7.94	8.49	12	104	59	53	43	45	16	WDRC8 (WDRC17)	DC0794M-SC ~ DC0840M-SC	
	●	8.50	8.99		107	62	56	45				DC0850M-SC ~ DC0890M-SC	
	●	9.00	9.49		110	65	59	48				DC0900M-SC ~ DC0940M-SC	
	●	9.50	9.99		114	69	63	50				DC0950M-SC ~ DC0990M-SC	
SF16- DRC100M-5	●	10.00	10.49	16	120	72	66	53	48	20	WDRC10 (WDRC17)	DC1000M-SC ~ DC1040M-SC	
	●	10.50	10.99		123	75	69	55				DC1050M-SC ~ DC1090M-SC	
	●	11.00	11.49		126	78	72	58				DC1100M-SC ~ DC1140M-SC	
	●	11.50	11.99		129	81	75	60				DC1150M-SC ~ DC1190M-SC	
	●	12.00	12.49		132	84	78	63			WDRC12 (WDRC17)	DC1200M-SC ~ DC1240M-SC	
	●	12.50	12.99		135	87	81	65				DC1250M-SC ~ DC1290M-SC	
	●	13.00	13.49		138	90	84	68				DC1300M-SC ~ DC1340M-SC	
	●	13.50	13.99		142	94	88	70				DC1350M-SC ~ DC1390M-SC	
	●	14.00	14.49		145	97	91	73				WDRC14 (WDRC17)	DC1400M-SC ~ DC1440M-SC
	●	14.50	14.99		148	100	94	75					DC1450M-SC ~ DC1490M-SC
SF20- DRC150M-5	●	15.00	15.99	20	156	106	100	80	50	25	WDRC14 (WDRC17)	DC1500M-SC ~ DC1580M-SC	
	●	16.00	16.99		162	112	106	85				DC1600M-SC ~ DC1690M-SC	
	●	17.00	17.99		169	119	113	90				DC1700M-SC ~ DC1790M-SC	
SF25- DRC180M-5	●	18.00	18.99	25	181	125	119	95	56	32	WDRC17	DC1800M-SC ~ DC1890M-SC	
	●	19.00	19.99		187	131	125	100				DC1900M-SC ~ DC1990M-SC	
	●	20.00	20.99		193	137	131	105				DC2000M-SC ~ DC2099M-SC	
	●	21.00	21.99		200	144	138	110				DC2100M-SC ~ DC2150M-SC	
	●	22.00	22.99		206	150	144	115				DC2200M-SC ~ DC2250M-SC	
	●	23.00	23.99		212	156	150	120				DC2300M-SC ~ DC2350M-SC	
	●	24.00	24.99		218	162	156	125				DC2400M-SC ~ DC2450M-SC	
	●	25.00	25.50		225	169	163	130				DC2500M-SC ~ DC2550M-SC	

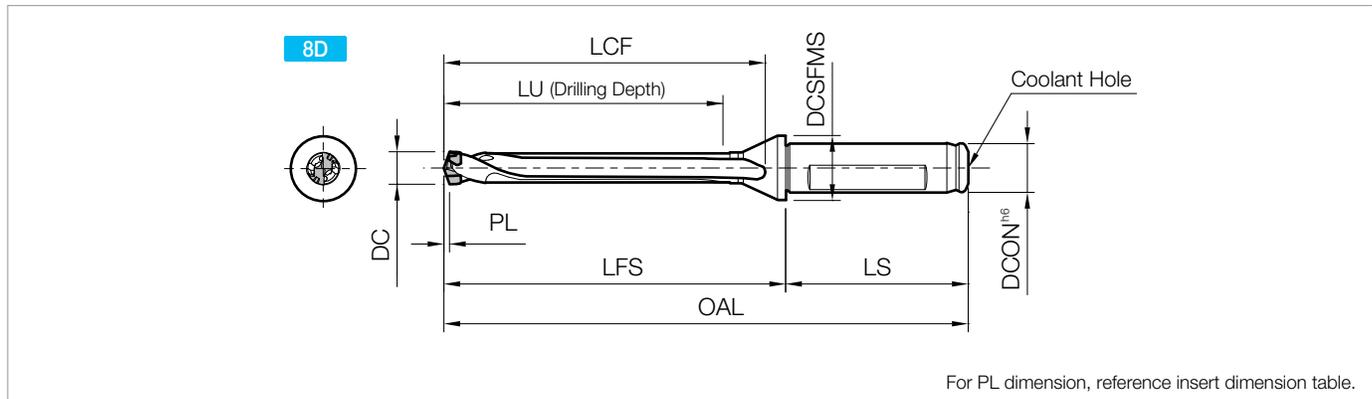
*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K24-K26 for actual cutting diameters (DC).

Recommended Cutting Conditions K36

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SF-DRC (Drilling Depth: 8xDC)

Flange Shank



Toolholder Dimensions - 8DC (Metric Size)

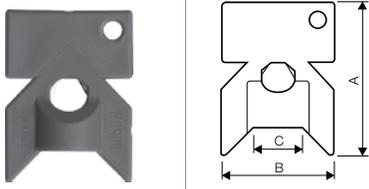
Part Number	Stock	Dimensions (mm)								Spare Parts Wrench K35	Applicable Insert See Page K24-K26		
		DC		DCON (h6)	OAL	LFS	LCF	LU	LS			DCSFMS	
		min.	max.										
SF12- DRC080M-8	●	7.94	8.49	12	129	84	79	68	45	16	WDRC8 (WDRC17)	DC0794M-SC ~ DC0840M-SC	
	●	8.50	8.99		134	89	83	72				DC0850M-SC ~ DC0890M-SC	
	●	9.00	9.49		138	93	88	76				DC0900M-SC ~ DC0940M-SC	
	●	9.50	9.99		144	99	93	80				DC0950M-SC ~ DC0990M-SC	
SF16- DRC100M-8	●	10.00	10.49	16	151	103	97	84	48	20	WDRC10 (WDRC17)	DC1000M-SC ~ DC1040M-SC	
	●	10.50	10.99		156	108	102	88				DC1050M-SC ~ DC1090M-SC	
	●	11.00	11.49		160	112	107	92				DC1100M-SC ~ DC1140M-SC	
	●	11.50	11.99		165	117	111	96				DC1150M-SC ~ DC1190M-SC	
	●	12.00	12.49		169	121	116	100			WDRC12 (WDRC17)	DC1200M-SC ~ DC1240M-SC	
	●	12.50	12.99		174	126	120	104				DC1250M-SC ~ DC1290M-SC	
	●	13.00	13.49		178	130	124	108				DC1300M-SC ~ DC1340M-SC	
	●	13.50	13.99		184	136	130	112				DC1350M-SC ~ DC1390M-SC	
	●	14.00	14.49		188	140	134	116				WDRC14 (WDRC17)	DC1400M-SC ~ DC1440M-SC
	●	14.50	14.99		193	145	139	120					DC1450M-SC ~ DC1490M-SC
SF20- DRC150M-8	●	15.00	15.99	20	204	154	148	128	50	25	WDRC14 (WDRC17)	DC1500M-SC ~ DC1580M-SC	
	●	16.00	16.99		213	163	157	136				DC1600M-SC ~ DC1690M-SC	
	●	17.00	17.99		223	173	167	144				DC1700M-SC ~ DC1790M-SC	
SF25- DRC180M-8	●	18.00	18.99	25	238	182	176	152	56	32	WDRC17	DC1800M-SC ~ DC1890M-SC	
	●	19.00	19.99		247	191	185	160				DC1900M-SC ~ DC1990M-SC	
	●	20.00	20.99		256	200	194	168				DC2000M-SC ~ DC2099M-SC	
	●	21.00	21.99		266	210	204	176				DC2100M-SC ~ DC2150M-SC	
	●	22.00	22.99		275	219	213	184				DC2200M-SC ~ DC2250M-SC	
	●	23.00	23.99		284	228	222	192				DC2300M-SC ~ DC2350M-SC	
	●	24.00	24.99		293	237	231	200				DC2400M-SC ~ DC2450M-SC	
	●	25.00	25.50		303	247	241	208				DC2500M-SC ~ DC2550M-SC	

*DC min. & max. show the cutting diameter range of inserts that will fit into the toolholder. See applicable insert tables on Page K24-K26 for actual cutting diameters (DC).

Recommended Cutting Conditions K36

- K
- DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

Changing DRC Magic Drill Inserts

Shape	Part Number	Dimensions (in)			Notes
		A	B	C	
	WDR8	1.69	1.30	Ø0.402	 Part Number is printed in this area.
	WDR10			Ø0.480	
	WDR12			Ø0.559	
	WDR14			Ø0.677	
	WDR17	3.03	2.05	-	<ul style="list-style-type: none"> WDR17 (Multiple type wrench) has four insert entry points. If using an insert ranging from DC06692-SC to DC08264-SC, use the entry point printed as Ø0.6692"-Ø0.8264". WDR17 can be used instead of WDR8-14 wrench.

Changing DRC Magic Drill Inserts

How to Attach Inserts



- 1) Fix drill holder on arbor. For insert exchange, fix arbor on the machine or set on tool presetter.
- 2) Remove dust using air blower.



- 3) Install insert onto holder.
(Use gloves to protect your hand from any danger.)



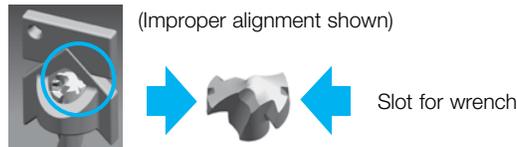
- 4) Turn lightly in a clockwise direction.
(Use gloves to protect your hand from any danger.)



- 5) Align the wrench properly with the insert.



- 6) Make sure the wrench is aligned with the wrench slots on the insert.



- 7) Turn the wrench in a slow clockwise direction.
- 8) Completed.

How to Detach Inserts



- 1) Remove dust from insert using air blower.
- 2) Align the wrench properly with the insert.



- 3) Make sure the wrench is aligned with the wrench slots on the insert.



- 4) Turn the wrench in a counterclockwise direction.



- 5) Once lock is released, insert can be turned by fingers.
(Use gloves to protect your hand from any danger.)



- 6) Remove insert.
(Use gloves to protect your hand from any danger.)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRC RECOMMENDED CUTTING CONDITIONS

◆ DC Insert - Recommended Cutting Conditions

Workpiece Material	Hardness (HB)	Cutting Conditions		Cutting Dia. DC							
		Cutting Speed Vc (sfm)	Spindle Revolution (rpm)	Ø8mm Ø0.315"	Ø10mm Ø0.394"	Ø12mm Ø0.472"	Ø14mm Ø0.551"	Ø16mm Ø0.630"	Ø18mm Ø0.709"	Ø20mm Ø0.787"	Ø25mm Ø0.984"
			Feed Rate (ipr)								
Low Carbon Steel	125	400 - 600	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,530 - 2,290
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.012 - 0.020
Carbon Steel	190	330 - 500	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,270 - 1,910
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.013 - 0.024
	250	260 - 400	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,020 - 1,530
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.015 - 0.025
300	170 - 250	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	640 - 960	
		Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.013 - 0.018	
Alloy Steel	180	230 - 310	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	890 - 1,210
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.014 - 0.024
	275	230 - 310	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	890 - 1,210
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.013 - 0.023
	300	200 - 300	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	760 - 1,150
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.012 - 0.020
350	170 - 250	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	640 - 960	
		Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.011 - 0.020	
Stainless Steel	220	200 - 260	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	760 - 1,020
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.011 - 0.017
	300	170 - 230	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	640 - 890
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.010 - 0.016
Gray Cast Iron	180	400 - 560	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,530 - 2,170
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.016 - 0.029
	260	300 - 400	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	1,150 - 1,530
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.014 - 0.028
Nodular Cast Iron	160	200 - 300	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	760 - 1,150
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.013 - 0.026
	250	130 - 210	Spindle Revolution (rpm)	4,780 - 7,170	3,820 - 5,730	3,180 - 4,780	2,730 - 4,090	2,390 - 3,580	2,120 - 3,180	1,910 - 2,870	510 - 830
			Feed Rate (ipr)	0.0043 - 0.0079	0.0051 - 0.0094	0.0055 - 0.0110	0.0067 - 0.0125	0.0075 - 0.0138	0.0091 - 0.0150	0.0098 - 0.0161	0.012 - 0.024

• As drilling depth increases (3D → 5D → 8D), feed rates should be reduced.

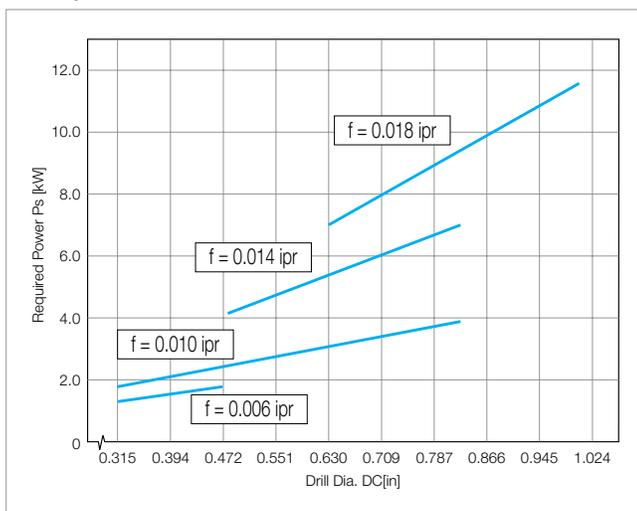
★ : 1st Recommendation ☆ : 2nd Recommendation

■ Reference Charts

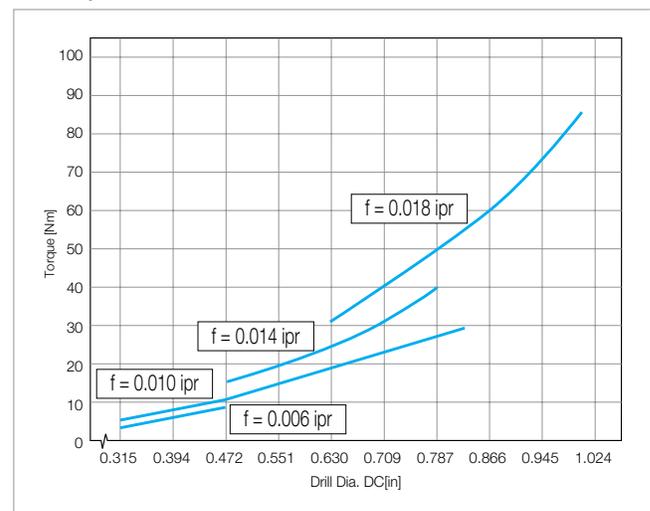
Cutting Conditions

Heat Treated Steel (Hardness 240 HB) Vc = 260 sfm, Wet

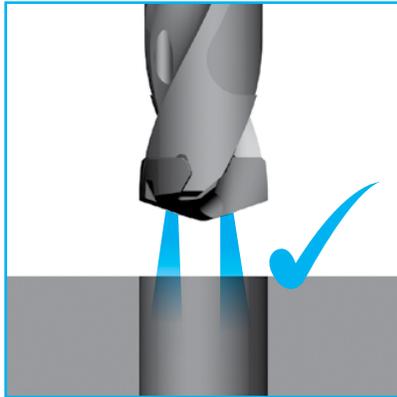
● Required Power



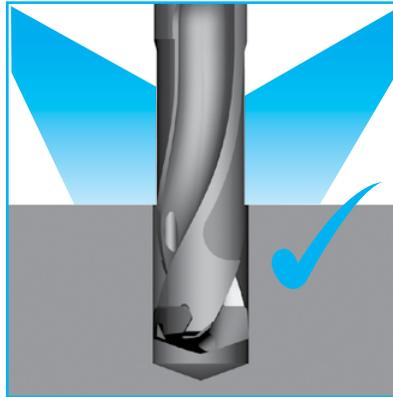
● Torque



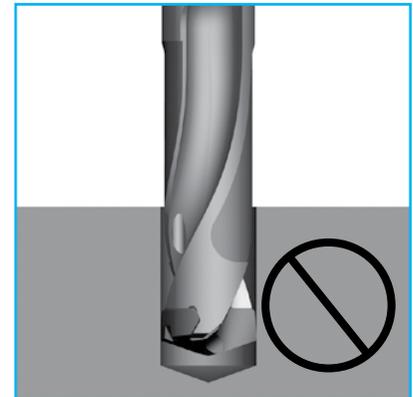
Coolant



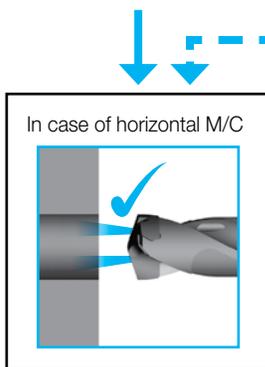
1) Internal coolant is recommended.



2) In case of external coolant
Cutting depth must be 3xD or less.

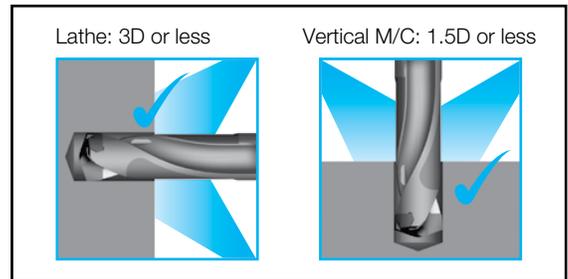


3) Dry cutting is not recommended.



In case of horizontal M/C

Internal coolant is recommended for horizontal machining center because external coolant may not sufficiently be applied to inside because the tool is revolving.



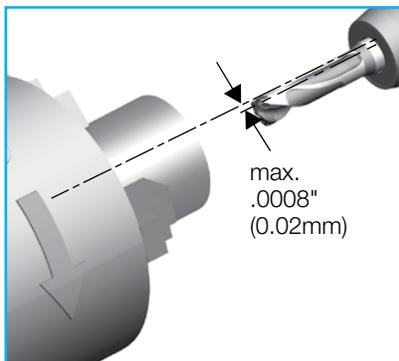
Lathe: 3D or less

Vertical M/C: 1.5D or less

Precautions for Use

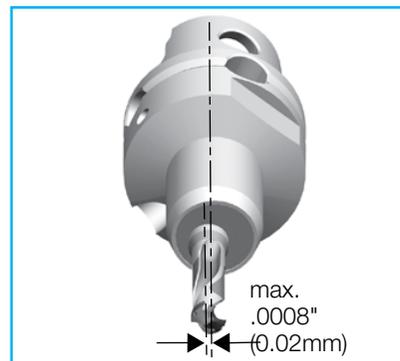
Core Deviation

1) If Drill is Stationary



The max runout between the drill and spindle should not exceed 0.0008.

2) If Drill is Rotating



The max runout allowable on the drill is 0.0008

Cautions for Installing on Machining Center

For installation of MagicDrill DRC,
1st Choice...Hydro Chuck, Power Chuck, Collet Chuck, etc.
2nd Choice...Side lock arbor

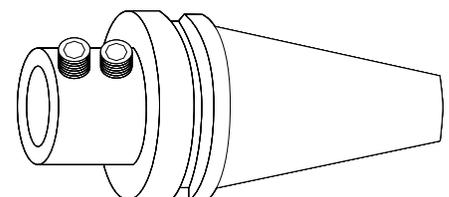
Hydro Chuck

Power Chuck

Collet Chuck

Install DRC into Above Chuck

1st Recommendation

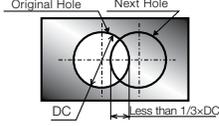
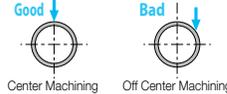


Example of Side Lock Arbor

2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Applicable Workpieces

Application	Workpiece Shape	Machining Caution
Plain Surface		<ol style="list-style-type: none"> When machining stainless steel, for hole depths of up to 0.5D, keep feed rate at less than 0.006 ipr. Thru coolant is recommended for smooth chip removal. For stainless steel, the combination of thru and external coolant is recommended.
Stacked Plates		<ol style="list-style-type: none"> Fix stacked plates securely to ensure they do not slip while machining.
Hole Expansion		<ol style="list-style-type: none"> if the overlap amount is less than $1/3 \times D$, machining is possible 
Concave Surface		<ol style="list-style-type: none"> When machining concave holes, set the feed rate at less than half of recommended feed for continuous hole machining. Utilize a pecking cycle if chips are not broken short at the inlet.
Tubing		<ol style="list-style-type: none"> Hole machining on the centerline of the tubing is possible. Do not machine on curved surface areas. 

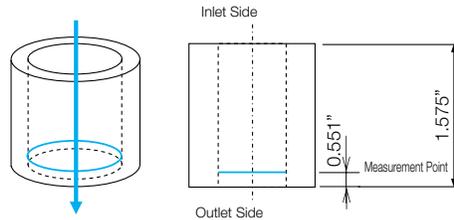
NOT Recommended Workpieces

Application	Workpiece Shape
Angled Surface	
Half Cylindrical	
Existing Hole	

Machining Precision Comparison

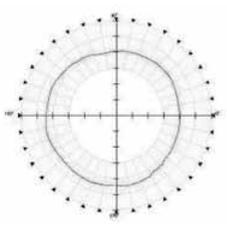
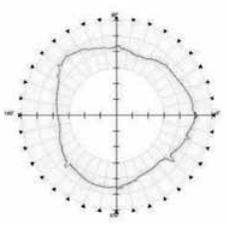
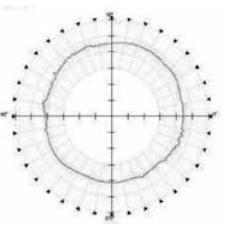
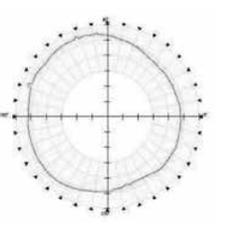
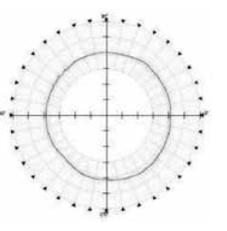
Cutting Condition and Measurement Point

Workpiece Material	1045
Vc (sfm)	330
f (mm/rev)	0.008 ipr, 0.012 ipr
Drilling Depth H (mm)	Through Hole 1.575"
Coolant	Wet (Internal Coolant)
Tool	Ø0.551" x 3D type
Machine	M/C

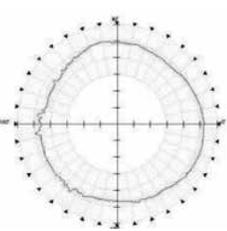
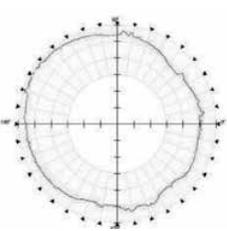
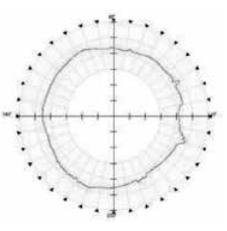
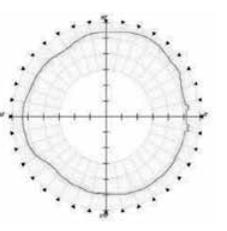
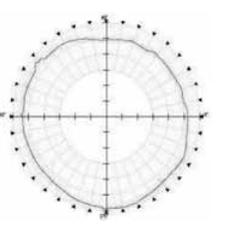


Roundness

1) Roundness (f = 0.008 ipr)

	Indexable Drill		Carbide Solid Drill		
	Kyocera	Competitor F	Competitor B	Competitor C	Competitor N
					
	Roundness: 5.5 µm	Roundness: 22.5 µm	Roundness: 6.4 µm	Roundness: 9.8 µm	Roundness: 5.2 µm

2) Roundness (f = 0.012 ipr)

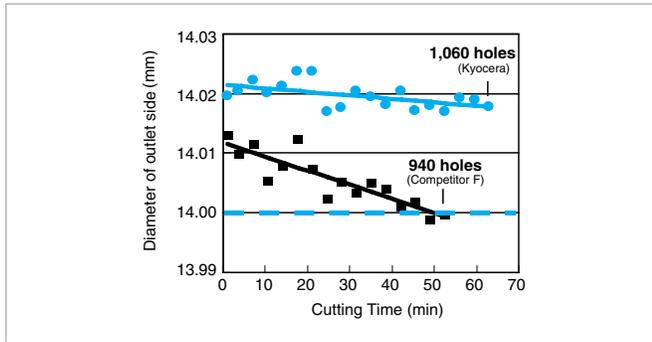
	Indexable Drill		Carbide Solid Drill		
	Kyocera	Competitor F	Competitor B	Competitor C	Competitor N
					
	Roundness: 10.7 µm	Roundness: 22.5 µm	Roundness: 6.4 µm	Roundness: 9.8 µm	Roundness: 5.2 µm

K
 DRILLING
 DRA
 DRC
 DRV
 DRS
 DRZ
 DRX
 HOLESHOT
 COREMASTER
 COREDRILL
 STINGER
 DRILL
 COUNTERBORE
 COUNTERSINK

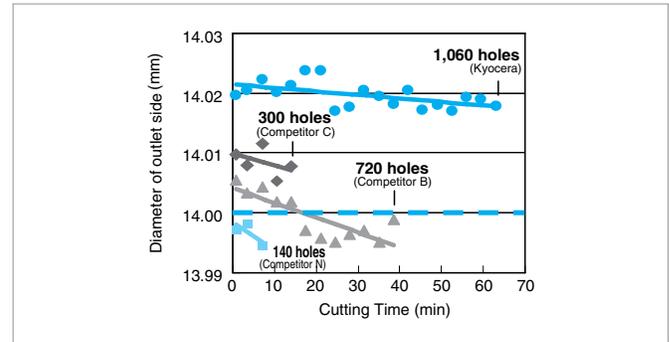
MACHINING WITH THE DRC MAGIC DRILL

● Hole Diameter Comparison (f = 0.012 ipr)

1) Indexable Drill Comparison



2) Carbide Solide Drill Comparison



■ Case Studies

1049	
<ul style="list-style-type: none"> • Flange • Vc = 320 sfm (n = 2,490 RPM) • H = 1.260" • f = 0.012 ipr (Vf = 2.283 ipm) • Wet (Internal Coolant) • DC1250M-SC (PR0315) 	
SS14-RC120M-3	3,000holes/insert
Competitor A	1,800holes/drill
<p>Compared to competitor's drill A, MagicDrill DRC type has reduced burr and reduced more than 10% of the power required. Tool life has also improved greatly.</p> <p style="text-align: right;">Customer Evaluation</p>	

4140	
<ul style="list-style-type: none"> • Housing • Vc = 270 sfm (n = 2,400 RPM) • H = 1.260" • f = 0.012 ipr (Vf = 22.677 ipm) • Wet (Internal Coolant) • DC1100M-SC (PR0315) 	
SS12-RC110M-3	more than 2,400holes/insert
Competitor B	2,000holes/drill
<p>Compared to competitor's solid drill B, MagicDrill DRC type has greatly reduced preparation time with its easy insert replacement feature. Also, the costs of spare tools for re-grinding has been reduced, and tool life has improved.</p> <p style="text-align: right;">Customer Evaluation</p>	

Q&A

Q-1 Is re-grinding available?

A-1 We don't recommend it. Grinding of edge nose chisel is not possible.

Q-2 How large would the cutting hole be to the insert diameter (ØDc)?

A-2 When drilling 4137, the hole diameter will be about 0.020 to 0.040 larger than the insert diameter.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV Magic Drill

Economical Inserts with 4 Cutting Edges

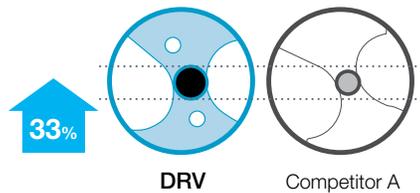
Excellent Chip Evacuation with 6D Maximum Deep-Hole Drilling

High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts

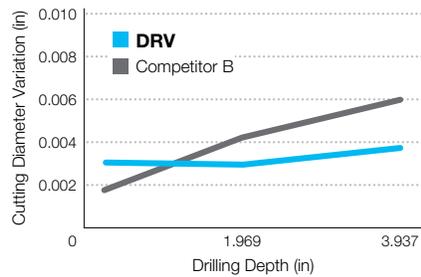
1 Excellent Drilling Precision with Less Vibration in Cutting Diameter

Optimal Web Thickness and a Low Cutting Force Design Reduces Chattering

Web Thickness Comparison
(Internal Evaluation)

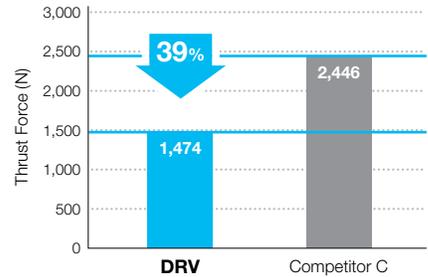


Cutting Diameter Variation Comparison
(Internal Evaluation)



Cutting Conditions : $V_c = 490$ sfm, $f = 0.0024$ ipr
Cutting Dia. $\varnothing 0.812''$ (5D), Wet, Workpiece : 1049

Cutting Force Comparison
(Internal Evaluation)



Cutting Conditions : $V_c = 660$ sfm, $f = 0.0047$ ipr
Cutting Dia. $\varnothing 0.812''$ (3D), Wet, Workpiece : 1049

2 Unique Insert Design to Control Chip Flow

- DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

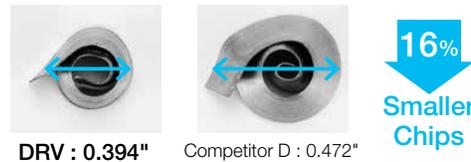
Outer Edge Insert

Unique Insert Pattern to Differentiate between Outside and Inside Inserts



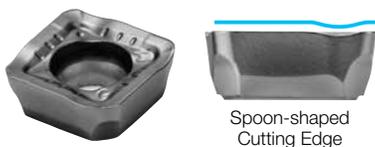
Smooth Chip Evacuation with Compact Chips

Chip Shape Comparison of Outer Insert Cutting Edge
(Internal Evaluation)



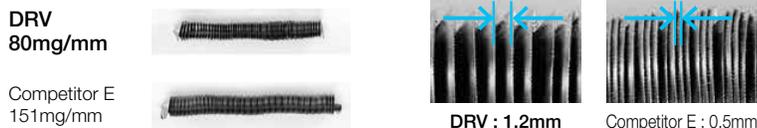
Cutting Conditions : $V_c = 490$ sfm, $f = 0.0024$ ipr, Cutting Dia. $\varnothing 0.812''$ (3D), Wet Workpiece : 1049

Inner Edge Insert



Excellent Chip Evacuation with 6xD Maximum Deep-Hole Drilling

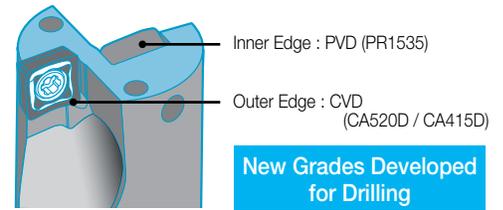
Weight per Unit of Length for Chips Generated by the Inner Insert
(Internal Evaluation)



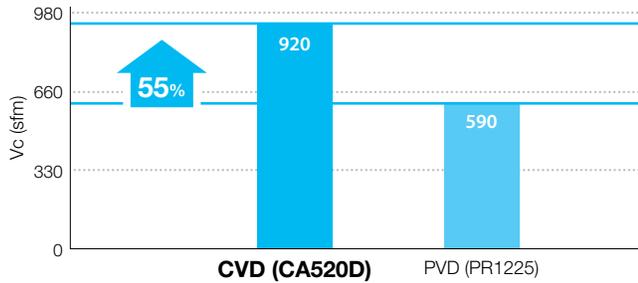
Cutting Conditions : $V_c = 820$ sfm, $f = 0.0031$ ipr, Cutting Dia. $\varnothing 0.812''$ (5D), Wet, Workpiece : 304

3 New Insert Grades Developed for Drilling

High Speed and Highly Efficient Machining with the Combination of CVD (Outer Edge) and PVD (Inner Edge) Inserts



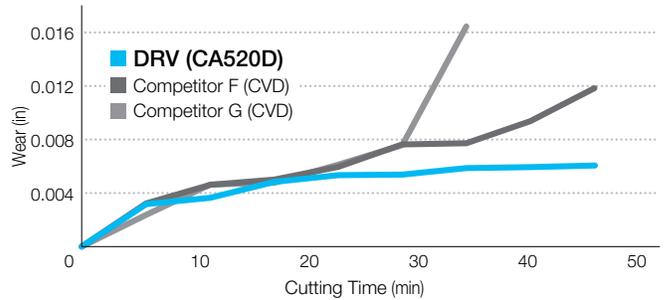
Recommended Cutting Conditions (Maximum Values)



Cutting Dia. $\varnothing 0.812''$ (3D) Workpiece : 1049

See Page **K59** for Insert Grade Selection Guide

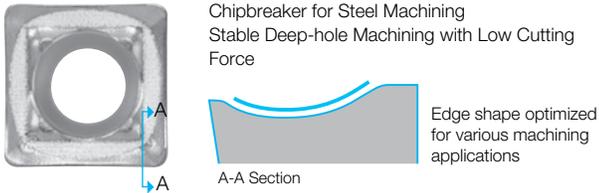
Wear Resistance Comparison (Internal Evaluation)



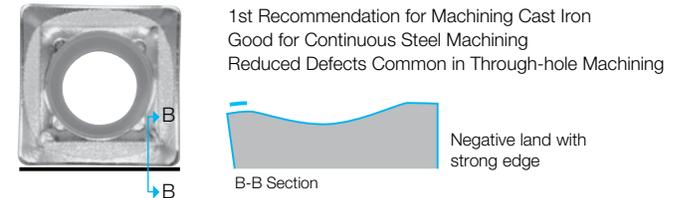
Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr, Cutting Dia. $\varnothing 0.812''$ (3D), Wet Workpiece : 4140H

4 Economical 4-Edge Inserts 4 Types of Chipbreakers for Various Machining Applications

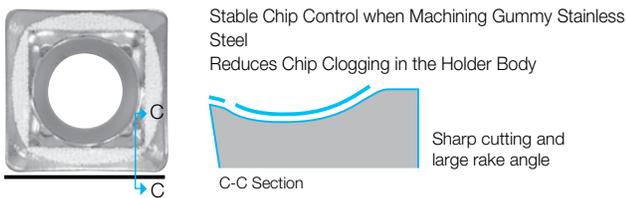
GM Chipbreaker - General Purpose



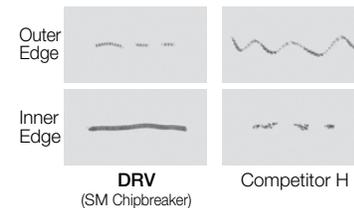
GH Chipbreaker - Tough Edge



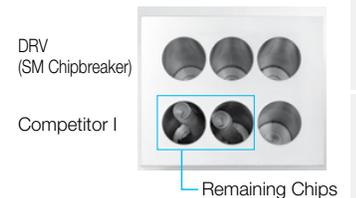
SM Chipbreaker - For Stainless Steel Machining



Chip Control Comparison (Internal Evaluation)



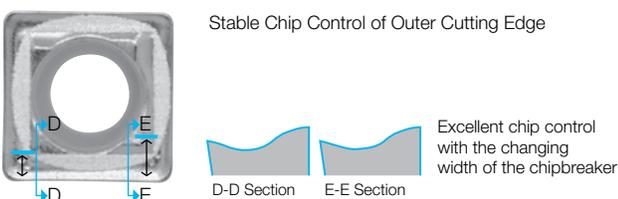
Comparison of Remaining Chips (Internal Evaluation)



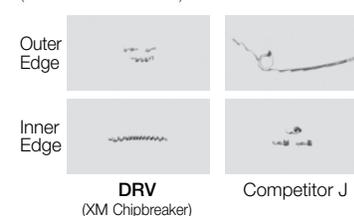
Cutting Conditions : Vc = 330 sfm, f = 0.0039 ipr
Cutting Dia. $\varnothing 0.812''$ (3D), Drilling Depth 2.436"
Wet, Workpiece : 304

Cutting Conditions : Vc = 490 sfm, f = 0.0031 ipr
Cutting Dia. $\varnothing 0.984''$ (5D), Drilling Depth 3.858"
Wet, Workpiece : 304

XM Chipbreaker - For Machining Soft Steel and SS Material



Chip Control Comparison (Internal Evaluation)



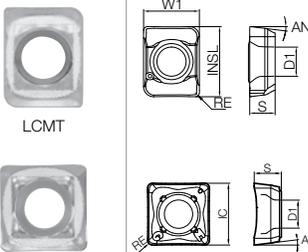
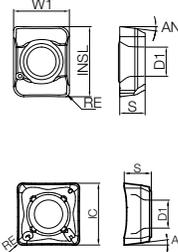
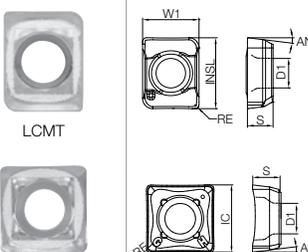
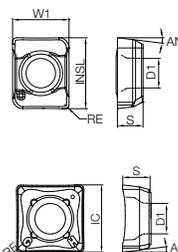
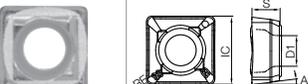
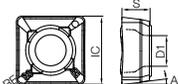
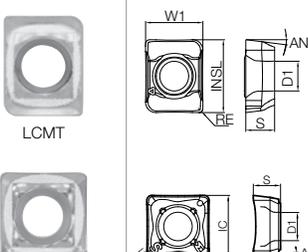
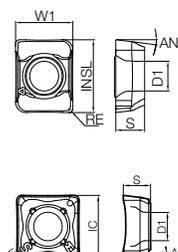
Cutting Conditions : Vc = 660 sfm, f = 0.0047 ipr
Cutting Dia. $\varnothing 0.625''$ (3D), Drilling Depth 1.875"
Wet, Workpiece : A36

Chipbreaker Selection Chart **K41**

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

DRV MAGIC DRILL INSERTS

Applicable DRV Outside Inserts

Usage Classification		P	Carbon Steel / Alloy Steel		☆	★	★							
			Tool Steel					☆	★	★				
★ : 1st Recommendation (High Speed and Highly Efficient Machining) ☆ : 2nd Recommendation (Stable Machining Oriented)		M	Stainless Steel		☆	★	★							
			Cast Iron					☆	★	★				
Insert	Insert Pocket	Part Number	Dimensions (in)				Angle	MEGACOAT	CVD Coated Carbide			MEGACOAT NANO		
			IC W1/INSL	S	D1	RE			AN	PR1225	CA520D		CA415D	PR1535
 <p>LCMT</p> <p>SCMT</p> <p>General Purpose</p>		LCMT 030203-GM-E	0.173/0.218	0.079	0.091	0.012	7°	●	●	●				
		SCMT 040205-GM-E	0.189	0.087	0.094	0.020						●	●	●
		050205-GM-E	0.207	0.102	0.094	0.020						●	●	●
		060205-GM-E	0.252	0.110	0.114	0.020						●	●	●
		070305-GM-E	0.301	0.126	0.138	0.020						●	●	●
		090405-GM-E	0.358	0.161	0.157	0.020						●	●	●
		110406-GM-E	0.433	0.177	0.181	0.024						●	●	●
		140508-GM-E	0.543	0.197	0.224	0.031						●	●	●
 <p>LCMT</p> <p>SCMT</p> <p>Tough Edge</p>		LCMT 030203-GH-E	0.173/0.218	0.079	0.091	0.012	7°	●	●	●				
		SCMT 040205-GH-E	0.189	0.087	0.094	0.020						●	●	●
		050205-GH-E	0.207	0.102	0.094	0.020						●	●	●
		060205-GH-E	0.252	0.110	0.114	0.020						●	●	●
		070305-GH-E	0.301	0.126	0.138	0.020						●	●	●
		090405-GH-E	0.358	0.161	0.157	0.020						●	●	●
		110406-GH-E	0.433	0.177	0.181	0.024						●	●	●
		 <p>SCMT</p> <p>Soft Steel</p>		SCMT 040205-XM-E	0.189	0.087						0.094	0.020	7°
050205-XM-E	0.207			0.102	0.094	0.020	●	●						
060205-XM-E	0.252			0.110	0.114	0.020	●	●						
070305-XM-E	0.301			0.126	0.138	0.020	●	●						
090405-XM-E	0.358			0.161	0.157	0.020	●	●						
110406-XM-E	0.433			0.177	0.181	0.024	●	●						
 <p>LCMT</p> <p>SCMT</p> <p>Stainless Steel</p>		LCMT 030203-SM-E	0.173/0.218	0.079	0.091	0.012	7°	●	●					
		SCMT 040205-SM-E	0.189	0.087	0.094	0.020						●	●	
		050205-SM-E	0.207	0.102	0.094	0.020						●	●	
		060205-SM-E	0.252	0.110	0.114	0.020						●	●	
		070305-SM-E	0.301	0.126	0.138	0.020						●	●	
		090405-SM-E	0.358	0.161	0.157	0.020						●	●	
		110406-SM-E	0.433	0.177	0.181	0.024						●	●	
		140508-SM-E	0.543	0.197	0.224	0.031						●	●	
170608-SM-E	0.661	0.259	0.272	0.031	●	●								

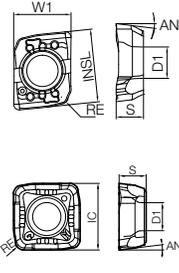
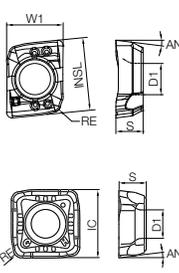
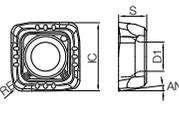
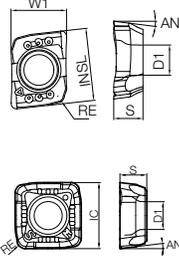
-E : Outer Edge Insert
 -I : Inner Edge Insert
 *LCMT03... is a 2-edge Insert

Recommended Cutting Conditions **K62~K65**

Inserts are sold in 10 piece boxes

DRV MAGIC DRILL INSERTS

Applicable DRV Inside Inserts

Usage Classification		P	Carbon Steel / Alloy Steel		☆	★		★			
★ : 1st Recommendation (High Speed and Highly Efficient Machining) ☆ : 2nd Recommendation (Stable Machining Oriented)			M	Stainless Steel		☆	★		★		
		K	Cast Iron		☆		★	★			
Insert	Insert Pocket	Part Number	Dimensions (in)				Angle	MEGACOAT	CVD Coated Carbide		MEGACOAT NANO
			IC W1/INSL	S	D1	RE			PR1225	CA520D		CA415D	PR1535
 LCMT  SCMT General Purpose	 Inner Edge	LCMT 030205-GM-I	0.164/0.211	0.079	0.091	0.020	7°				●
		SCMT 040209-GM-I	0.197	0.087	0.094	0.035					●
		050210-GM-I	0.224	0.102	0.094	0.039					●
		060210-GM-I	0.272	0.110	0.114	0.039					●
		070310-GM-I	0.323	0.126	0.138	0.039					●
		090410-GM-I	0.386	0.161	0.157	0.039					●
		110410-GM-I	0.469	0.177	0.181	0.039					●
		140510-GM-I	0.587	0.197	0.224	0.039					●
170610-GM-I	0.705	0.259	0.272	0.039				●			
 LCMT  SCMT Tough Edge	 Inner Edge	LCMT 030205-GH-I	0.164/0.211	0.079	0.091	0.020	7°				●
		SCMT 040209-GH-I	0.197	0.087	0.094	0.035					●
		050210-GH-I	0.224	0.102	0.094	0.039					●
		060210-GH-I	0.272	0.110	0.114	0.039					●
		070310-GH-I	0.323	0.126	0.138	0.039					●
		090410-GH-I	0.386	0.161	0.157	0.039					●
 SCMT Soft Steel	 Inner Edge	SCMT 040209-XM-I	0.197	0.087	0.094	0.035	7°				●
		050210-XM-I	0.224	0.102	0.094	0.039					●
		060210-XM-I	0.272	0.110	0.114	0.039					●
		070310-XM-I	0.323	0.126	0.138	0.039					●
		090410-XM-I	0.386	0.161	0.157	0.039					●
 LCMT  SCMT Stainless Steel	 Inner Edge	LCMT 030205-SM-I	0.164/0.211	0.079	0.091	0.020	7°				●
		SCMT 040209-SM-I	0.197	0.087	0.094	0.035					●
		050210-SM-I	0.224	0.102	0.094	0.039					●
		060210-SM-I	0.272	0.110	0.114	0.039					●
		070310-SM-I	0.323	0.126	0.138	0.039					●
		090410-SM-I	0.386	0.161	0.157	0.039					●
		110410-SM-I	0.469	0.177	0.181	0.039					●
		140510-SM-I	0.587	0.197	0.224	0.039					●
170610-SM-I	0.705	0.259	0.272	0.039				●			

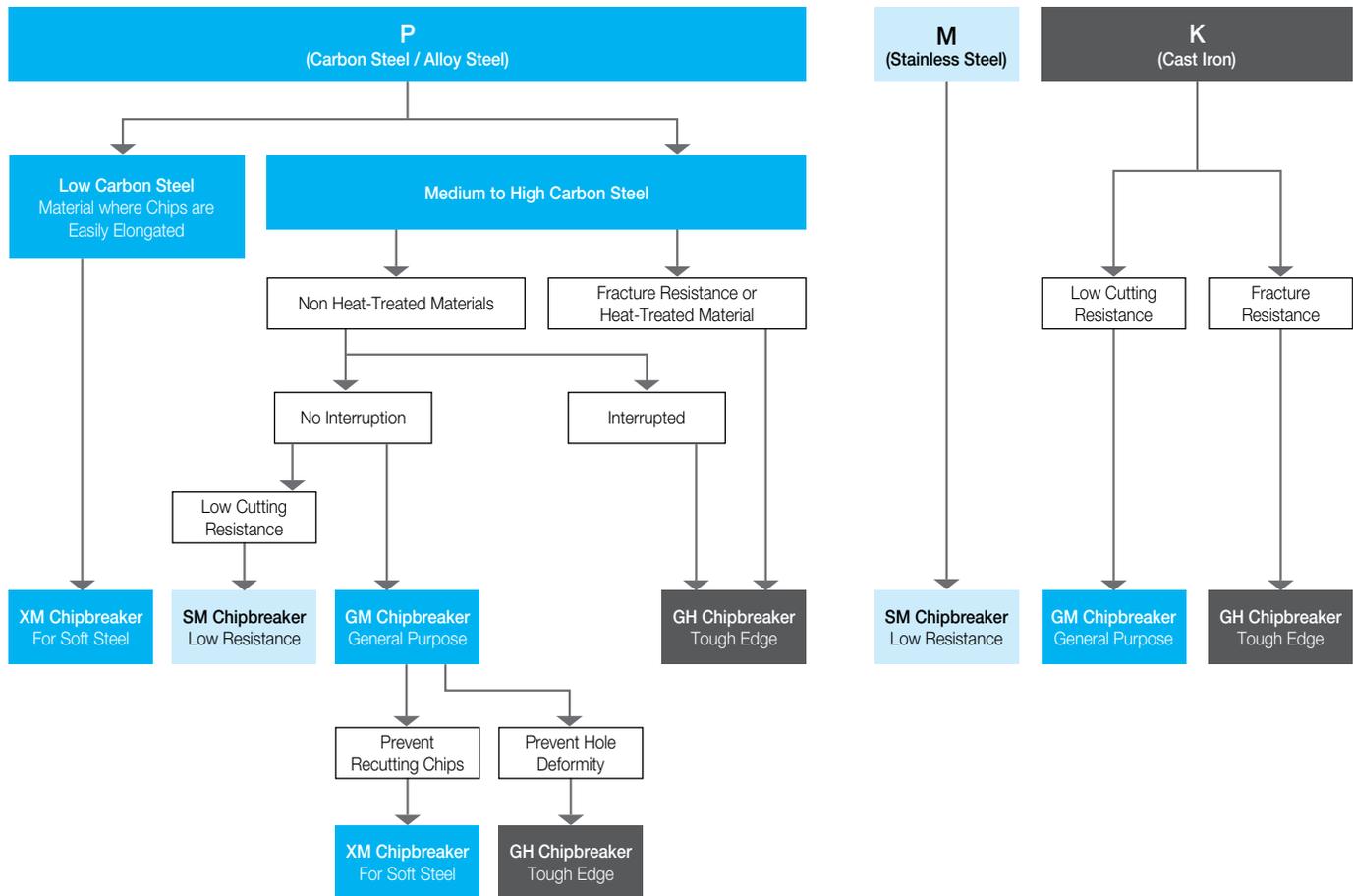
-E : Outer Edge Insert
 -I : Inner Edge Insert
 *LCMT03... is a 2-edge Insert

Recommended Cutting Conditions  K62-K65

Inserts are sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Chipbreaker Selection Chart

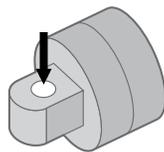


Case Studies

Case Studies

Housing - Structural Steel

Vc = 410 sfm (n = 1,660 rpm)
 f = 0.003 ipr (Vf = 5.236 ipm)
 Drilling Depth 1.772"
 Wet (External Coolant)
 S100-DRV0938-4-07
 SCMT070310GM-I PR1535
 SCMT070305GM-E PR1225



Cutting Time

DRV
 (Ø0.938" 4xD)

16 sec

**50%
or More**

Cutting Time

Competitor K
 (Ø0.938" 4xD)

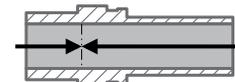
35 sec

Chattering and recutting chips occurred in low rigidity workpiece of Competitor K. Speed was reduced to Vc = 200 sfm. DRV provided good chip control for stable machining at Vc = 410 sfm.

(User Evaluation)

Nipple - Stainless Steel

Vc = 760 sfm (n = 3,330 rpm)
 f = 0.005 ipr (Vf = 17.047 ipm)
 Drilling Depth 2.362" (4xD)
 1.181" (2xD)
 Wet (Internal Coolant)
 S100-DRV0875-4-06 (4xD)
 S100-DRV0875-2-06 (2xD)
 SCMT060210-GM-I PR1535
 SCMT060205-GM-E PR1225



Process 2
 Drilling Depth
 1.181" (2D)

Process 1
 Drilling Depth
 2.362" (4D)

Cutting Time

DRV
 (Ø0.875" 4xD/2xD)

12 sec

40%

Cutting Time

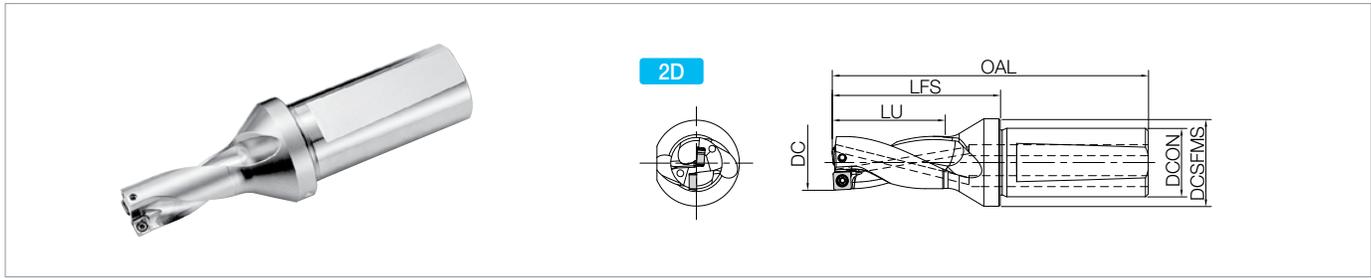
Competitor L
 (Ø0.875" 4xD/2xD)

20 sec

Chattering and deflection occurred with Competitor L. DRV showed stable machining and a shorter cutting time even when the cutting conditions were increased by 1.6 times or more.

(User Evaluation)

DRV (Drilling Depth: 2 x DC)



Toolholder Dimensions - 2D (Inch Size)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S075- DRV0500-2-03	●	2	0.500	3.299	1.606	1.000	0.750	1.063	+0.006	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
S075- DRV0562-2-04	●	2	0.563	3.661	1.969	1.125	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-2-05	●	2	0.625	3.866	2.173	1.250	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-2-05	●		0.656	3.929	2.236	1.313			+0.012			
S100- DRV0688-2-05	●	2	0.688	4.425	2.299	1.375	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-2-06	●		0.750	4.469	2.343	1.500			+0.024			
DRV0812-2-06	●		0.813	4.594	2.469	1.625			+0.018			
DRV0875-2-06	●		0.875	4.720	2.594	1.750		+0.010				
S100- DRV0938-2-07	●	2	0.938	4.827	2.701	1.875	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-2-07	●		0.984	4.917	2.791	1.969			+0.024			
DRV1000-2-07	●		1.000	4.949	2.823	2.000			+0.020			
S125- DRV1062-2-09	●	2	1.063	5.341	3.018	2.125	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV1125-2-09	●		1.125	5.467	3.144	2.250			+0.033			
DRV1188-2-09	●		1.188	5.593	3.270	2.375			+0.026			
S150- DRV1250-2-09	●	2	1.250	6.256	3.539	2.500	1.500	1.929	+0.020	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
S150- DRV1312-2-11	●		1.313	6.380	3.663	2.625			+0.045			
DRV1375-2-11	●		1.375	6.506	3.789	2.750			+0.039			
DRV1438-2-11	●		1.438	6.632	3.915	2.875			+0.031			
DRV1500-2-11	●		1.500	6.756	4.039	3.000		+0.022				
S150- DRV1562-2-14	●	2	1.562	7.116	4.400	3.124	1.500	1.929	+0.070	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
DRV1625-2-14	●		1.625	7.242	4.526	3.250			+0.063			
DRV1688-2-14	●		1.688	7.368	4.652	3.376			+0.056			
NEW DRV1750-2-14	●		1.750	7.492	4.776	3.500			+0.049			
DRV1812-2-14	●		1.812	7.616	4.900	3.624			+0.041			
DRV1875-2-14	●		1.875	7.742	5.026	3.750			+0.034			
NEW DRV1938-2-14	●	1.938	7.868	5.152	3.876	+0.027						
S150- DRV2000-2-17	●		2.000	7.854	5.138	4.000		2.323	+0.079	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I

• When offset drilling, reduce feed rate to 0.0031 ipr or less

Estimated Cutting Tolerance (2D)

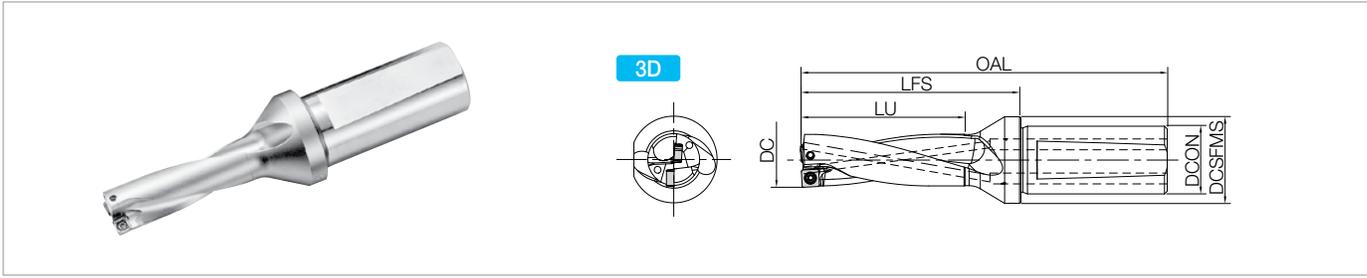
DC	Estimated Cutting Tolerance (in)
Ø0.500" - Ø2.000"	+0.012 0

Recommended Cutting Conditions [K62](#)
Adjustable Sleeve ASL [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 3 x DC)



Toolholder Dimensions - 3D (Inch Size)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S075- DRV0500-3-03	●	2	0.500	3.799	2.106	1.500	0.750	1.063	+0.006	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
S075- DRV0562-3-04	●	2	0.563	4.224	2.531	1.688	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-3-05	●	2	0.625	4.492	2.799	1.875	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-3-05	●		0.656	4.587	2.894	1.969			+0.012			
S100- DRV0688-3-05	●	2	0.688	5.114	2.988	2.063	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-3-06	●		0.750	5.220	3.094	2.250			+0.024			
DRV0812-3-06	●		0.813	5.406	3.280	2.438			+0.018			
DRV0875-3-06	●		0.875	5.594	3.469	2.625			+0.010			
S100- DRV0938-3-07	●	2	0.938	5.764	3.638	2.813	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-3-07	●		0.984	5.902	3.776	2.953			+0.024			
DRV1000-3-07	●		1.000	5.949	3.823	3.000			+0.020			
S125- DRV1062-3-09	●	2	1.063	6.402	4.080	3.188	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV1125-3-09	●		1.125	6.592	4.269	3.375			+0.033			
DRV1188-3-09	●		1.188	6.781	4.458	3.563			+0.026			
S150- DRV1250-3-09	●	2	1.250	7.508	4.791	3.750	1.500	1.929	+0.020	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
S150- DRV1312-3-11	●		1.313	7.692	4.976	3.938			+0.045			
DRV1375-3-11	●		1.375	7.881	5.165	4.125			+0.039			
DRV1438-3-11	●		1.438	8.070	5.354	4.313			+0.031			
DRV1500-3-11	●		1.500	8.256	5.539	4.500			+0.022			
S150- DRV1562-3-14	●	2	1.562	8.678	5.962	4.686	1.500	1.929	+0.070	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
DRV1625-3-14	●		1.625	8.867	6.151	4.875			+0.063			
DRV1688-3-14	●		1.688	9.056	6.340	5.064			+0.056			
NEW DRV1750-3-14	●		1.750	9.242	6.526	5.250			+0.049			
DRV1812-3-14	●		1.812	9.428	6.712	5.436			+0.041			
DRV1875-3-14	●		1.875	9.617	6.901	5.625			+0.034			
NEW DRV1938-3-14	●	1.938	9.806	7.090	5.814	+0.027						
S150- DRV2000-3-17	●		2.000	9.854	7.138	6.000			+0.079	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I

• When offset drilling, reduce feed rate to 0.0031 ipr or less

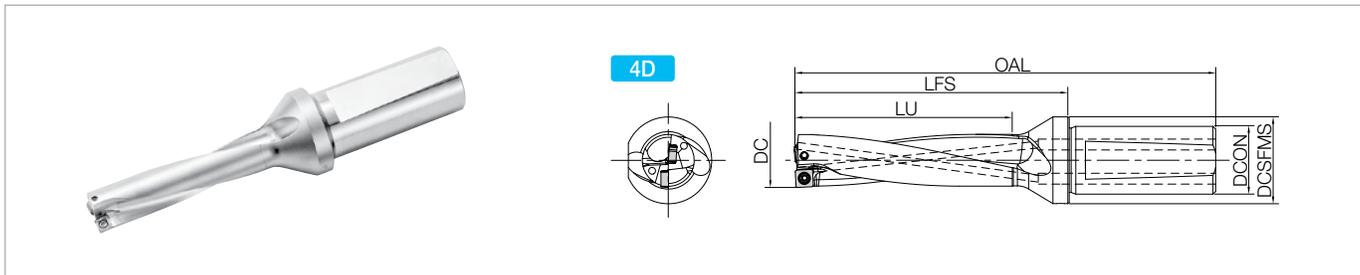
Estimated Cutting Tolerance (3D)

DC	Estimated Cutting Tolerance (in)
Ø0.500" - Ø2.000"	+0.012 0

Recommended Cutting Conditions [K62](#)
Adjustable Sleeve ASL [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

DRV (Drilling Depth: 4 x DC)



Toolholder Dimensions - 4D (Inch Size)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S075- DRV0500-4-03	●	2	0.500	4.299	2.606	2.000	0.750	1.063	+0.006	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
S075- DRV0562-4-04	●	2	0.563	4.787	3.094	2.250	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-4-05	●	2	0.625	5.118	3.425	2.500	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-4-05	●		0.656	5.240	3.551	2.625			+0.012			
S100- DRV0688-4-05	●	2	0.688	5.803	3.677	2.750	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-4-06	●		0.750	5.969	3.843	3.000			+0.024			
DRV0812-4-06	●		0.813	6.217	4.091	3.250			+0.018			
DRV0875-4-06	●		0.875	6.469	4.343	3.500		+0.010				
S100- DRV0938-4-07	●	2	0.938	6.701	4.575	3.750	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-4-07	●		0.984	6.886	4.760	3.938			+0.024			
DRV1000-4-07	●		1.000	6.949	4.823	4.000			+0.020			
S125- DRV1062-4-09	●	2	1.063	7.465	5.142	4.250	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV1125-4-09	●		1.125	7.717	5.394	4.500			+0.033			
DRV1188-4-09	●		1.188	7.969	5.646	4.750			+0.026			
S150- DRV1250-4-09	●	2	1.250	8.756	6.039	5.000	1.500	1.929	+0.020	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
S150- DRV1312-4-11	●		1.313	9.004	6.287	5.250			+0.045			
DRV1375-4-11	●		1.375	9.256	6.539	5.500			+0.039			
DRV1438-4-11	●		1.438	9.508	6.791	5.750			+0.031			
DRV1500-4-11	●		1.500	9.756	7.039	6.000			+0.022			
S150- DRV1562-4-14	●	2	1.562	10.240	7.524	6.248	1.500	1.929	+0.070	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
DRV1625-4-14	●		1.625	10.492	7.776	6.500			+0.063			
NEW DRV1688-4-14	●		1.688	10.744	8.028	6.752			+0.056			
DRV1750-4-14	●		1.750	10.992	8.276	7.000			+0.049			
DRV1812-4-14	●		1.812	11.240	8.524	7.248			+0.041			
S200- DRV1875-4-14	●	2	1.875	11.492	8.776	7.500	2.000	2.520	+0.034	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
NEW DRV1938-4-14	●		1.938	11.744	9.028	7.752			+0.027			
DRV2000-4-17	●		2.000	11.854	9.138	8.000			+0.079			

• When offset drilling, reduce feed rate to 0.0024 ipr or less

Estimated Cutting Tolerance (4D)

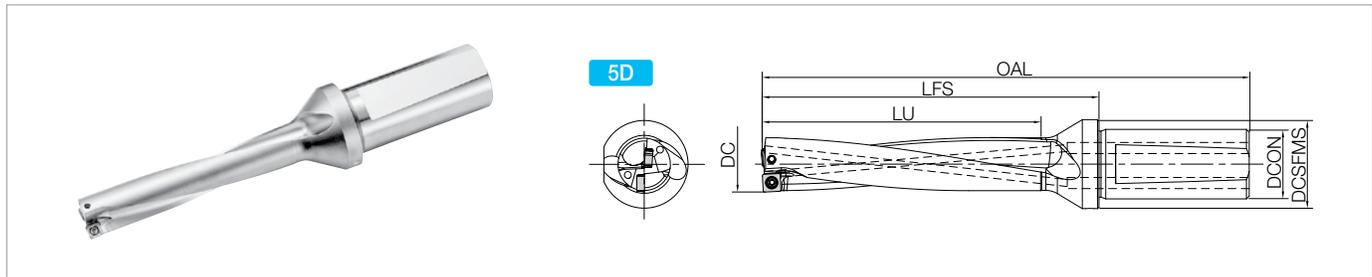
DC	Estimated Cutting Tolerance (in)	DC	Estimated Cutting Tolerance (in)
Ø0.500" - Ø1.500"	+0.014 0	Ø1.562" - Ø2.000"	+0.016 0

Recommended Cutting Conditions [K63](#)
Adjustable Sleeve ASL [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Inch Size)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S075- DRV0500-5-03	●	2	0.500	4.799	3.106	2.500	0.750	1.063	+0.006	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
S075- DRV0562-5-04	●	2	0.563	5.346	3.654	2.813	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-5-05	●	2	0.625	5.744	4.051	3.125	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-5-05	●		0.656	5.898	4.205	3.281			+0.012			
S100- DRV0688-5-05	●	2	0.688	6.492	4.366	3.438	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-5-06	●		0.750	6.720	4.594	3.750			+0.024			
DRV0812-5-06	●		0.813	7.028	4.902	4.063			+0.018			
DRV0875-5-06	●		0.875	7.343	5.217	4.375			+0.010			
S100- DRV0938-5-07	●	2	0.938	7.638	5.512	4.688	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-5-07	●		0.984	7.870	5.744	4.922			+0.024			
DRV1000-5-07	●		1.000	7.949	5.823	5.000			+0.020			
S125- DRV1062-5-09	●	2	1.063	8.526	6.204	5.313	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV1125-5-09	●		1.125	8.842	6.519	5.625			+0.033			
DRV1188-5-09	●		1.188	9.157	6.834	5.938			+0.026			
S150- DRV1250-5-09	●	2	1.250	10.008	7.291	6.250	1.500	1.929	+0.020	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
S150- DRV1312-5-11	●		1.313	10.316	7.600	6.563			+0.045			
DRV1375-5-11	●		1.375	10.631	7.915	6.875			+0.039			
DRV1438-5-11	●		1.438	10.946	8.230	7.188			+0.031			
DRV1500-5-11	●		1.500	11.256	8.539	7.500			+0.022			
S150- DRV1562-5-14	●	2	1.562	11.802	9.086	7.810	1.500	1.929	+0.070	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
DRV1625-5-14	●		1.625	12.117	9.401	8.125			+0.063			
DRV1688-5-14	●		1.688	12.432	9.716	8.440			+0.056			
DRV1750-5-14	●		1.750	12.742	10.026	8.750			+0.049			
DRV1812-5-14	●		1.812	13.052	10.336	9.060			+0.041			
S200- DRV1875-5-14	●	2	1.875	13.367	10.651	9.375	2.000	2.520	+0.034	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
DRV1938-5-14	●		1.938	13.682	10.966	9.690			+0.027			
DRV2000-5-17	●		2.000	13.854	11.138	10.000			+0.079			

• When offset drilling, reduce feed rate to 0.0020 ipr or less

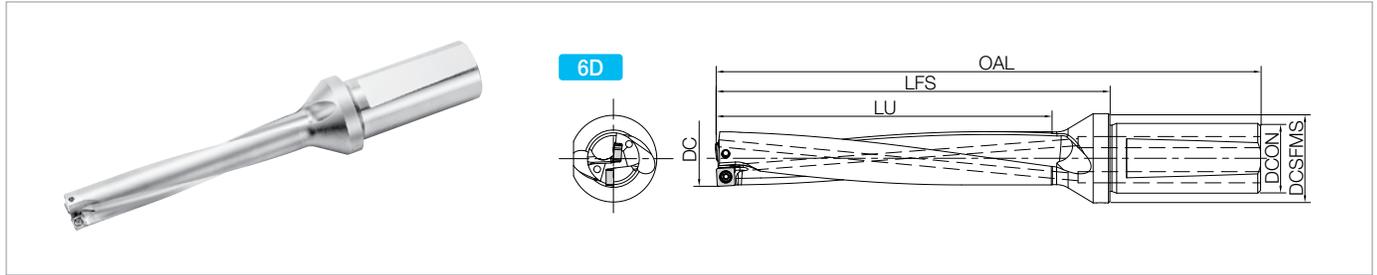
Estimated Cutting Tolerance (5D)

DC	Estimated Cutting Tolerance (in)	DC	Estimated Cutting Tolerance (in)
Ø0.500" - Ø1.500"	+0.014 0	Ø1.562" - Ø2.000"	+0.016 0

Recommended Cutting Conditions [K64](#)
Adjustable Sleeve ASL [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

■ DRV (Drilling Depth: 6 x DC)



● Toolholder Dimensions - 6D (Inch Size)

Part Number	Stock	No. of Inserts	Dimension (in)						Max. Radial Offset (in)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S075- DRV0500-6-03	●	2	0.500	5.299	3.606	3.000	0.750	1.063	+0.006	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
S075- DRV0562-6-04	●	2	0.563	5.909	4.217	3.375	0.750	1.063	+0.014	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
S075- DRV0625-6-05	●	2	0.625	6.370	4.677	3.750	0.750	1.063	+0.016	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV0656-6-05	●		0.656	6.555	4.862	3.938			+0.012			
S100- DRV0688-6-05	●	2	0.688	7.181	5.055	4.125	1.000	1.260	+0.010	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
S100- DRV0750-6-06	●	0.750	7.469	5.343	4.500	1.000	1.260	+0.024				
DRV0812-6-06	●	0.813	7.843	5.717	4.875			+0.018				
DRV0875-6-06	●	0.875	8.220	6.094	5.250	+0.010						
S100- DRV0938-6-07	●	2	0.938	8.579	6.453	5.625	1.000	1.260	+0.028	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV0984-6-07	●		0.984	8.854	6.728	5.906			+0.024			
DRV1000-6-07	●		1.000	8.949	6.823	6.000			+0.020			
S125- DRV1062-6-09	●	2	1.063	9.589	7.266	6.375	1.250	1.614	+0.041	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV1125-6-09	●		1.125	9.967	7.644	6.750			+0.033			
DRV1188-6-09	●		1.188	10.344	8.022	7.125			+0.026			
S150- DRV1250-6-09	●	2	1.250	11.256	8.539	7.500	1.500	1.929	+0.020	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
S150- DRV1312-6-11	●	1.313	11.628	8.911	7.875	1.500	1.929	+0.045				
DRV1375-6-11	●	1.375	12.006	9.289	8.250			+0.039				
DRV1438-6-11	●	1.438	12.384	9.667	8.625			+0.031				
DRV1500-6-11	●	1.500	12.756	10.039	9.000			+0.022				
S150- DRV1562-6-14	●	2	1.562	13.364	10.648	9.372	1.500	1.929	+0.070	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
DRV1625-6-14	●		1.625	13.742	11.026	9.750			+0.063			
NEW DRV1688-6-14	●		1.688	14.120	11.404	10.128			+0.056			
DRV1750-6-14	●		1.750	14.492	11.776	10.500			+0.049			
DRV1812-6-14	●		1.812	14.864	12.148	10.872			+0.041			
S200- DRV1875-6-14	●	2	1.875	15.242	12.526	11.250	2.000	2.520	+0.034	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
NEW DRV1938-6-14	●		1.938	15.620	12.904	11.628			+0.027			
DRV2000-6-17	●		2.000	15.854	13.138	12.000			+0.079			

• When offset drilling, reduce feed rate to 0.0016 ipr or less

● Estimated Cutting Tolerance (6D)

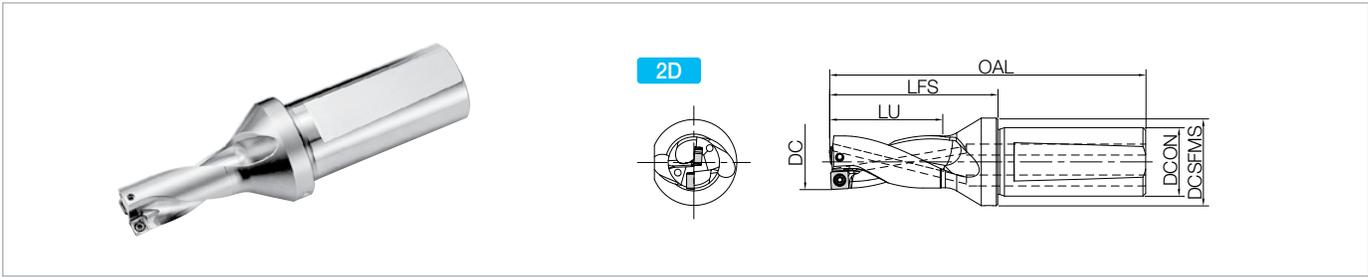
DC	Estimated Cutting Tolerance (in)	DC	Estimated Cutting Tolerance (in)
Ø0.500" - Ø1.500"	+0.018 0	Ø1.562" - Ø2.000"	+0.020 0

Recommended Cutting Conditions ● [K65](#)
Adjustable Sleeve ASL ● [K96](#)
Troubleshooting ● [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX

DRV (Drilling Depth: 2 x DC)



Toolholder Dimensions - 2D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20- DRV120M-2-03	●	2	12	82	39	24	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030204-□□-I
DRV125M-2-03	●		12.5	83	40	25			+0.20			
DRV130M-2-03	●		13	84	41	26			+0.15			
DRV135M-2-03	●		13.5	85	42	27			+0.10			
S20- DRV140M-2-04	●	2	14	92	49	28	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
DRV145M-2-04	●		14.5	93	50	29			+0.35			
DRV150M-2-04	●		15	94	51	30			+0.30			
DRV155M-2-04	●		15.5	95	52	31			+0.25			
S25- DRV160M-2-05	●	2	16	110	56	32	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV165M-2-05	●		16.5	111	57	33			+0.35			
DRV170M-2-05	●		17	112	58	34			+0.30			
DRV175M-2-05	●		17.5	113	59	35			+0.25			
DRV180M-2-05	●		18	114	60	36			+0.20			
DRV185M-2-05	●		18.5	115	61	37			+0.15			
S25- DRV190M-2-06	●	2	19	113	59	38	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
DRV195M-2-06	●		19.5	114	60	39			+0.60			
DRV200M-2-06	●		20	115	61	40			+0.55			
DRV205M-2-06	●		20.5	116	62	41			+0.50			
DRV210M-2-06	●		21	117	63	42			+0.45			
DRV215M-2-06	●		21.5	118	64	43			+0.35			
DRV220M-2-06	●		22	119	65	44			+0.30			
S25- DRV225M-2-07	●	2	22.5	120	66	45	25	32	+0.90	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV230M-2-07	●		23	121	67	46			+0.80			
DRV235M-2-07	●		23.5	122	68	47			+0.75			
DRV240M-2-07	●		24	123	69	48			+0.70			
DRV245M-2-07	●		24.5	124	70	49			+0.65			
DRV250M-2-07	●		25	125	71	50			+0.60			
DRV255M-2-07	●		25.5	126	72	51			+0.50			
DRV260M-2-07	●		26	127	73	52			+0.45			
S32- DRV270M-2-09	●	2	27	136	77	54	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV280M-2-09	●		28	138	79	56			+0.95			
DRV290M-2-09	●		29	140	81	58			+0.85			
DRV300M-2-09	●		30	142	83	60			+0.75			
DRV310M-2-09	●		31	144	85	62			+0.60			
DRV320M-2-09	●		32	146	87	64			+0.50			

• When offset drilling, reduce feed rate to 0.0031 ipr or less

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

● Toolholder Dimensions - 2D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S40- DRV330M-2-11	●	2	33	161	92	66	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
	●		34	163	94	68			+1.15			
	●		35	165	96	70			+1.00			
	●		36	167	98	72			+0.90			
	●		37	169	100	74			+0.80			
	●		38	171	102	76			+0.65			
	●		39	173	104	78			+0.55			
S40- DRV400M-2-14	●	2	40	181	112	80	40	49	+1.75	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
	●		41	183	114	82			+1.60			
	●		42	185	116	84			+1.50			
	●		43	187	118	86			+1.40			
	●		44	189	120	88			+1.30			
	●		45	191	122	90		+1.15				
	●		46	193	124	92		+1.05				
	●		47	195	126	94		+0.95				
	●		48	197	128	96		+0.80				
	●		49	199	130	98		+0.70				
S40- DRV500M-2-17	●	2	50	198	129	100	40	59	+2.10	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
	●		51	200	131	102			+1.95			
	●		52	202	133	104			+1.85			
	●		53	204	135	106			+1.75			
	●		54	206	137	108			+1.65			
	●		55	208	139	110			+1.50			
	●		56	210	141	112		+1.40				
	●		57	212	143	114		+1.30				
	●		58	214	145	116		+1.15				
	●		59	216	147	118		+1.05				
	●		60	218	149	120		+0.95				

● When offset drilling, reduce feed rate to 0.0031 ipr or less

● Estimated Cutting Tolerance (2D)

DC	Estimated Cutting Tolerance (mm)
Ø12mm - Ø60mm	+0.30 0

Recommended Cutting Conditions [K62](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

The above values are estimates.

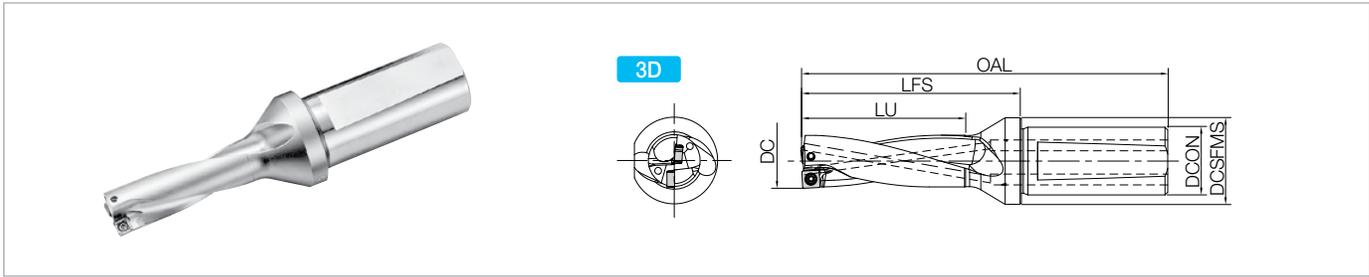
These values may change due to machine, workpiece, clamping power, and cutting conditions

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 3 x DC)



Toolholder Dimensions - 3D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20- DRV120M-3-03	●	2	12	94	51	36	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I
DRV125M-3-03	●		12.5	96	53	37.5			+0.20			
DRV130M-3-03	●		13	97	54	39			+0.15			
DRV135M-3-03	●		13.5	99	56	40.5			+0.10			
S20- DRV140M-3-04	●	2	14	106	63	42	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
DRV145M-3-04	●		14.5	108	65	43.5			+0.35			
DRV150M-3-04	●		15	109	66	45			+0.30			
DRV155M-3-04	●		15.5	111	68	46.5			+0.25			
S25- DRV160M-3-05	●	2	16	126	72	48	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV165M-3-05	●		16.5	127	73	49.5			+0.35			
DRV170M-3-05	●		17	129	75	51			+0.30			
DRV175M-3-05	●		17.5	130	76	52.5			+0.25			
DRV180M-3-05	●		18	132	78	54			+0.20			
DRV185M-3-05	●		18.5	133	79	55.5			+0.15			
S25- DRV190M-3-06	●	2	19	132	78	57	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
DRV195M-3-06	●		19.5	134	80	58.5			+0.60			
DRV200M-3-06	●		20	135	81	60			+0.55			
DRV205M-3-06	●		20.5	137	83	61.5			+0.50			
DRV210M-3-06	●		21	138	84	63			+0.45			
DRV215M-3-06	●		21.5	140	86	64.5			+0.35			
DRV220M-3-06	●		22	141	87	66			+0.30			
S25- DRV225M-3-07	●		2	22.5	142	88			67.5				25	32	+0.90	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV230M-3-07	●	23		144	90	69	+0.80					
DRV235M-3-07	●	23.5		145	91	70.5	+0.75					
DRV240M-3-07	●	24		147	93	72	+0.70					
DRV245M-3-07	●	24.5		148	94	73.5	+0.65					
DRV250M-3-07	●	25		150	96	75	+0.60					
DRV255M-3-07	●	25.5		151	97	76.5	+0.50					
DRV260M-3-07	●	26		153	99	78	+0.45					
S32- DRV265M-3-09	●	2	26.5	161	102	79.5	32	41	+1.15	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV270M-3-09	●		27	163	104	81			+1.05			
DRV275M-3-09	●		27.5	164	105	82.5			+1.00			
DRV280M-3-09	●		28	166	107	84			+0.95			
DRV285M-3-09	●		28.5	167	108	85.5			+0.90			
DRV290M-3-09	●		29	169	110	87			+0.85			
DRV295M-3-09	●		29.5	170	111	88.5			+0.80			
DRV300M-3-09	●		30	172	113	90			+0.75			
DRV305M-3-09	●		30.5	173	114	91.5			+0.65			
DRV310M-3-09	●		31	175	116	93			+0.60			
DRV315M-3-09	●		31.5	176	117	94.5			+0.55			
DRV320M-3-09	●		32	178	119	96			+0.50			

• When offset drilling, reduce feed rate to 0.0031 ipr or less

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

● Toolholder Dimensions - 3D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S40- DRV330M-3-11	●	2	33	194	125	99	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
DRV340M-3-11	●		34	197	128	102			+1.15			
DRV350M-3-11	●		35	200	131	105			+1.00			
DRV360M-3-11	●		36	203	134	108			+0.90			
DRV370M-3-11	●		37	206	137	111			+0.80			
DRV380M-3-11	●		38	209	140	114			+0.65			
DRV390M-3-11	●		39	212	143	117			+0.55			
S40- DRV400M-3-14	●	2	40	221	152	120	40	49	+1.75	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
NEW DRV410M-3-14	●		41	224	155	123			+1.60			
DRV420M-3-14	●		42	227	158	126			+1.50			
DRV430M-3-14	●		43	230	161	129			+1.40			
DRV440M-3-14	●		44	233	164	132			+1.30			
DRV450M-3-14	●		45	236	167	135			+1.15			
DRV460M-3-14	●		46	239	170	138		+1.05				
DRV470M-3-14	●		47	242	173	141		+0.95				
DRV480M-3-14	●		48	245	176	144		+0.80				
DRV490M-3-14	●		49	248	179	147		+0.70				
S40- DRV500M-3-17	●		2	50	248	179		150	40				59	+2.10	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
NEW DRV510M-3-17	●	51		251	182	153	+1.95					
DRV520M-3-17	●	52		254	185	156	+1.85					
DRV530M-3-17	●	53		257	188	159	+1.75					
DRV540M-3-17	●	54		260	191	162	+1.65					
DRV550M-3-17	●	55		263	194	165	+1.50					
DRV560M-3-17	●	56		266	197	168	+1.40					
DRV570M-3-17	●	57		269	200	171	+1.30					
DRV580M-3-17	●	58		272	203	174	+1.15					
DRV590M-3-17	●	59		275	206	177	+1.05					
DRV600M-3-17	●	60		278	209	180	+0.95					

● When offset drilling, reduce feed rate to 0.0031 ipr or less

● Estimated Cutting Tolerance (3D)

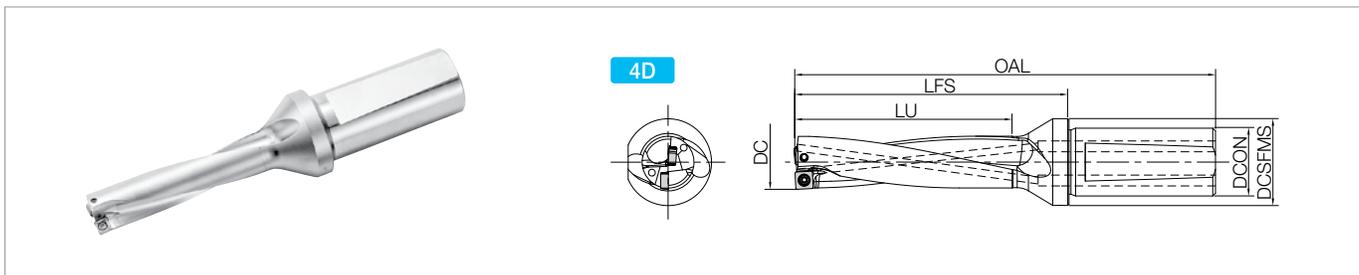
DC	Estimated Cutting Tolerance (mm)
Ø12mm - Ø60mm	+0.30 0

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K62](#)
Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 4 x DC)



Toolholder Dimensions - 4D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20- DRV120M-4-03	●	2	12	106	63	48	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030204-□□-I
DRV125M-4-03	●		12.5	108	65	50			+0.20			
DRV130M-4-03	●		13	110	67	52			+0.15			
DRV135M-4-03	●		13.5	112	69	54			+0.10			
S20- DRV140M-4-04	●	2	14	120	77	56	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I
DRV145M-4-04	●		14.5	122	79	58			+0.35			
DRV150M-4-04	●		15	124	81	60			+0.30			
DRV155M-4-04	●		15.5	126	83	62			+0.25			
S25- DRV160M-4-05	●	2	16	142	88	64	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I
DRV165M-4-05	●		16.5	144	90	66			+0.35			
DRV170M-4-05	●		17	146	92	68			+0.30			
DRV175M-4-05	●		17.5	148	94	70			+0.25			
DRV180M-4-05	●		18	150	96	72			+0.20			
DRV185M-4-05	●		18.5	152	98	74			+0.15			
S25- DRV190M-4-06	●	2	19	151	97	76	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I
DRV195M-4-06	●		19.5	153	99	78			+0.60			
DRV200M-4-06	●		20	155	101	80			+0.55			
DRV205M-4-06	●		20.5	157	103	82			+0.50			
DRV210M-4-06	●		21	159	105	84			+0.45			
DRV215M-4-06	●		21.5	161	107	86			+0.35			
DRV220M-4-06	●		22	163	109	88			+0.30			
S25- DRV225M-4-07	●	2	22.5	165	111	90	25	32	+0.90	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I
DRV230M-4-07	●		23	167	113	92			+0.80			
DRV235M-4-07	●		23.5	169	115	94			+0.75			
DRV240M-4-07	●		24	171	117	96			+0.70			
DRV245M-4-07	●		24.5	173	119	98			+0.65			
DRV250M-4-07	●		25	175	121	100			+0.60			
DRV255M-4-07	●		25.5	177	123	102			+0.50			
DRV260M-4-07	●		26	179	125	104			+0.45			
S32- DRV270M-4-09	●	2	27	190	131	108	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I
DRV280M-4-09	●		28	194	135	112			+0.95			
DRV290M-4-09	●		29	198	139	116			+0.85			
DRV300M-4-09	●		30	202	143	120			+0.75			
DRV310M-4-09	●		31	206	147	124			+0.60			
DRV320M-4-09	●		32	210	151	128			+0.50			

• When offset drilling, reduce feed rate to 0.0024 ipr or less

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

● Toolholder Dimensions - 4D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S40- DRV330M-4-11	●	2	33	227	158	132	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I
DRV340M-4-11	●		34	231	162	136			+1.15			
DRV350M-4-11	●		35	235	166	140			+1.00			
DRV360M-4-11	●		36	239	170	144			+0.90			
DRV370M-4-11	●		37	243	174	148			+0.80			
DRV380M-4-11	●		38	247	178	152			+0.65			
DRV390M-4-11	●		39	251	182	156			+0.55			
S40- DRV400M-4-14	●	2	40	261	192	160	40	49	+1.75	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I
NEW DRV410M-4-14	●		41	265	196	164			+1.60			
DRV420M-4-14	●		42	269	200	168			+1.50			
DRV430M-4-14	●		43	273	204	172			+1.40			
DRV440M-4-14	●		44	277	208	176			+1.30			
DRV450M-4-14	●		45	281	212	180			+1.15			
DRV460M-4-14	●		46	285	216	184			+1.05			
DRV470M-4-14	●		47	289	220	188			+0.95			
S50- DRV480M-4-14	●	2	48	293	224	192	50	59	+0.80	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
DRV490M-4-14	●		49	297	228	196			+0.70			
S50- DRV500M-4-17	●	2	50	298	229	200	50	59	+2.10	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I
NEW DRV510M-4-17	●		51	302	233	204			+1.95			
DRV520M-4-17	●		52	306	237	208			+1.85			
DRV530M-4-17	●		53	310	241	212			+1.75			
DRV540M-4-17	●		54	314	245	216			+1.65			
DRV550M-4-17	●		55	318	249	220			+1.50			
DRV560M-4-17	●		56	322	253	224			+1.40			
DRV570M-4-17	●		57	326	257	228			+1.30			
DRV580M-4-17	●		58	330	261	232			+1.15			
DRV590M-4-17	●		59	334	265	236			+1.05			
DRV600M-4-17	●	60	338	269	240	+0.95						

● When offset drilling, reduce feed rate to 0.0024 ipr or less

● Estimated Cutting Tolerance (4D)

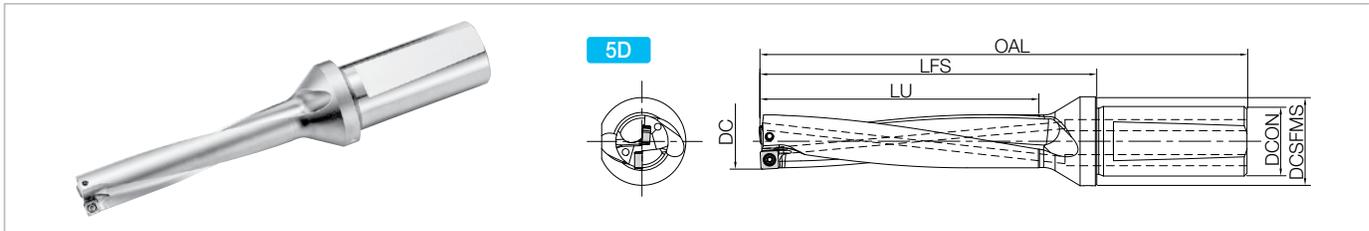
DC	Estimated Cutting Tolerance (mm)	DC	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.35 0	Ø40mm - Ø60mm	+0.40 0

Recommended Cutting Conditions [K63](#)
Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max.Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43	
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench		
S20- DRV120M-5-03	●	2	12	118	75	60	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I	
DRV130M-5-03	●		13	123	80	65							+0.15
S20- DRV140M-5-04	●	2	14	134	91	70	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I	
DRV150M-5-04	●		15	139	96	75							+0.30
S25- DRV160M-5-05	●	2	16	158	104	80	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I	
DRV170M-5-05	●		17	163	109	85							+0.30
DRV180M-5-05	●		18	168	114	90							+0.20
S25- DRV190M-5-06	●	2	19	170	116	95	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I	
DRV200M-5-06	●		20	175	121	100							+0.55
DRV210M-5-06	●		21	180	126	105							+0.45
DRV220M-5-06	●		22	185	131	110							+0.30
S25- DRV230M-5-07	●	2	23	190	136	115	25	32	+0.80	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I	
DRV240M-5-07	●		24	195	141	120							+0.70
DRV250M-5-07	●		25	200	146	125							+0.60
DRV260M-5-07	●		26	205	151	130							+0.45
S32- DRV270M-5-09	●	2	27	217	158	135	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I	
DRV280M-5-09	●		28	222	163	140							+0.95
DRV290M-5-09	●		29	227	168	145							+0.85
DRV300M-5-09	●		30	232	173	150							+0.75
DRV310M-5-09	●		31	237	178	155							+0.60
DRV320M-5-09	●		32	242	183	160							+0.50

• When offset drilling, reduce feed rate to 0.0020 ipr or less

- K** DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

● Toolholder Dimensions - 5D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)						Max.Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43		
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench			
S40- DRV330M-5-11	●	2	33	260	191	165	40	49	40	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I	
DRV340M-5-11	●		34	265	196	170								+1.15
DRV350M-5-11	●		35	270	201	175								+1.00
DRV360M-5-11	●		36	275	206	180								+0.90
DRV370M-5-11	●		37	280	211	185								+0.80
DRV380M-5-11	●		38	285	216	190								+0.65
DRV390M-5-11	●		39	290	221	195								+0.55
S40- DRV400M-5-14	●	2	40	301	232	200	40	49	40	+1.75	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I	
DRV410M-5-14	●		41	306	237	205								+1.60
DRV420M-5-14	●		42	311	242	210								+1.50
DRV430M-5-14	●		43	316	247	215								+1.40
DRV440M-5-14	●		44	321	252	220		+1.30						
DRV450M-5-14	●		45	326	257	225		+1.15						
DRV460M-5-14	●		46	331	262	230		+1.05						
DRV470M-5-14	●		47	336	267	235		+0.95						
S50- DRV480M-5-14	●	2	48	341	272	240	50	59	40	+0.80	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I	
DRV490M-5-14	●		49	346	277	245								+0.70
S50- DRV500M-5-17	●	2	50	348	279	250	50	59	40	+2.10	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I	
DRV510M-5-17	●		51	353	284	255								+1.95
DRV520M-5-17	●		52	358	289	260								+1.85
DRV530M-5-17	●		53	363	294	265								+1.75
DRV540M-5-17	●		54	368	299	270								+1.65
DRV550M-5-17	●		55	373	304	275		+1.50						
DRV560M-5-17	●		56	378	309	280		+1.40						
DRV570M-5-17	●		57	383	314	285		+1.30						
DRV580M-5-17	●		58	388	319	290		+1.15						
DRV590M-5-17	●		59	393	324	295		+1.05						
DRV600M-5-17	●	60	398	329	300	+0.95								

● When offset drilling, reduce feed rate to 0.0020 ipr or less

● Estimated Cutting Tolerance (5D)

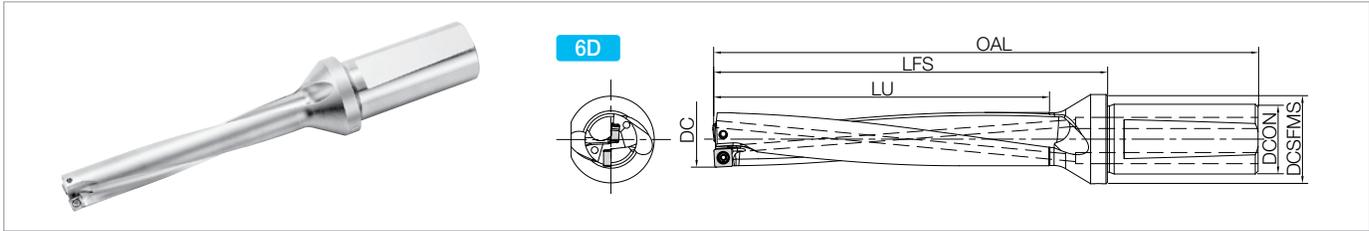
DC	Estimated Cutting Tolerance (mm)	DC	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.35 0	Ø40mm - Ø60mm	+0.40 0

Recommended Cutting Conditions [K64](#)
Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV (Drilling Depth: 6 x DC)



Toolholder Dimensions - 6D (Metric Size)

Part Number	Stock	No. of Inserts	Dimension (mm)							Max.Radial Offset (mm)	Spare Parts		Applicable Insert See Page K42-K43
			DC	OAL	LFS	LU	DCON	DCSFMS	Insert Screw		Wrench		
S20- DRV120M-6-03	●	2	12	130	87	72	20	27	+0.25	SB-2037TRP	FTP-6	Outer Edge LCMT030203-□□-E Inner Edge LCMT030205-□□-I	
DRV130M-6-03	●		13	136	93	78							+0.15
S20- DRV140M-6-04	●	2	14	148	105	84	20	27	+0.40	SB-2037TRP	FTP-6	Outer Edge SCMT040205-□□-E Inner Edge SCMT040209-□□-I	
DRV150M-6-04	●		15	154	111	90							+0.30
S25- DRV160M-6-05	●	2	16	174	120	96	25	32	+0.40	SB-2041TRP	FTP-6	Outer Edge SCMT050205-□□-E Inner Edge SCMT050210-□□-I	
DRV170M-6-05	●		17	180	126	102							+0.30
DRV180M-6-05	●		18	186	132	108							+0.20
S25- DRV190M-6-06	●	2	19	189	135	114	25	32	+0.65	SB-2555TRP	DTPM-8	Outer Edge SCMT060205-□□-E Inner Edge SCMT060210-□□-I	
DRV200M-6-06	●		20	195	141	120							+0.55
DRV210M-6-06	●		21	201	147	126							+0.45
DRV220M-6-06	●		22	207	153	132							+0.30
S25- DRV230M-6-07	●	2	23	213	159	138	25	32	+0.80	SB-3060TRP	DTPM-10	Outer Edge SCMT070305-□□-E Inner Edge SCMT070310-□□-I	
DRV240M-6-07	●		24	219	165	144							+0.70
DRV250M-6-07	●		25	225	171	150							+0.60
DRV260M-6-07	●		26	231	177	156							+0.45
S32- DRV270M-6-09	●	2	27	244	185	162	32	41	+1.05	SB-3573TRP	DTPM-10	Outer Edge SCMT090405-□□-E Inner Edge SCMT090410-□□-I	
DRV280M-6-09	●		28	250	191	168							+0.95
DRV290M-6-09	●		29	256	197	174							+0.85
DRV300M-6-09	●		30	262	203	180							+0.75
DRV310M-6-09	●		31	268	209	186							+0.60
DRV320M-6-09	●	32	274	215	192	+0.50							
S40- DRV330M-6-11	●	2	33	293	224	198	40	49	+1.25	SB-4086TRP	DTPM-15	Outer Edge SCMT110406-□□-E Inner Edge SCMT110410-□□-I	
DRV340M-6-11	●		34	299	230	204							+1.15
DRV350M-6-11	●		35	305	236	210							+1.00
DRV360M-6-11	●		36	311	242	216							+0.90
DRV370M-6-11	●		37	317	248	222							+0.80
DRV380M-6-11	●	38	323	254	228	+0.65							
DRV390M-6-11	●	39	329	260	234	+0.55							
S40- DRV400M-6-14	●	2	40	341	272	240	40	49	+1.75	SB-50120TRPH	TTP-20	Outer Edge SCMT140508-□□-E Inner Edge SCMT140510-□□-I	
NEW DRV410M-6-14	●		41	347	278	246							+1.60
DRV420M-6-14	●		42	353	284	252							+1.50
DRV430M-6-14	●		43	359	290	258							+1.40
DRV440M-6-14	●		44	365	296	264							+1.30
DRV450M-6-14	●	45	371	302	270	+1.15							
S50- DRV500M-6-17	●	2	50	398	329	300	50	59	+2.10	SB-60130TRP	TTP-20	Outer Edge SCMT170608-□□-E Inner Edge SCMT170610-□□-I	
NEW DRV550M-6-17	●		55	428	359	330							+1.50
DRV600M-6-17	●		60	458	389	360							+0.95

● When offset drilling, reduce feed rate to 0.0016 ipr or less

Estimated Cutting Tolerance (6D)

DC	Estimated Cutting Tolerance (mm)	DC	Estimated Cutting Tolerance (mm)
Ø12mm - Ø39mm	+0.45 0	Ø40mm - Ø60mm	+0.50 0

Recommended Cutting Conditions [K65](#)
Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Insert Grade Selection Guide

Select CVD for the outer edge when performing high speed and high efficiency drilling and for abrasion resistance and long tool life. Select PVD MEGACOAT for the outer edge for stable drilling and a better surface finish.

PVD MEGACOAT is recommended for the outer edge if chattering occurs, machining with lathe, or if cutting conditions cannot be increased to the recommended speed for CVD.

1st Recommendation

(High Speed and High Efficiency Drilling)

Outer Edge : CVD (CA520D / CA415D)

Inner Edge : PVD (PR1535)



Stable Machining Oriented

(1st Recommendation for Lathe Machining)

Outer Edge : PVD (PR1225)

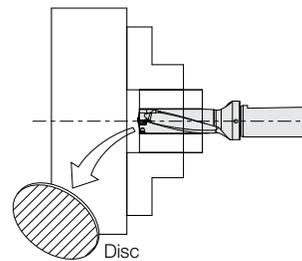
Inner Edge : PVD (PR1535)



Machining Caution

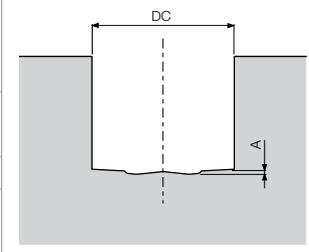
In case of through-hole machining, a disc may be generated and ejected outward when exiting the hole.

Be sure to install guards to protect against dangers if using a machine without the covers (including general-purpose lathes, etc.).



DRV Hole Bottom Shape

DRV Inch Diameters (in)			DRV Metric Diameters (mm)											
Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A	Insert Size	DC	A
03	0.500	0.028	03	12.0	0.7	06	19.0	1.2	09	26.5	1.3	14	40.0	1.9
04	0.562	0.039		12.5			19.5			27.0			41.0	
05	0.625	0.043		13.0			20.0			27.5			42.0	
	0.656		13.5	20.5	28.0	43.0	2.0							
06	0.688	0.047	04	14.0	1.0	07	21.0	1.3	09	28.5	1.4	17	44.0	2.1
	0.750			14.5			21.5			29.0			45.0	
07	0.812	0.051	05	15.0	1.1	07	22.0	1.2	09	30.0	1.5	17	46.0	2.2
	0.875			15.5			22.5			30.5			47.0	
09	0.938	0.047	05	16.0	1.1	07	23.0	1.2	09	31.0	1.5	17	48.0	2.0
	0.984			16.5			23.5			31.5			49.0	
	1.000			17.0			24.0			31.5			50.0		2.0
11	1.062	0.047	05	17.5	1.2	07	24.5	1.3	09	32.0	1.5	17	51.0	2.1
	1.125			18.0			25.0			33.0			52.0	
	1.188			18.5			25.5			34.0			53.0	
	1.250			0.059			26.0			35.0			54.0	
14	1.312	0.059	05	17.5	1.2	07	24.5	1.3	09	36.0	1.6	17	55.0	2.2
	1.375									37.0			56.0	
	1.438									38.0			57.0	
	1.500									39.0			58.0	
	1.562									0.075			39.0		59.0
17	1.625	0.075	05	17.5	1.2	07	24.5	1.3	09	36.0	1.6	17	60.0	2.4
	1.688									37.0			60.0	
	1.750									38.0			60.0	
	1.812									39.0			60.0	
17	1.875	0.083	05	17.5	1.2	07	24.5	1.3	09	36.0	1.6	17	60.0	2.4
	1.938									37.0			60.0	
	2.000									38.0			60.0	

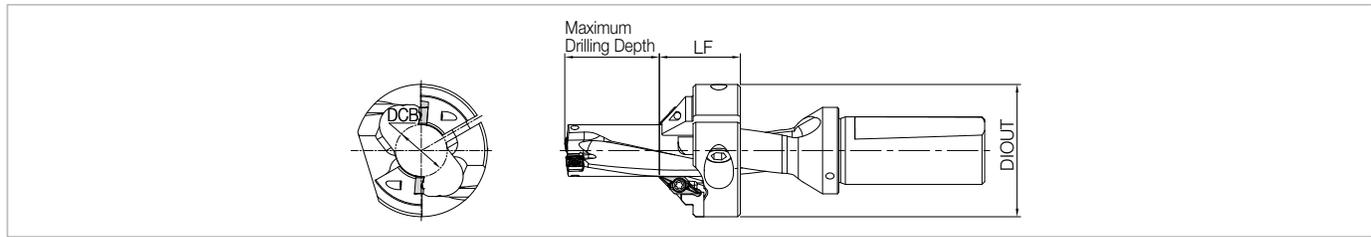


Common for 2D, 3D, 4D, 5D, 6D Drills

*Above is estimated values. (varies within $\pm 0.1\text{mm}$ (± 0.004 ")) depending on workpiece material and cutting conditions)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

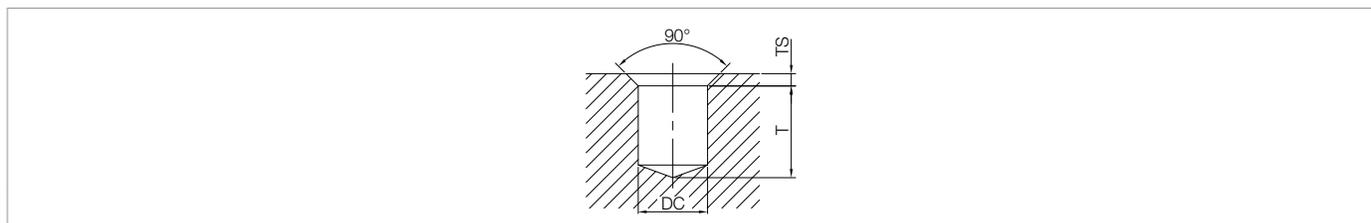
DRV Chamfering Attachment



Chamfer Attachment Dimensions

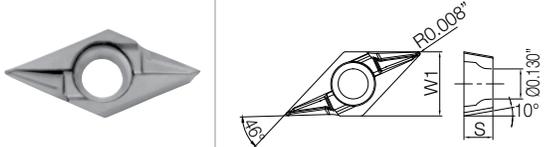
Part Number	Stock	Applicable Drill Bodies		Dimensions (mm)			Applicable Inserts	Spare Parts							
		Inch Size Bodies	Metric Size Bodies	DIOUT	DCB	LF		Insert Screw	Wrench	Clamp Screw	Wrench				
DRV-CH17	●	S075-DRV0656-...-05	S25-DRV165M-...-05 S25-DRV170M-...-05	47	16.2	30	CH0503-45	SB-3080TR	FT-10	HH6X18	LW-5				
DRV-CH18	●	S100-DRV0688-...-05	S25-DRV175M-...-05 S25-DRV180M-...-05	47	17.2	30									
DRV-CH19	●	-	S25-DRV185M-...-05 S25-DRV190M-...-06	49	18.2	30									
DRV-CH20	●	S100-DRV0766-...-06	S25-DRV195M-...-06 S25-DRV200M-...-06	49	19.2	30									
DRV-CH21	●	S100-DRV0812-...-06	S25-DRV205M-...-06 S25-DRV210M-...-06	49	20.2	30									
DRV-CH22	●	-	S25-DRV215M-...-06 S25-DRV220M-...-06	49	21.2	30									
DRV-CH23	●	-	S25-DRV225M-...-07 S25-DRV230M-...-07	51	22.2	30									
DRV-CH24	●	S100-DRV0938-...-07	S25-DRV235M-...-07 S25-DRV240M-...-07	51	23.2	30									
DRV-CH25	●	S100-DRV0984-...-07	S25-DRV245M-...-07 S25-DRV250M-...-07	53	24.2	30									
DRV-CH26	●	-	S25-DRV255M-...-07 S25-DRV260M-...-07	53	25.2	30									
DRV-CH27	●	S125-DRV1062-...-09	S25-DRV265M-...-09 S32-DRV270M-...-09	64	26	35								HH8X20	LW-6

Maximum Drilling Depth / Chamfering Depths

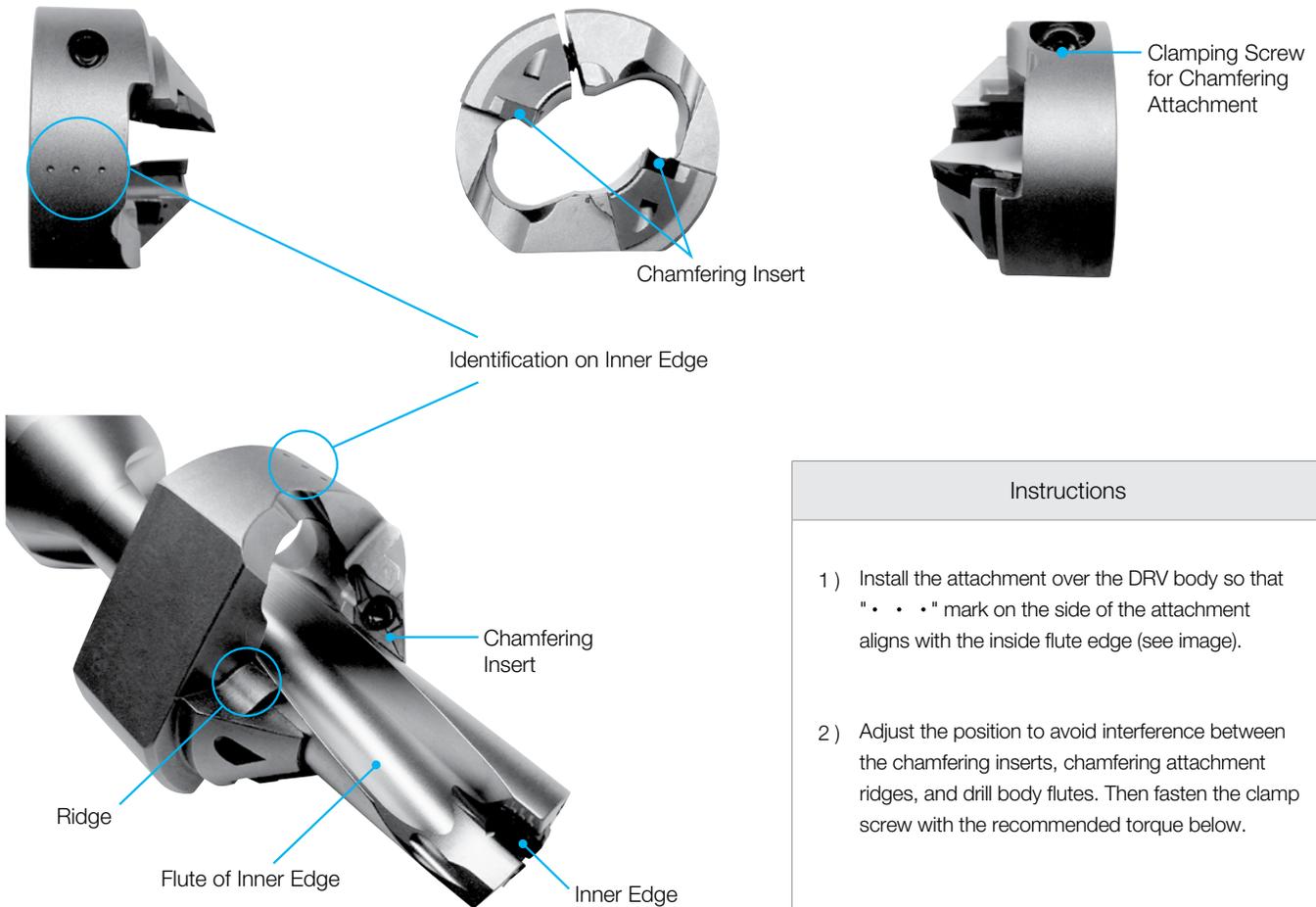


Drilling Diameter (mm)	Maximum Drilling Depth T (mm)						Max Chamfering Depth Ts (mm)	Applicable Chamfering Attachment
	2D Drill	3D Drill	4D Drill	5D Drill	6D Drill			
DC							2.5	
Ø16.5	0.5	17	33.5	-	-			DRV-CH17
Ø17.0	1.5	18.5	35.5	52.5	69.5			DRV-CH18
Ø17.5	2.5	20	37.5	-	-			DRV-CH19
Ø18.0	3.5	21.5	39.5	57.5	75.5			DRV-CH20
Ø18.5	4.5	23	41.5	-	-			DRV-CH21
Ø19.0	5.5	24.5	43.5	62.5	81.5			DRV-CH22
Ø19.5	6.5	26	45.5	-	-			DRV-CH23
Ø20.0	7.5	27.5	47.5	67.5	87.5			DRV-CH24
Ø20.5	8.5	29	49.5	-	-			DRV-CH25
Ø21.0	9.5	30.5	51.5	72.5	93.5			DRV-CH26
Ø21.5	10.5	32	53.5	-	-			DRV-CH27
Ø22.0	11.5	33.5	55.5	77.5	99.5			
Ø22.5	12.5	35	57.5	-	-			
Ø23.0	13.5	36.5	59.5	82.5	105.5			
Ø23.5	14.5	38	61.5	-	-			
Ø24.0	15.5	39.5	63.5	87.5	111.5			
Ø24.5	16.5	41	65.5	-	-			
Ø25.0	17.5	42.5	67.5	92.5	117.5			
Ø25.5	18.5	44	69.5	-	-			
Ø26.0	19.5	45.5	71.5	97.5	123.5			
Ø26.5	-	47	-	-	-			
Ø27.0	16.5	43.5	75.5	97.5	124.5			

● Applicable Chamfering Inserts

Shape	Part Number	Dimensions (mm)		MEGACOAT NANO	Applicable Chamfering Attachment
		W1	S	PR1535	
	CH0503-45	7.05	3.18	●	DRV-CH○○

● How to Install Chamfering Attachment



Clamping Screw for Chamfering Attachment

Chamfering Insert

Identification on Inner Edge

Ridge

Flute of Inner Edge

Inner Edge

Chamfering Insert

Instructions

- 1) Install the attachment over the DRV body so that "•••" mark on the side of the attachment aligns with the inside flute edge (see image).
- 2) Adjust the position to avoid interference between the chamfering inserts, chamfering attachment ridges, and drill body flutes. Then fasten the clamp screw with the recommended torque below.

● Recommended Torque

Chamfering Attachment Part Number	Torque (Nm)	Clamping Screw	Wrench
DRV-CH17 ~ DRV-CH26	10	HH6X18	LW-5
DRV-CH27	14	HH8X20	LW-6

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRV RECOMMENDED CUTTING CONDITIONS

DRV 2D/3D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 2D / 3D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide					CVD Coated Carbide							2D-3D			
	PR1225				CA520D				CA415D				GM	GH	XM	SM
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH						
Low Carbon Steel	-	-	★	☆	-	-	★	☆	-	-	0.500	12.0 - 13.5	-	-	-	0.0016 ~ 0.0024
	-	-	-	-	-	-	-	-	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 ~ 0.0035	0.0016 ~ 0.0028
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 ~ 0.0039	0.0016 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 ~ 0.0055	0.0024 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0024 ~ 0.0055	0.0024 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	-	-	0.0031 ~ 0.0055	0.0024 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	-	-	-	0.0031 ~ 0.0047
Carbon Steel	★	☆	☆	☆	★	☆	☆	☆	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	-	0.0016 ~ 0.0039
	330-590	330-590	330-590	330-590	490-920	490-920	490-920	490-920	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	0.0016 ~ 0.0039	0.0016 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	0.0024 ~ 0.0047	0.0024 ~ 0.0047
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0024 ~ 0.0055	0.0024 ~ 0.0055
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	0.0028 ~ 0.0063	0.0024 ~ 0.0055
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	-	-	0.0024 ~ 0.0055
Alloy Steel	★	☆	☆	-	★	☆	☆	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0047	0.0016 ~ 0.0047	-	-
	330-525	330-525	330-525	-	460-720	460-720	460-720	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0055	0.0016 ~ 0.0055	-	-
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0063	0.0024 ~ 0.0063	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	-	-	-
Tool Steel	☆	★	-	-	☆	★	-	-	-	-	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	260-490	260-490	-	-	425-690	425-690	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.250	19.0 - 32.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	-	-
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0031 ~ 0.0059	0.0031 ~ 0.0059	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0059	-	-	-
Stainless Steel (Austenitic)	-	-	-	★	-	-	-	★	-	-	0.500 - 0.578	12.0 - 15.5	-	-	-	0.0016 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0024 ~ 0.0047
	-	-	-	-	-	-	-	-	-	-	0.750 - 2.000	19.0 - 60.0	-	-	-	0.0024 ~ 0.0055
Gray Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500	12.0 - 13.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	-	-
	330-490	330-490	-	-	-	-	-	-	490-720	490-720	0.562 - 0.578	14.0 - 15.5	0.0031 ~ 0.0055	0.0031 ~ 0.0055	-	-
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0071	0.0031 ~ 0.0071	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0079	0.0031 ~ 0.0079	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0079	-	-	-
Nodular Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500 - 0.578	12.0 - 15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0047	-	-
	260-390	260-390	-	-	-	-	-	-	390-590	390-590	0.625 - 0.688	16.0 - 18.5	0.0031 ~ 0.0063	0.0031 ~ 0.0063	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0031 ~ 0.0071	0.0031 ~ 0.0071	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0031 ~ 0.0071	-	-	-

★ : 1st Recommendation ☆ : 2nd Recommendation

★ : 1st Recommendation ☆ : 2nd Recommendation

Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates	
Workpiece Shape								
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)						Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.		Not Available
Internal Coolant	Yes						Not Recommended	

DRV RECOMMENDED CUTTING CONDITIONS

◆ DRV 4D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 4D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide					CVD Coated Carbide							4D				
	PR1225					CA520D				CA415D			GM	GH	XM	SM	
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH							
Low Carbon Steel	-	-	★	☆	-	-	★	☆	-	-	0.500	12.0 - 13.5	-	-	-	0.0016 - 0.0024	
	-	-	★	☆	-	-	★	☆	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 - 0.0031	0.0016 - 0.0028	
	-	-	★	☆	-	-	★	☆	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 - 0.0031	0.0016 - 0.0031	
	-	-	★	☆	-	-	★	☆	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 - 0.0039	0.0016 - 0.0031	
	-	-	★	☆	-	-	★	☆	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 - 0.0047	0.0020 - 0.0039	
	-	-	★	☆	-	-	★	☆	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0016 - 0.0047	0.0020 - 0.0039	
	-	-	★	☆	-	-	★	☆	-	-	1.312 - 1.500	33.0 - 39.0	-	-	0.0024 - 0.0047	0.0020 - 0.0039	
	-	-	★	☆	-	-	★	☆	-	-	1.562 - 2.000	40.0 - 60.0	-	-	-	0.0020 - 0.0039	
Carbon Steel	★	☆	☆	☆	★	☆	☆	☆	-	-	0.500	12.0 - 13.5	0.0016 - 0.0039	0.0016 - 0.0039	-	0.0016 - 0.0031	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0039	0.0016 - 0.0039	0.0016 - 0.0031	0.0016 - 0.0031	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 - 0.0047	0.0020 - 0.0047	0.0016 - 0.0039	0.0020 - 0.0039	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.750 - 1.000	19.0 - 26.0	0.0028 - 0.0063	0.0028 - 0.0063	0.0016 - 0.0047	0.0020 - 0.0047	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.062 - 1.250	26.5 - 32.0	0.0028 - 0.0063	0.0028 - 0.0063	0.0016 - 0.0047	0.0020 - 0.0047	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.312 - 1.500	33.0 - 39.0	0.0028 - 0.0063	0.0028 - 0.0063	0.0024 - 0.0055	0.0020 - 0.0047	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.562 - 2.000	40.0 - 60.0	0.0028 - 0.0063	-	-	0.0020 - 0.0047	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.500	12.0 - 13.5	0.0016 - 0.0039	0.0016 - 0.0039	-	-	
Alloy Steel	★	☆	☆	-	★	☆	☆	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0039	0.0016 - 0.0039	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 - 0.0047	0.0020 - 0.0047	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0028 - 0.0063	0.0028 - 0.0063	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0028 - 0.0063	-	-	-	
Tool Steel	☆	★	-	-	☆	★	-	-	-	-	0.500 - 0.578	12.0 - 15.5	0.0016 - 0.0028	0.0016 - 0.0028	-	-	
	☆	★	-	-	☆	★	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 - 0.0039	0.0020 - 0.0039	-	-	
	☆	★	-	-	☆	★	-	-	-	-	0.750 - 1.250	19.0 - 32.0	0.0024 - 0.0047	0.0024 - 0.0047	-	-	
	☆	★	-	-	☆	★	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0024 - 0.0047	0.0024 - 0.0047	-	-	
Stainless Steel (Austenitic)	-	-	-	★	-	-	-	★	-	-	0.500 - 0.578	12.0 - 15.5	-	-	-	0.0016 - 0.0031	
	-	-	-	★	-	-	-	★	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0020 - 0.0043	
	-	-	-	★	-	-	-	★	-	-	0.750 - 2.000	19.0 - 60.0	-	-	-	0.0024 - 0.0047	
Gray Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500	12.0 - 13.5	0.0024 - 0.0039	0.0024 - 0.0039	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.562 - 0.578	14.0 - 15.5	0.0024 - 0.0047	0.0024 - 0.0047	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.625 - 0.688	16.0 - 18.5	0.0031 - 0.0063	0.0031 - 0.0063	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.750 - 1.500	19.0 - 39.0	0.0031 - 0.0071	0.0031 - 0.0071	-	-	
	☆	★	-	-	-	-	-	-	☆	★	1.562 - 2.000	40.0 - 60.0	0.0031 - 0.0071	-	-	-	
Nodular Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500 - 0.578	12.0 - 15.5	0.0024 - 0.0039	0.0024 - 0.0039	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.625 - 0.688	16.0 - 18.5	0.0031 - 0.0055	0.0031 - 0.0055	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.750 - 1.500	19.0 - 39.0	0.0031 - 0.0063	0.0031 - 0.0063	-	-	
	☆	★	-	-	-	-	-	-	☆	★	1.562 - 2.000	40.0 - 60.0	0.0031 - 0.0063	-	-	-	

• Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

● Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

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INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

DRV RECOMMENDED CUTTING CONDITIONS

◆ DRV 5D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 5D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	PVD Coated Carbide					CVD Coated Carbide							5D			
	PR1225				CA520D				CA415D							
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH			GM	GH	XM	SM
Low Carbon Steel	-	-	★	☆	-	-	★	☆	-	-	0.500	12.0 - 13.5	-	-	-	0.0012 ~ 0.0020
	-	-	390-660	390-660	-	-	490-920	490-920	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 ~ 0.0028	0.0016 ~ 0.0024
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 ~ 0.0031	0.0016 ~ 0.0024
	-	-	-	-	-	-	-	-	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 ~ 0.0039	0.0016 ~ 0.0028
	-	-	-	-	-	-	-	-	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0016 ~ 0.0047	0.0016 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	-	-	0.0020 ~ 0.0047	0.0016 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	-	-	-	0.0016 ~ 0.0039
Carbon Steel	★	☆	☆	☆	★	☆	☆	☆	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	0.0016 ~ 0.0028
	330-590	330-590	330-590	330-590	490-920	490-920	490-920	490-920	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0016 ~ 0.0028	0.0016 ~ 0.0028
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	0.0020 ~ 0.0031	0.0020 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0039	0.0020 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.312 - 1.500	33.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0020 ~ 0.0047	0.0020 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	-	-	0.0020 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Alloy Steel	★	☆	☆	-	★	☆	☆	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	330-525	330-525	330-525	-	460-720	460-720	460-720	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 ~ 0.0039	0.0020 ~ 0.0039	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	-	-	-
Tool Steel	☆	★	-	-	☆	★	-	-	-	-	0.500	12.0 - 13.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-
	260-490	260-490	-	-	425-690	425-690	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0024	0.0016 ~ 0.0024	-	-
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0020 ~ 0.0039	0.0020 ~ 0.0039	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0020 ~ 0.0039	-	-	-
Stainless Steel (Austenitic)	-	-	-	★	-	-	-	★	-	-	0.500	12.0 - 13.5	-	-	-	0.0016 ~ 0.0031
	-	-	-	230-460	-	-	-	460-660	-	-	0.562 - 0.578	14.0 - 15.5	-	-	-	0.0016 ~ 0.0031
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0016 ~ 0.0039
	-	-	-	-	-	-	-	-	-	-	0.750 - 2.000	19.0 - 60.0	-	-	-	0.0024 ~ 0.0047
Gray Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500 - 0.578	12.0 - 15.5	0.0016 ~ 0.0039	0.0016 ~ 0.0039	-	-
	330-490	330-490	-	-	-	-	-	-	490-720	490-720	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0055	0.0024 ~ 0.0055	-	-
	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0055	-	-	-
Nodular Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500	12.0 - 13.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	260-390	260-390	-	-	-	-	-	-	390-590	390-590	0.562 - 0.578	14.0 - 15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	-	-
	-	-	-	-	-	-	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	-	-
	-	-	-	-	-	-	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0024 ~ 0.0047	0.0024 ~ 0.0047	-	-
HOLESHOT	-	-	-	-	-	-	-	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 ~ 0.0047	-	-	-

• Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

● Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

DRV RECOMMENDED CUTTING CONDITIONS

◆ DRV 6D - Recommended Cutting Conditions (with Coolant)

Drilling Depth: 6D

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)										Inch Drill Dia. DC (in)	Metric Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)				
	PVD Coated Carbide					CVD Coated Carbide							6D				
	PR1225					CA520D				CA415D			GM	GH	XM	SM	
	GM	GH	XM	SM	GM	GH	XM	SM	GM	GH							
Low Carbon Steel	-	-	★	☆	-	-	★	☆	-	-	0.500	12.0 - 13.5	-	-	-	0.0012 - 0.0020	
	-	-	★	☆	-	-	★	☆	-	-	0.562 - 0.578	14.0 - 15.5	-	-	0.0016 - 0.0024	0.0016 - 0.0024	
	-	-	★	☆	-	-	★	☆	-	-	0.625 - 0.688	16.0 - 18.5	-	-	0.0016 - 0.0024	0.0016 - 0.0024	
	-	-	★	☆	-	-	★	☆	-	-	0.750 - 0.875	19.0 - 22.0	-	-	0.0016 - 0.0028	0.0016 - 0.0028	
	-	-	★	☆	-	-	★	☆	-	-	0.922 - 1.000	22.5 - 26.0	-	-	0.0016 - 0.0031	0.0016 - 0.0028	
	-	-	★	☆	-	-	★	☆	-	-	1.062 - 1.250	26.5 - 32.0	-	-	0.0016 - 0.0031	0.0016 - 0.0028	
	-	-	★	☆	-	-	★	☆	-	-	1.312 - 1.500	33.0 - 39.0	-	-	0.0016 - 0.0035	0.0016 - 0.0031	
Carbon Steel	★	☆	☆	☆	★	☆	☆	☆	-	-	0.500	12.0 - 13.5	0.0012 - 0.0020	0.0012 - 0.0020	-	0.0012 - 0.0020	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0024	0.0016 - 0.0024	0.0016 - 0.0024	0.0016 - 0.0024	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 - 0.0031	0.0020 - 0.0031	0.0020 - 0.0028	0.0020 - 0.0028	
	★	☆	☆	☆	★	☆	☆	☆	-	-	0.750 - 1.000	19.0 - 26.0	0.0024 - 0.0039	0.0024 - 0.0039	0.0020 - 0.0031	0.0020 - 0.0031	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.062 - 1.250	26.5 - 32.0	0.0024 - 0.0039	0.0024 - 0.0039	0.0020 - 0.0031	0.0020 - 0.0031	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.312 - 1.500	33.0 - 39.0	0.0024 - 0.0039	0.0024 - 0.0039	0.0020 - 0.0031	0.0020 - 0.0031	
	★	☆	☆	☆	★	☆	☆	☆	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 - 0.0039	-	-	0.0020 - 0.0031	
Alloy Steel	★	☆	☆	-	★	☆	☆	-	-	-	0.500	12.0 - 13.5	0.0012 - 0.0020	0.0012 - 0.0020	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0024	0.0016 - 0.0024	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0020 - 0.0031	0.0020 - 0.0031	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0024 - 0.0039	0.0024 - 0.0039	-	-	
	★	☆	☆	-	★	☆	☆	-	-	-	1.562 - 2.000	40.0 - 60.0	0.0024 - 0.0039	-	-	-	
Tool Steel	☆	★	-	-	☆	★	-	-	-	-	0.500	12.0 - 13.5	0.0012 - 0.0020	0.0012 - 0.0020	-	-	
	☆	★	-	-	☆	★	-	-	-	-	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0020	0.0016 - 0.0020	-	-	
	☆	★	-	-	☆	★	-	-	-	-	0.625 - 0.688	16.0 - 18.5	0.0016 - 0.0024	0.0016 - 0.0024	-	-	
	☆	★	-	-	☆	★	-	-	-	-	0.750 - 1.500	19.0 - 39.0	0.0020 - 0.0031	0.0020 - 0.0031	-	-	
Stainless Steel (Austenitic)	-	-	-	★	-	-	-	★	-	-	0.500	12.0 - 13.5	-	-	-	0.0012 - 0.0020	
	-	-	-	★	-	-	-	★	-	-	0.562 - 0.578	14.0 - 15.5	-	-	-	0.0016 - 0.0024	
	-	-	-	★	-	-	-	★	-	-	0.625 - 0.688	16.0 - 18.5	-	-	-	0.0016 - 0.0035	
	-	-	-	★	-	-	-	★	-	-	0.750 - 2.000	19.0 - 60.0	-	-	-	0.0024 - 0.0039	
Gray Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500 - 0.578	12.0 - 15.5	0.0016 - 0.0031	0.0016 - 0.0031	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.625 - 0.688	16.0 - 18.5	0.0024 - 0.0039	0.0024 - 0.0039	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.750 - 1.500	19.0 - 39.0	0.0024 - 0.0047	0.0024 - 0.0047	-	-	
	☆	★	-	-	-	-	-	-	☆	★	1.562 - 2.000	40.0 - 60.0	0.0024 - 0.0047	-	-	-	
Nodular Cast Iron	☆	★	-	-	-	-	-	-	☆	★	0.500	12.0 - 13.5	0.0012 - 0.0020	0.0012 - 0.0020	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.562 - 0.578	14.0 - 15.5	0.0016 - 0.0024	0.0016 - 0.0024	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.625 - 0.688	16.0 - 18.5	0.0024 - 0.0031	0.0024 - 0.0031	-	-	
	☆	★	-	-	-	-	-	-	☆	★	0.750 - 1.500	19.0 - 39.0	0.0024 - 0.0039	0.0024 - 0.0039	-	-	
											1.562 - 2.000	40.0 - 60.0	0.0024 - 0.0039	-	-	-	

• Internal Coolant is Recommended

★ : 1st Recommendation ☆ : 2nd Recommendation

● Cutting Conditions by Application

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Existing Hole	Concave Surface	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	See recommended cutting conditions above	390 (PVD insert is recommended for outer edge)					Not Recommended
f (ipr)	See recommended cutting conditions above	50% of above recommendation				50% of above recommendation initially. See recommendations above once drill is fully engaged.	Not Available
Internal Coolant	Yes						Not Recommended

800.823.7284

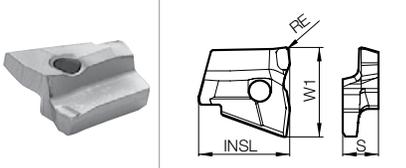
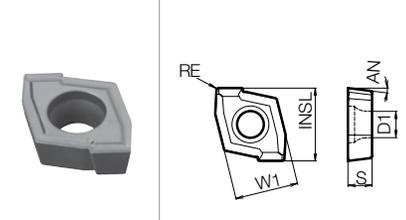
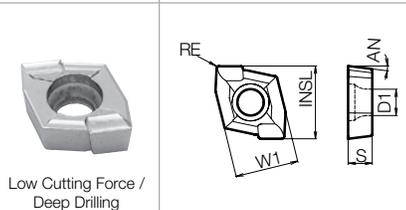
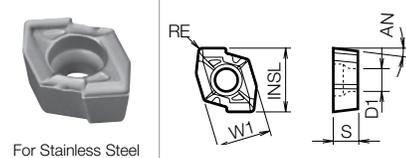
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INSERT GRADES **A**
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GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

Applicable DRS & DRZ Inserts

Usage Classification		P	Carbon Steel / Alloy Steel		★	☆					
			Tool Steel								
★ : 1st Recommendation ☆ : 2nd Recommendation (Steel; Non Heat Treated)		M	Stainless Steel		☆	★					
		K	Cast Iron						★		
		N	Non-ferrous Metals							☆	
Insert	Part Number	Dimensions (in)					Angle	MEGACOAT			Carbide
		INSL	S	D1	W1	RE	AN	PR1 230	PR1 225	PR1 210	KW10
	DS 100	0.346	0.138		0.354	0.008	-	●		●	
	105	0.366	0.146		0.382			●		●	
	110	0.386	0.154	-	0.394			●		●	
	115	0.402	0.161		0.406			●		●	
	120	0.425	0.169		0.429			0.010	●		●
	ZCMT 050203	0.232	0.094	0.091	0.197	0.012	7°	●	●	●	●
	06T204	0.276	0.110	0.098	0.236	0.016		●	●	●	●
	080304	0.382	0.125	0.114	0.323			●	●	●	●
	10T304	0.472	0.156	0.173	0.409			●	●	●	●
	12T306	0.563	0.156	0.220	0.504	0.024		●	●	●	●
	150408	0.701	0.187	0.220	0.622	0.031		●	●	●	●
200608	0.898	0.250	0.256	0.799	●				●		
 <p>Low Cutting Force / Deep Drilling</p>	ZCMT 050203SP	0.232	0.094	0.091	0.197	0.012	7°	●	●		●
	06T204SP	0.276	0.110	0.098	0.236	0.016		●	●		●
	080304SP	0.382	0.125	0.114	0.323			●	●		●
	10T304SP	0.472	0.156	0.173	0.409			●	●		●
	12T304SP	0.563	0.156	0.220	0.504	0.024		●	●		●
150406SP	0.701	0.187	0.220	0.622	0.024	●	●		●		
 <p>For Stainless Steel</p>	ZCMT 050203SU	0.232	0.094	0.091	0.197	0.012	7°	●	●		
	06T204SU	0.276	0.110	0.098	0.236	0.016		●	●		

Recommended Cutting Conditions 

Chipbreaker Selection Guide (ZCMT)

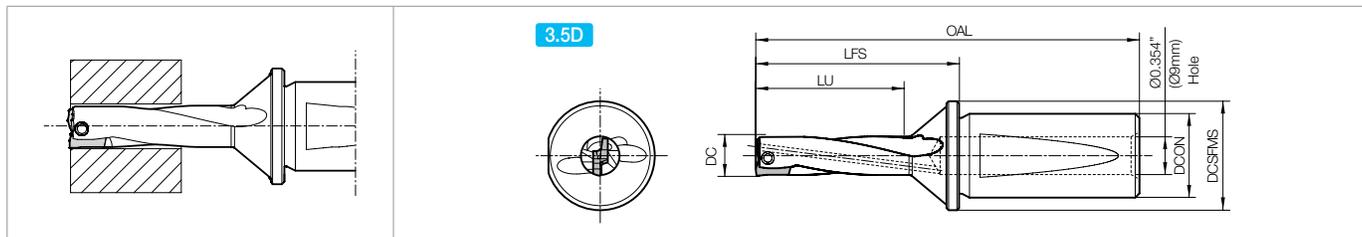
★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Insert Size Chipbreaker Cutting Depth	ZCMT05									ZCMT06									ZCMT08								
		Standard			SP			SU			Standard			SP			SU			Standard			SP					
		2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D	2D	3D	4D			
Low Carbon Steel		☆	☆	-	★	★	★	-	-	-	☆	☆	-	★	★	★	☆	☆	☆	☆	☆	-	★	★	★			
Carbon Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★			
Alloy Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★			
Tool Steel		★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★	-	-	-	★	★	☆	☆	☆	★			
Stainless Steel		☆	☆	-	★	★	★	☆	☆	-	-	-	-	☆	☆	☆	★	★	★	☆	☆	-	★	★	★			
Cast Iron		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆			
Aluminum Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★			
Brass		★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆	-	-	-	★	★	★	☆	☆	☆			
Titanium Alloy		☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★	-	-	-	☆	☆	☆	★	★	★			
Workpiece Material	Insert Size Chipbreaker Cutting Depth	ZCMT10					ZCMT12					ZCMT15					ZCMT20											
		Standard			SP		Standard			SP		Standard			SP		Standard											
		2D	3D	4D	2D	3D	2D	3D	4D	2D	3D	2D	3D	4D	2D	3D	2D	3D	4D									
Low Carbon Steel	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★	
Carbon Steel	★	★	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	
Alloy Steel	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	
Tool Steel	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	
Stainless Steel	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	☆	☆	-	-	★	★	★	★	★	★	★	
Cast Iron	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	
Aluminum Alloy	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	
Brass	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	
Titanium Alloy	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	☆	☆	☆	☆	★	★	★	★	★	★	★	

- Standard chipbreakers (without symbol) may function better with interrupted cutting.
- When machining aluminum, chips become long and difficult to discharge at depths over 2D.

Inserts are sold in 10 piece boxes

DRS (Drilling Depth: 3.5 x DC)



Toolholder Dimensions - 3.5D (Metric Size / Inch Shank Size)

Part Number	Stock	No. of Inserts	Unit	Dimensions						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66
				DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench		
S75 -DRS10035	●	1	inch	0.394 (10.0mm)	3.602	1.909	1.378	0.75	1.023	+0.008	SB-2080TR	FT-6	-	DS100
-DRS10537	●			0.413 (10.5mm)	3.657	1.964	1.457	0.75	1.023	+0.008				DS105
-DRS11038	●			0.433 (11.0mm)	3.759	2.066	1.516	0.75	1.023	+0.008				DS110
-DRS11540	●			0.453 (11.5mm)	3.828	2.135	1.594	0.75	1.023	+0.008	SB-2290TR	-	DT-7	DS115
-DRS12042	●			0.472 (12.0mm)	3.898	2.205	1.654	0.75	1.023	+0.016	SB-25100TR			DS120
-DRS12544	●			0.492 (12.5mm)	3.967	2.274	1.732	0.75	1.023	+0.008	SB-25100TR			DS120
S20 -DRS10035	△	1	mm	10.0	92	49	35.0	20	26	+0.2	SB-2080TR	FT-6	-	DS100
-DRS10336	△			10.3	92	49	36.0			+0.1				DS105
-DRS10537	△			10.5	93	50	37.0			+0.2				DS110
-DRS11038	△			11.0	96	53	38.5			+0.2	SB-2290TR	DS115		
-DRS11540	△			11.5	97	54	40.5			+0.2	SB-25100TR	DS120		
-DRS12042	△			12.0	99	56	42.0			+0.4	SB-25100TR	DS120		
-DRS12544	△			12.5	101	58	44.0			+0.2	SB-25100TR	DS120		

Adjustable Sleeve SHEM [K97](#) Troubleshooting [K95](#)

Cutting Conditions by Application

(Workpiece Material: 1049)

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Concave Surface	Existing Hole	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	260	260	Not Recommended	Not Recommended	260	Not Recommended	Not Available
f (ipr)	0.0031	0.0016	Not Recommended	Not Recommended	Concave Surface: 0.0016 Once drill is fully engaged: 0.0031	Not Recommended	Not Available
Internal Coolant	Yes	Yes	-	-	Yes	-	-

DRS - Recommended Cutting Conditions (with Coolant)

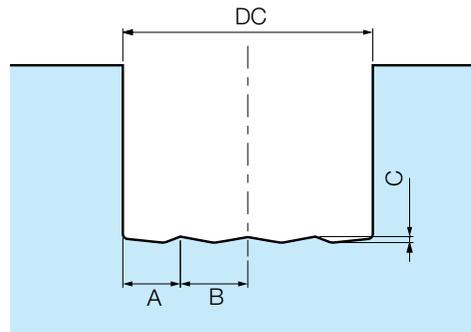
Workpiece Material	Recommended Grade (sfm)		Feed Rate (ipr)
	PR1230	PR1210	
Low Carbon Steel	★ 270-330	-	0.0024
Carbon Steel	★ 270-330	-	0.003-0.004
Alloy Steel	★ 270	-	0.0016-0.0024
Mold Steel	★ 270	-	0.0016-0.0024
Stainless Steel (Austenitic)	★ 230-270	-	0.002-0.0024
Gray Cast Iron	-	★ 80-100	0.003-0.004

★ : 1st Recommendation ☆ : 2nd Recommendation

- Apply a sufficient amount of coolant.
- If cutting speed is decreased too much from above condition, chip evacuation will deteriorate.
If the feed rate is increased too much from above condition, inner edge chip evacuation will deteriorate.
If the feed rate is decreased too much from above condition, outer edge chip evacuation will deteriorate.
- If chips become long and are entangled with the tool when low carbon steel cutting, increase the cutting speed to 400-500 SFM.
If this doesn't solve the problem, try peck feeding.
[How to peck feed]
(1) Cut .04-.08 in (2) Return .004 in (3) Repeat (1) and (2)

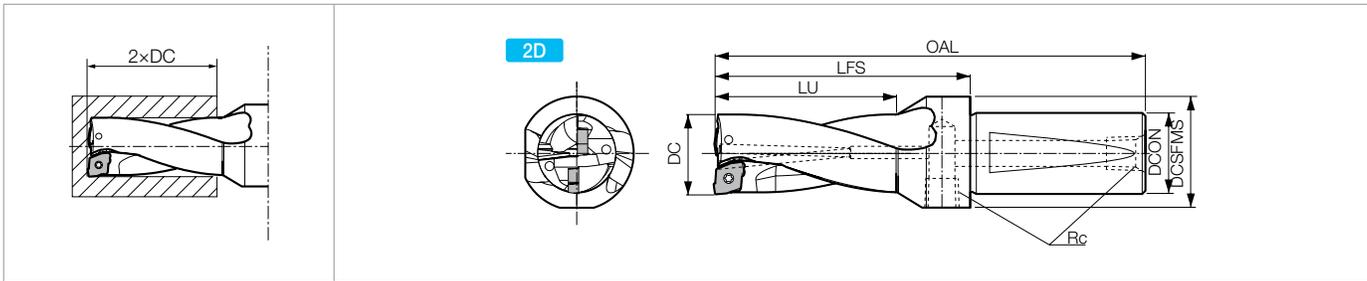
DRS - Hole Bottom Shape (inch)

DC	A	B	C
0.394	0.087	0.110	0.008
0.402	0.087	0.114	0.008
0.406	0.091	0.114	0.008
0.413	0.091	0.118	0.008
0.433	0.094	0.122	0.008
0.453	0.098	0.126	0.008
0.472	0.110	0.126	0.012
0.492	0.114	0.130	0.016



A
B
C
D
E
F
G
H
J
K
M
N
P
R
T

DRZ (Drilling Depth: 2 x DC)



Toolholder Dimensions - 2D (Inch Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)							Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66					
			DC	OAL	LFS	LU	DCON	DCSFMS	Rc		Insert Screw	Wrench	Plug						
S75 -DRZ5621125-05G	●	2	0.562	3.87	2.18	1.125	0.75	1.06	1/8 NPT	+0.020	SB-2045TR	FT-6	GP-1N	ZCMT050203 ZCMT050203SP ZCMT050203SU					
S100 -DRZ6251250-06G	●	2	0.625	4.52	2.39	1.250	1.00	1.26	1/8 NPT	+0.043	SB-2260TR	DT-7	GP-1N	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU					
-DRZ6561312-06G	●		0.656	4.52	2.39	1.312				+0.034									
-DRZ6881375-06G	●		0.688	4.56	2.43	1.375				+0.027									
-DRZ7501500-06G	●		0.750	4.73	2.61	1.500				+0.020									
-DRZ8121625-06G	●		0.812	4.93	2.81	1.625				+0.014									
-DRZ8751750-08G	●	2	0.875	5.02	2.90	1.750	1.30	1/8 NPT	+0.055	SB-2570TR	DT-8	GP-1N	ZCMT080304 ZCMT080304SP						
-DRZ9381875-08G	●		0.938	5.17	3.05	1.875	1.30		+0.043										
-DRZ10002000-08G	●		1.000	5.24	3.11	2.000	1.38		+0.028										
-DRZ10622125-10G	●	2	1.062	5.67	3.54	2.125	1.25	1.65	1/4 NPT	+0.098	SB-4085TR	DT-15	GP-2N	ZCMT10T304 ZCMT10T304SP					
-DRZ11252250-10G	●		1.125	5.74	3.62	2.250				1.65					+0.073				
-DRZ11882375-10G	●		1.188	5.86	3.74	2.375				1.77					+0.067				
-DRZ12502500-10G	●		1.250	5.92	3.79	2.500				1.77					+0.047				
S125 -DRZ13122625-12G	●		2	1.312	6.82	4.10				2.625					1.25	2.17	1/4 NPT	+0.110	SB-5085TR	DT-20	GP-2N	ZCMT12T306 ZCMT12T304SP
-DRZ13752750-12G	●	1.375		6.98	4.27	2.750	+0.094												
-DRZ14382875-12G	●	1.438		7.07	4.35	2.875	+0.078												
-DRZ15003000-12G	●	1.500		7.19	4.47	3.000	+0.067												
-DRZ15623125-12G	●	1.562		7.29	4.57	3.125	+0.047												
-DRZ16253250-15G	●	1.625		7.34	4.62	3.250	+0.150	1/4 NPT	SB-5085TR	DT-20	GP-2N	ZCMT150408 ZCMT150406SP							
-DRZ16883375-15G	●	1.688		7.49	4.78	3.375	+0.138												
-DRZ17503500-15G	●	1.750		7.57	4.85	3.500	+0.122												
-DRZ18123625-15G	●	1.812		7.78	5.06	3.625	+0.106												
-DRZ18753750-15G	●	1.875		7.97	5.26	3.750	+0.087												
-DRZ19383875-15G	●	1.938	8.05	5.34	3.875	+0.070													
-DRZ20004000-15G	●	2.000	8.05	5.34	4.000	+0.055													

● When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (2D)

DC	Hole Diameter Tolerance (in)
Ø0.562" - Ø1.000"	+0.008 / -0.004
Ø1.062" - Ø1.562"	+0.010 / -0.006
Ø1.625" - Ø2.000"	+0.012 / -0.008

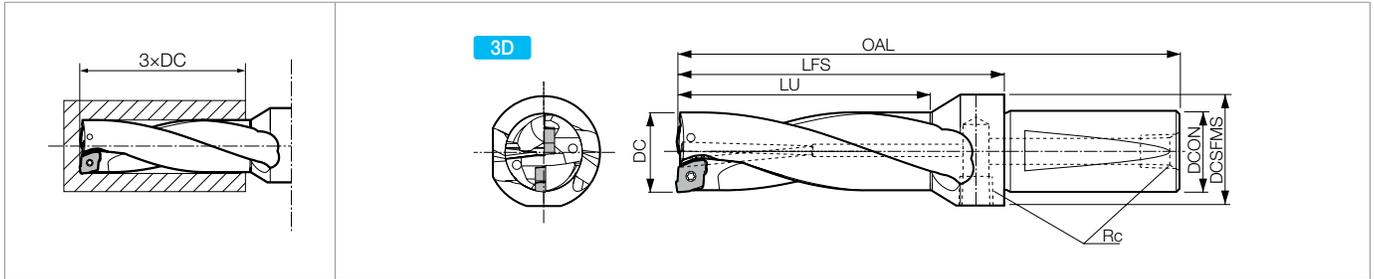
The above values are estimates. These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K82](#)

Adjustable Sleeve ASL [K96](#)

Troubleshooting [K95](#)

DRZ (Drilling Depth: 3 x DC)



Toolholder Dimensions - 3D (Inch Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)						Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66	
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug
S75 -DRZ5621687-05G	●	2	0.562	4.42	2.72	1.687	0.75	1.06	1/8 NPT	+0.020	SB-2045TR	FT-6	GP-1N	ZCMT050203 ZCMT050203SP ZCMT050203SU
S100 -DRZ6251875-06G	●	2	0.625	5.15	3.02	1.875	1.00	1.26	1/8 NPT	+0.043	SB-2260TR	DT-7	GP-1N	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
-DRZ6561969-06G	●		0.656	5.15	3.02	1.969				+0.034				
-DRZ6882062-06G	●		0.688	5.23	3.10	2.062				+0.027				
-DRZ7502250-06G	●		0.750	5.48	3.35	2.250				+0.020				
-DRZ8122438-06G	●		0.812	5.76	3.64	2.438				+0.014				
-DRZ8752625-08G	●	2	0.875	5.77	3.65	2.625	1.30	1/8 NPT	+0.055	SB-2570TR	DT-8	GP-1N	ZCMT080304 ZCMT080304SP	
-DRZ9382814-08G	●		0.938	5.89	3.76	2.814	1.30		+0.043					
-DRZ10003000-08G	●		1.000	6.11	3.98	3.000	1.38		+0.028					
-DRZ10623187-10G	●	2	1.062	6.81	4.49	3.187	1.25	1/4 NPT	+0.098	SB-4085TR	DT-15	GP-2N	ZCMT10T304 ZCMT10T304SP	
-DRZ11253375-10G	●		1.125	6.92	4.60	3.375			1.65					+0.073
-DRZ11883562-10G	●		1.188	7.12	4.80	3.562			1.77					+0.067
-DRZ12503750-10G	●		1.250	7.22	4.89	3.750			1.77					+0.047
S125 -DRZ13123938-12G	●	2	1.312	8.00	5.28	3.938	1.25	1/4 NPT	+0.110	SB-5085TR	DT-20	GP-2N	ZCMT12T306 ZCMT12T304SP	
-DRZ13754125-12G	●		1.375	8.24	5.53	4.125			+0.094					
-DRZ14384312-12G	●		1.438	8.37	5.65	4.312			+0.078					
-DRZ15004500-12G	●		1.500	8.57	5.85	4.500			+0.067					
-DRZ15624688-12G	●		1.562	8.69	5.97	4.688			+0.047					
-DRZ16254875-15G	●	2	1.625	8.83	6.11	4.875	1.25	1/4 NPT	+0.150	SB-5085TR	DT-20	GP-2N	ZCMT150408 ZCMT150406SP	
-DRZ16885062-15G	●		1.688	8.93	6.21	5.062			2.17					+0.138
-DRZ17505250-15G	●		1.750	9.18	6.47	5.250			+0.122					
-DRZ18125438-15G	●		1.812	9.47	6.75	5.438			2.36					+0.106
-DRZ18755625-15G	●		1.875	9.65	6.93	5.625			+0.087					
-DRZ19385812-15G	●		1.938	9.86	7.15	5.812			+0.070					
-DRZ20006000-15G	●	2.000	9.88	7.17	6.000	+0.055								

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

DC	Hole Diameter Tolerance (in)
Ø0.562" - Ø1.000"	+0.008 / -0.004
Ø1.062" - Ø1.562"	+0.010 / -0.006
Ø1.625 - Ø2.000"	+0.012 / -0.008

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

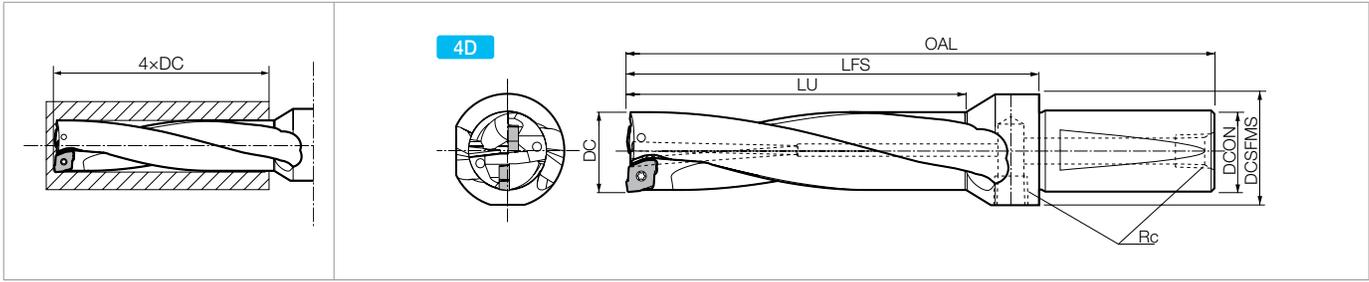
Recommended Cutting Conditions [K82](#)

Adjustable Sleeve ASL [K96](#)

Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth: 4 x DC)



Toolholder Dimensions - 4D (Inch Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)						Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66	
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug
S75 -DRZ5622250-05G	●	2	0.562	5.77	3.27	2.25	0.75	1.06	1/8 NPT	+0.020	SB-2045TR	FT-6	GP-1N	ZCMT050203 ZCMT050203SP ZCMT050203SU
S100 -DRZ6252500-06G	●	2	0.625	6.65	3.65	2.50	1.00	1.26	1/8 NPT	+0.043	SB-2260TR	DT-7	GP-1N	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU
-DRZ6882750-06G	●		0.688	6.74	3.74	2.75				+0.027				
-DRZ7503000-06G	●		0.750	7.07	4.07	3.00				+0.020				
-DRZ8123250-06G	●		0.812	7.39	4.39	3.25				+0.014				
-DRZ8753500-08G	●	2	0.875	7.56	4.56	3.50	1.30	1.38	1/8 NPT	+0.055	SB-2570TR	DT-8	GP-1N	ZCMT080304 ZCMT080304SP
-DRZ9383750-08G	●		0.938	7.77	4.77	3.75				+0.043				
-DRZ10004000-08G	●		1.000	8.06	5.06	4.00				+0.028				
S125 -DRZ10624250-10G	●	2	1.062	8.55	5.55	4.25	1.25	1.65	1/4 NPT	+0.098	SB-4085TR	DT-15	GP-2N	ZCMT10T304 ZCMT10T304SP
-DRZ11254500-10G	●		1.125	8.84	5.84	4.50				+0.073				
-DRZ11884750-10G	●		1.188	8.98	5.98	4.75				+0.067				
-DRZ12505000-10G	●		1.250	9.30	6.30	5.00				+0.047				
S125 -DRZ13125250-12G	●	2	1.312	9.58	6.58	5.25	1.25	2.17	1/4 NPT	+0.110	SB-5085TR	DT-20	GP-2N	ZCMT12T306 ZCMT12T304SP
-DRZ13755500-12G	●		1.375	9.91	6.91	5.50				+0.094				
-DRZ1438750-12G	●		1.438	10.07	7.07	5.75				+0.078				
-DRZ15006000-12G	●		1.500	10.35	7.35	6.00				+0.067				
-DRZ15626250-12G	●		1.562	10.50	7.50	6.25				+0.047				
S125 -DRZ16256500-15G	●	2	1.625	10.73	7.73	6.50	1.25	2.17	1/4 NPT	+0.150	SB-5085TR	DT-20	GP-2N	ZCMT150408 ZCMT150406SP
S150 -DRZ16886750-15G	●	2	1.688	11.37	7.87	6.75	1.50	2.17	1/4 NPT	+0.138	SB-5085TR	DT-20	GP-2N	ZCMT150408 ZCMT150406SP
-DRZ17507000-15G	●		1.750	11.70	8.20	7.00				+0.122				
-DRZ18127250-15G	●		1.812	12.06	8.56	7.25				+0.106				
-DRZ18757500-15G	●		1.875	12.28	8.78	7.50				+0.087				
-DRZ19387750-15G	●		1.938	12.58	9.08	7.75				+0.070				
-DRZ20008000-15G	●		2.000	12.63	9.13	8.00				+0.055				

• When offset machining, reduce feed rate to 0.0024 ipr or less

Hole Diameter Tolerance (4D)

DC	Hole Diameter Tolerance (in)
Ø0.562" - Ø1.000"	+0.010 / -0.004
Ø1.062" - Ø1.562"	+0.012 / -0.006
Ø1.625" - Ø2.000"	+0.014 / -0.008

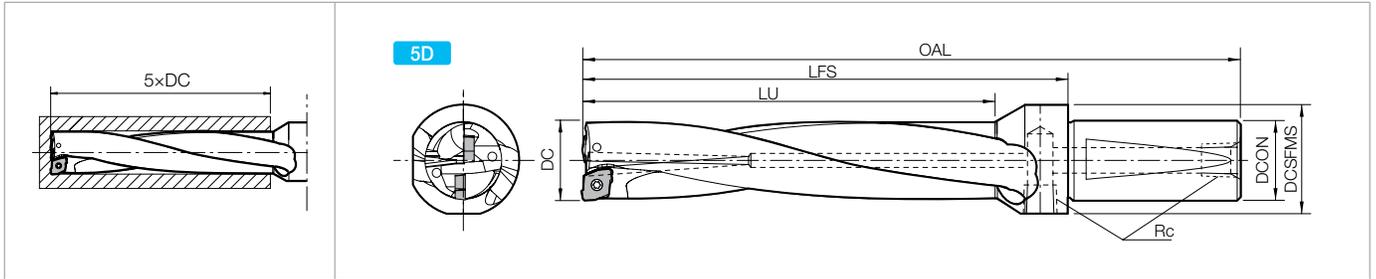
The above values are estimates. These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K82](#)

Adjustable Sleeve ASL [K96](#)

Troubleshooting [K95](#)

DRZ (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Inch Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)						Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66					
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug				
S125 -DRZ10625310-10G	●	2	1.062	9.61	6.61	5.31	1.25	1.65	1/4 NPT	+0.098	SB-4085TR	DT-15	GP-2N	ZCMT10T304 ZCMT10T304SP				
-DRZ11255625-10G	●		1.125	9.97	6.97	5.63									1.77	1.65	1/4 NPT	+0.073
-DRZ11885940-10G	●		1.188	10.17	7.17	5.94													1.25	2.17	1/4 NPT	+0.067
-DRZ12506250-10G	●		1.250	10.55	7.55	6.25	1.50	2.36	1/4 NPT						+0.047			
-DRZ13126560-12G	●		1.312	10.89	7.89	6.56										1.25	2.17	1/4 NPT	+0.110
-DRZ13756875-12G	●		1.375	11.28	8.28	6.88	1.50	2.36	1/4 NPT						+0.094			
-DRZ14387190-12G	●		1.438	11.51	8.51	7.19										1.25	2.17	1/4 NPT	+0.078
-DRZ15007500-12G	●		1.500	11.85	8.85	7.50	1.50	2.36	1/4 NPT						+0.067			
-DRZ15627810-12G	●		1.562	12.07	9.07	7.81										1.25	2.17	1/4 NPT	+0.047
-DRZ16258125-15G	●	1.625	12.35	9.35	8.13	1.50	2.36	1/4 NPT	+0.150									
S150 -DRZ16888440-15G	●	1.688	13.05	9.55	8.44					1.25	2.17	1/4 NPT	+0.138					
-DRZ17508750-15G	●	1.750	13.45	9.95	8.75	1.50	2.36	1/4 NPT	+0.122									
-DRZ18129060-15G	●	1.812	13.87	10.37	9.06					1.25	2.17	1/4 NPT	+0.106					
-DRZ18759375-15G	●	1.875	14.15	10.65	9.38	1.50	2.36	1/4 NPT	+0.087									
-DRZ19389690-15G	●	1.938	14.51	11.01	9.69					1.25	2.17	1/4 NPT	+0.070					
-DRZ200010000-15G	●	2.000	14.63	11.13	10.00	1.50	2.36	1/4 NPT	+0.055									

• When offset machining, reduce feed rate to 0.0020 ipr or less

Hole Diameter Tolerance (5D)

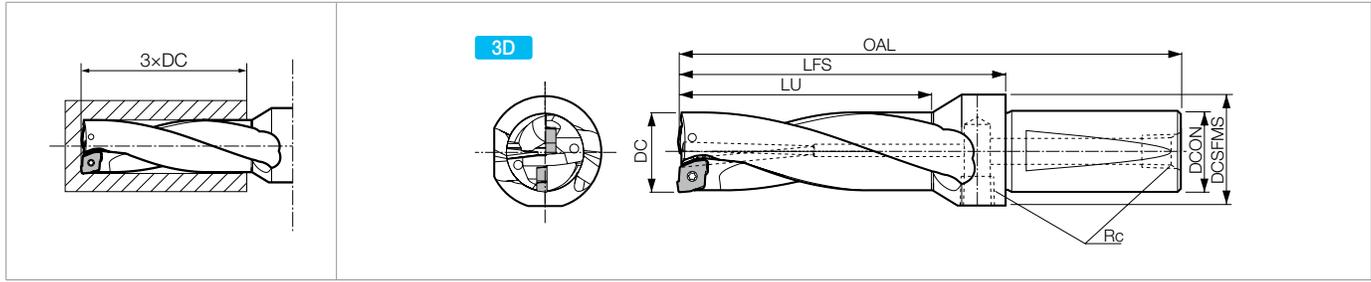
DC	Hole Diameter Tolerance (in)
Ø1.062" - Ø1.562"	+0.014 / -0.006
Ø1.625 - Ø2.000"	+0.016 / -0.008

The above values are estimates.
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Recommended Cutting Conditions [K82](#)
Adjustable Sleeve ASL [K96](#)
Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth: 3xDC)



Toolholder Dimensions - 3D (Metric Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)							Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66		
			DC		OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench FT DT		Plug	
			inch	mm												
S75 -DRZ1339-05G	●	2	0.512	13.0	4.27	2.58	1.54	0.75	1.06	1/8 NPT	+0.020	SB-2045TR	FT-6	GP-1N	ZCMT050203 ZCMT050203SP ZCMT050203SU	
-DRZ135405-05G	●		0.531	13.5	4.27	2.58	1.59									+0.020
-DRZ1442-05G	●		0.551	14.0	4.42	2.72	1.65									+0.020
-DRZ145435-05G	●		0.571	14.5	4.42	2.72	1.71									+0.020
-DRZ1545-05G	●		0.591	15.0	4.52	2.83	1.77									+0.020
-DRZ155465-05G	●		0.610	15.5	4.52	2.83	1.83									+0.020
S100 -DRZ1648-06G	●	2	0.630	16.0	5.15	3.02	1.89	1.00	1.26	1/8 NPT	+0.043	SB-2260TR	DT-7	GP-1N	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU	
-DRZ165495-06G	●		0.650	16.5	5.15	3.02	1.95									+0.035
-DRZ1751-06G	●		0.669	17.0	5.23	3.10	2.01									+0.031
-DRZ1854-06G	●		0.709	18.0	5.36	3.23	2.13									+0.024
-DRZ185555-06G	●		0.728	18.5	5.36	3.23	2.19									+0.024
-DRZ1957-06G	●		0.748	19.0	5.48	3.35	2.24									+0.020
-DRZ195585-06G	●		0.768	19.5	5.48	3.35	2.30									+0.020
-DRZ2060-06G	●		0.787	20.0	5.61	3.49	2.36									+0.020
-DRZ2163-06G	●		0.827	21.0	5.76	3.64	2.48									+0.008
-DRZ215645-08G	●		0.846	21.5	5.77	3.65	2.54									+0.071
-DRZ2266-08G	●	0.866	22.0	5.77	3.65	2.60	+0.063									
-DRZ225675-08G	●	0.886	22.5	5.77	3.65	2.66	+0.055									
-DRZ2369-08G	●	0.906	23.0	5.89	3.76	2.72	1.00	1/8 NPT	+0.051	SB-2570TR	DT-8	GP-1N	ZCMT080304 ZCMT080304SP			
-DRZ2472-08G	●	0.945	24.0	6.00	3.87	2.84	1.38	1/8 NPT	+0.043							
-DRZ2575-08G	●	0.984	25.0	6.11	3.98	2.95			+0.031							
-DRZ2678-08G	●	1.024	26.0	6.23	4.10	3.07			+0.024							

● When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

DC	Hole Diameter Tolerance (in)
Ø13mm - Ø26.0mm (Ø0.512" - Ø1.024")	+0.008 / -0.004

The above values are estimates. These values may change due to machine, workpiece, clamping power, and cutting conditions

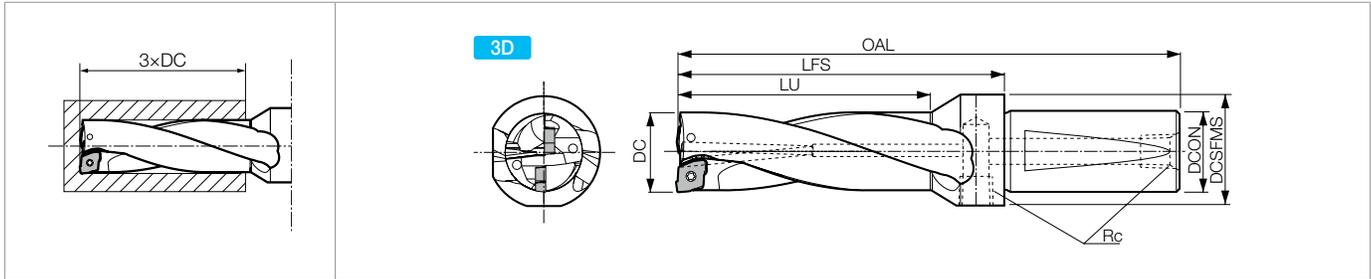
Recommended Cutting Conditions [K82](#)

Adjustable Sleeve ASL [K96](#)

Troubleshooting [K95](#)

DRZ (Drilling Depth: 3xDC)

Continued...



Toolholder Dimensions - 3D (Metric Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)							Max. Radial Offset (in)	Spare Parts			Applicable Insert See Page K66		
			DC		OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench FT DT		Plug	
			inch	mm												
S100 -DRZ2781-10G	●	2	1.063	27.0	6.81	4.49	3.19	1.00	1/4 NPT	+0.098	SB-4085TR	DT-15	GP-1N	ZCMT10T304 ZCMT10T304SP		
-DRZ2884-10G	●		1.102	28.0	6.92	4.60	3.31								1.65	+0.087
-DRZ2987-10G	●		1.142	29.0	7.04	4.72	3.43								+0.079	
-DRZ3090-10G	●		1.181	30.0	7.12	4.80	3.54								+0.067	
-DRZ3193-10G	●		1.220	31.0	7.22	4.89	3.66								1.77	+0.059
-DRZ3296-10G	●		1.260	32.0	7.36	5.04	3.78								+0.047	
S125 -DRZ3399-12G	●	2	1.299	33.0	8.00	5.28	3.90	1.25	2.17	+0.114	SB-5085TR	DT-20	GP-2N	ZCMT12T306 ZCMT12T304SP		
-DRZ34102-12G	●		1.338	34.0	8.15	5.44	4.02								+0.106	
-DRZ35105-12G	●		1.378	35.0	8.24	5.53	4.13								+0.094	
-DRZ36108-12G	●		1.418	36.0	8.37	5.65	4.25								+0.087	
-DRZ37111-12G	●		1.457	37.0	8.46	5.74	4.37								+0.075	
-DRZ38114-12G	●		1.496	38.0	8.57	5.85	4.49								+0.067	
-DRZ39117-12G	●		1.535	39.0	8.69	5.97	4.61								+0.055	
-DRZ40120-12G	●		1.575	40.0	8.74	6.03	4.72								+0.047	
-DRZ41123-15G	●	2	1.614	41.0	8.83	6.11	4.84	1.25	1/4 NPT	+0.157	SB-5085TR	DT-20	GP-2N	ZCMT150408 ZCMT150406SP		
-DRZ42126-15G	●		1.654	42.0	8.93	6.21	4.96								2.17	+0.146
-DRZ43129-15G	●		1.693	43.0	9.07	6.35	5.08								+0.138	
-DRZ44132-15G	●		1.732	44.0	9.18	6.47	5.20								+0.126	
-DRZ45135-15G	●		1.772	45.0	9.22	6.51	5.32								2.36	+0.118
-DRZ46138-15G	●		1.811	46.0	9.47	6.75	5.43								+0.106	
-DRZ47141-15G	●		1.850	47.0	9.65	6.93	5.55								+0.098	
-DRZ48144-15G	●		1.890	48.0	9.74	7.03	5.67								+0.087	
-DRZ49147-15G	●		1.929	49.0	9.86	7.15	5.79								+0.079	

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

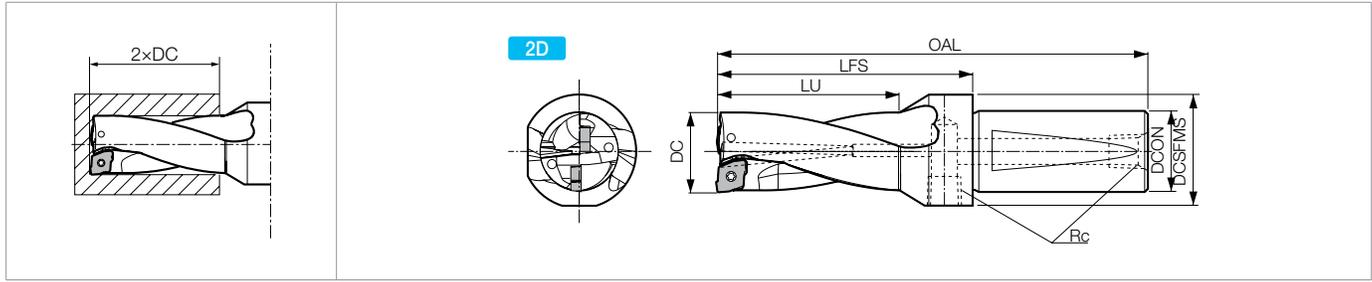
DC	Hole Diameter Tolerance (in)
Ø27mm - Ø40mm (Ø0.1.063" - Ø1.575")	+0.010 / -0.006
Ø41mm - Ø50mm (Ø1.614" - Ø1.968")	+0.012 / -0.008

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The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth: 2 x DC)



Toolholder Dimensions - 2D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66		
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug	
S20 -DRZ1326-05	●	2	13	95	52	26	20	27	Rc1/8	+0.5	SB-2045TR	FT-6	GP-1	ZCMT050203 ZCMT050203SP ZCMT050203SU	
-DRZ135270-05	●		13.5	95	52	27									+0.5
-DRZ1428-05	●		14	98	55	28									+0.5
-DRZ145290-05	●		14.5	98	55	29									+0.5
-DRZ1530-05	●		15	100	57	30									+0.5
-DRZ155310-05	●		15.5	100	57	31									+0.5
S25 -DRZ1632-06	●	2	16	115	61	32	25	32	Rc1/8	+1.1	SB-2260TR	DT-7	GP-1	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU	
-DRZ165330-06	●		16.5	115	61	33									+0.9
-DRZ1734-06	●		17	116	62	34									+0.8
-DRZ175350-06	●		17.5	116	62	35									+0.7
-DRZ1836-06	●		18	118	64	36									+0.6
-DRZ185370-06	●		18.5	118	64	37									+0.6
-DRZ1938-06	●		19	120	66	38									+0.5
-DRZ195390-06	●		19.5	120	66	39									+0.5
-DRZ2040-06	●		20	123	69	40									+0.5
-DRZ205410-06	●		20.5	125	71	41									+0.3
-DRZ2142-06	●		21	125	71	42									+0.2
-DRZ215430-08	●		21.5	128	74	43									+1.8
-DRZ2244-08	●		22	128	74	44									+1.6
-DRZ225450-08	●		22.5	128	74	45									+1.4
-DRZ2346-08	●	23	130	76	46	+1.3									
-DRZ235470-08	●	23.5	130	76	47	+1.2									
-DRZ2448-08	●	24	131	77	48	+1.1									
-DRZ245490-08	●	24.5	131	77	49	+0.9									
-DRZ2550-08	●	25	133	79	50	+0.8									
-DRZ255510-08	●	25.5	133	79	51	+0.7									
-DRZ2652-08	●	26	135	81	52	+0.6									
-DRZ265530-08	●	26.5	135	81	53	+0.5									
S32 -DRZ2754-10	●	2	27	149	90	54	32	42	Rc1/4	+2.5	SB-4085TR	DT-15	GP-2	ZCMT10T304 ZCMT10T304SP	
-DRZ275550-10	●		27.5	149	90	55									+2.3
-DRZ2856-10	●		28	151	92	56									+2.2
-DRZ285570-10	●		28.5	151	92	57									+2.1
-DRZ2958-10	●		29	153	94	58									+2.0
-DRZ295590-10	●		29.5	153	94	59									+1.8
-DRZ3060-10	●		30	154	95	60									+1.7
-DRZ305610-10	●		30.5	154	95	61									+1.5
-DRZ3162-10	●		31	155	96	62									+1.5
-DRZ315630-10	●		31.5	155	96	63									+1.3
-DRZ3264-10	●		32	158	99	64									+1.2
-DRZ325650-10	●		32.5	158	99	65									+1.0

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (2D)

DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.20 / -0.10
Ø27mm - Ø40mm	+0.25 / -0.15
Ø41mm - Ø59mm	+0.30 / -0.20

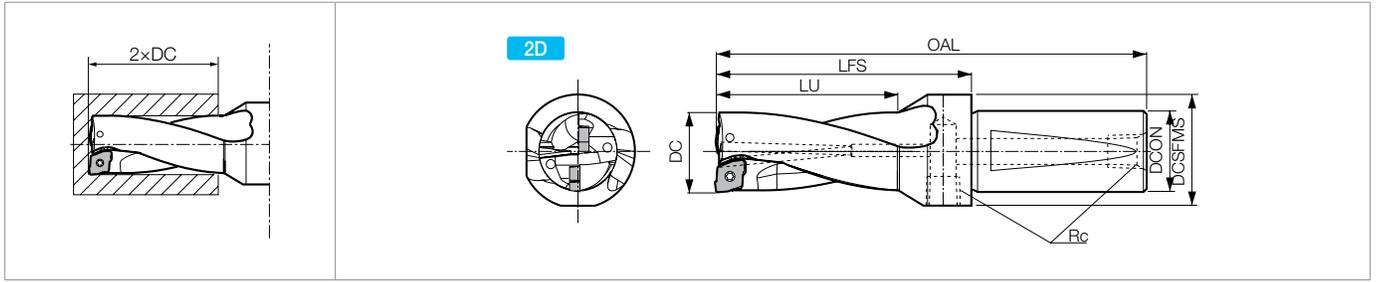
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DRZ (Drilling Depth: 2 x DC) Continued...



Toolholder Dimensions - 2D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)							Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66
			DC	OAL	LFS	LU	DCON	DCSFMS	Rc		Insert Screw	Wrench	Plug	
S40 -DRZ3366-12	●	2	33	173	104	66	40	55	Rc1/4	+2.9	SB-5085TR	DT-20	GP-2	ZCMT12T306 ZCMT12T304SP
-DRZ3468-12	●		34	176	107	68				+2.7				
-DRZ3570-12	●		35	177	108	70				+2.4				
-DRZ3672-12	●		36	180	111	72				+2.2				
-DRZ3774-12	●		37	181	112	74				+1.9				
-DRZ3876-12	●		38	183	114	76				+1.7				
-DRZ3978-12	●		39	185	116	78				+1.4				
-DRZ4080-12	●		40	185	116	80				+1.2				
-DRZ4182-15	●		41	186	117	82				+4.0				
-DRZ4284-15	●		42	188	119	84				+3.7				
-DRZ4386-15	●	2	43	190	121	86	40	55	Rc1/4	+3.5	SB-5085TR	DT-20	GP-2	ZCMT150408 ZCMT150406SP
-DRZ4488-15	●		44	192	123	88				+3.2				
-DRZ4590-15	●		45	192	123	90				+3.0				
-DRZ4692-15	●		46	198	129	92				+2.7				
-DRZ4794-15	●		47	201	132	94				+2.5				
-DRZ4896-15	●		48	203	134	96				+2.2				
-DRZ4998-15	●		49	204	135	98				+2.0				
-DRZ50100-15	●		50	204	135	100				+1.7				
-DRZ51102-15	●		51	205	136	102				+1.2				
-DRZ52104-15	●		52	205	136	104				+1.0				
-DRZ53106-15	●	2	53	208	139	106	40	60	Rc1/4	+0.7	SB-60120TR	DT-25	GP-2	ZCMT200608
-DRZ54108-20	●		54	214	145	108				+5.0				
-DRZ55110-20	●		55	215	146	110				+4.7				
-DRZ56112-20	●		56	217	148	112				+4.4				
-DRZ57114-20	●		57	219	150	114				+4.1				
-DRZ58116-20	●		58	221	152	116				+3.8				
-DRZ59118-20	●		59	223	154	118				+3.5				

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (2D)

DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.20 / -0.10
Ø27mm - Ø40mm	+0.25 / -0.15
Ø41mm - Ø59mm	+0.30 / -0.20

The above values are estimates.
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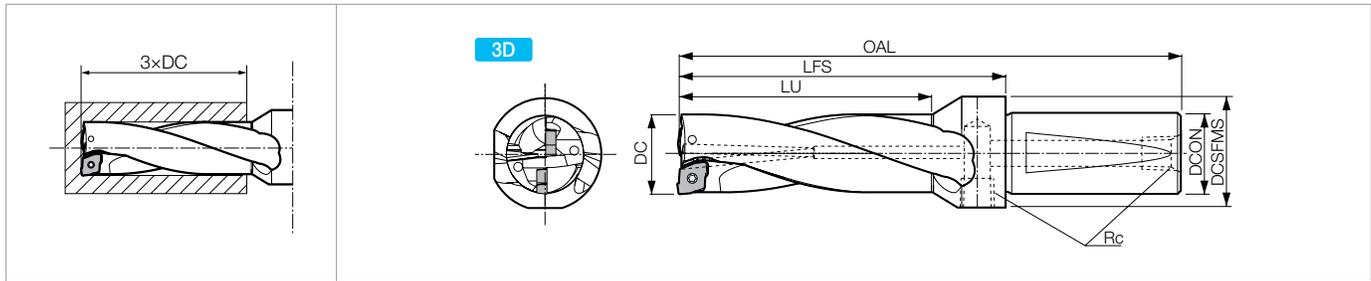
Recommended Cutting Conditions [K82](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth: 3 x DC)



Toolholder Dimensions - 3D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66		
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug	
S20 -DRZ1339-05	●	2	13	108	65	39	20	27	Rc1/8	+0.5	SB-2045TR	FT-6	GP-1	ZCMT050203 ZCMT050203SP ZCMT050203SU	
-DRZ135405-05	●		13.5	108	65	40.5									+0.5
-DRZ1442-05	●		14	112	69	42									+0.5
-DRZ145435-05	●		14.5	112	69	43.5									+0.5
-DRZ1545-05	●		15	115	72	45									+0.5
-DRZ155465-05	●		15.5	115	72	46.5									+0.5
S25 -DRZ1648-06	●	2	16	131	77	48	25	32	Rc1/8	+1.1	SB-2260TR	DT-7	GP-1	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU	
-DRZ165495-06	●		16.5	131	77	49.5									+0.9
-DRZ1751-06	●		17	133	79	51									+0.8
-DRZ175525-06	●		17.5	133	79	52.5									+0.7
-DRZ1854-06	●		18	136	82	54									+0.6
-DRZ185555-06	●		18.5	136	82	55.5									+0.6
-DRZ1957-06	●		19	139	85	57									+0.5
-DRZ195585-06	●		19.5	139	85	58.5									+0.5
-DRZ2060-06	●		20	143	89	60									+0.5
-DRZ205615-06	●		20.5	146	92	61.5									+0.3
-DRZ2163-06	●		21	146	92	63									+0.2
-DRZ215645-08	●		21.5	147	93	64.5									+1.8
-DRZ2266-08	●	22	147	93	66	+1.6									
-DRZ225675-08	●	22.5	147	93	67.5	+1.4									
-DRZ2369-08	●	23	150	96	69	+1.3									
-DRZ235705-08	●	23.5	150	96	70.5	+1.2									
-DRZ2472-08	●	24	152	98	72	+1.1									
-DRZ245735-08	●	24.5	152	98	73.5	+0.9									
-DRZ2575-08	●	25	155	101	75	+0.8									
-DRZ255765-08	●	25.5	155	101	76.5	+0.7									
-DRZ2678-08	●	26	158	104	78	+0.6									
-DRZ265795-08	●	26.5	158	104	79.5	+0.5									

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.20 / -0.10
Ø27mm - Ø40mm	+0.25 / -0.15
Ø41mm - Ø59mm	+0.30 / -0.20

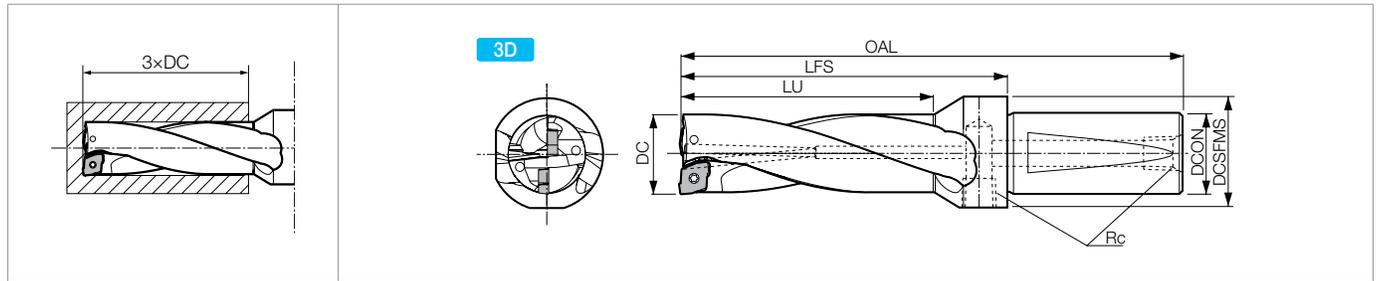
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Troubleshooting [K95](#)

DRZ (Drilling Depth: 3 x DC) Continued...



Toolholder Dimensions - 3D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66																																				
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug																																			
S32 -DRZ2781-10	●	2	27	173	114	81	32	42	Rc1/4	+2.5	SB-4085TR	DT-15	GP-2	ZCMT10T304 ZCMT10T304SP																																			
-DRZ275825-10	●		27.5	173	114	82.5									45	Rc1/4	+2.3																																
-DRZ2884-10	●		28	176	117	84												45	Rc1/4	+2.2																													
-DRZ285855-10	●		28.5	176	117	85.5															45	Rc1/4	+2.1																										
-DRZ2987-10	●		29	179	120	87																		45	Rc1/4	+2.0																							
-DRZ295885-10	●		29.5	179	120	88.5																					45	Rc1/4	+1.8																				
-DRZ3090-10	●		30	181	122	90																								45	Rc1/4	+1.7																	
-DRZ305915-10	●		30.5	181	122	91.5	32	55	Rc1/4						+1.5	SB-5085TR	DT-20	GP-2	ZCMT12T306 ZCMT12T304SP																														
-DRZ3193-10	●		31	183	124	93														55	Rc1/4	+1.5																											
-DRZ315945-10	●		31.5	183	124	94.5																	55	Rc1/4	+1.3																								
-DRZ3296-10	●		32	187	128	96																				55	Rc1/4	+1.2																					
-DRZ325975-10	●		32.5	187	128	97.5																							55	Rc1/4	+1.0																		
-DRZ3399-12	●		33	193	134	99																										55	Rc1/4	+2.9															
-DRZ34102-12	●		34	197	138	102																													55	Rc1/4	+2.7												
-DRZ35105-12	●	35	199	140	105	55				Rc1/4	+2.4																																						
-DRZ36108-12	●	36	203	144	108							55	Rc1/4	+2.2																																			
-DRZ37111-12	●	37	205	146	111																																	55	Rc1/4	+1.9									
-DRZ38114-12	●	38	208	149	114																																				55	Rc1/4	+1.7						
-DRZ39117-12	●	39	211	152	117																																							55	Rc1/4	+1.4			
-DRZ40120-12	●	40	212	153	120																																										55	Rc1/4	+1.2
-DRZ4123-15	●	41	224	155	123																																												
S40 -DRZ3399-12	●	33	203	134	99	55	Rc1/4	+2.7																																									
-DRZ34102-12	●	34	207	138	102				55	Rc1/4	+2.4																																						
-DRZ35105-12	●	35	209	140	105							55	Rc1/4	+2.2																																			
-DRZ36108-12	●	36	213	144	108										55	Rc1/4	+1.9																																
-DRZ37111-12	●	37	215	146	111													55	Rc1/4	+1.7																													
-DRZ38114-12	●	38	218	149	114																55	Rc1/4	+1.4																										
-DRZ39117-12	●	39	221	152	117																			55	Rc1/4	+1.2																							
-DRZ40120-12	●	40	222	153	120																						55	Rc1/4	+4.0																				
-DRZ42126-15	●	42	227	158	126																									55	Rc1/4	+3.7																	
-DRZ43129-15	●	43	230	161	129																												55	Rc1/4	+3.5														
-DRZ44132-15	●	44	233	164	132																															55	Rc1/4	+3.2											
-DRZ45135-15	●	45	234	165	135																																		55	Rc1/4	+3.0								
-DRZ46138-15	●	46	241	172	138																																					40	60	Rc1/4	+2.7	SB-5085TR	DT-20	GP-2	ZCMT150408 ZCMT150406SP
-DRZ47141-15	●	47	245	176	141	60	Rc1/4	+2.5																																									
-DRZ48144-15	●	48	248	179	144				60	Rc1/4	+2.2																																						
-DRZ49147-15	●	49	250	181	147							60	Rc1/4	+2.0																																			
-DRZ50150-15	●	50	251	182	150										60	Rc1/4	+1.7																																
-DRZ51153-15	●	51	254	185	153													60	Rc1/4	+1.2																													
-DRZ52156-15	●	52	257	188	156																60	Rc1/4	+1.0																										
-DRZ53159-15	●	53	260	191	159																			60	Rc1/4	+0.7																							
-DRZ54162-20	●	54	266	197	162																						60	Rc1/4	+5.0																				
-DRZ55165-20	●	55	269	200	165																									60	Rc1/4	+4.7																	
-DRZ56168-20	●	56	272	203	168																												60	Rc1/4	+4.4														
-DRZ57171-20	●	57	275	206	171																															60	Rc1/4	+4.1											
-DRZ58174-20	●	58	278	209	174																																		60	Rc1/4	+3.8								
-DRZ59177-20	●	59	281	212	177																																												

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.20 / -0.10
Ø27mm - Ø40mm	+0.25 / -0.15
Ø41mm - Ø59mm	+0.30 / -0.20

Recommended Cutting Conditions [K82](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

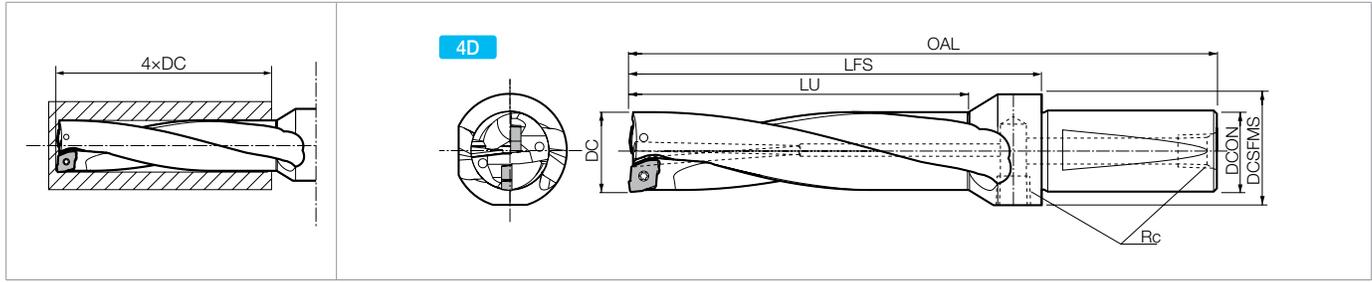
The above values are estimates. These values may change due to machine, workpiece, clamping power, and cutting conditions

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRZ (Drilling Depth: 4 x DC)



Toolholder Dimensions - 4D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66		
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug	
S20 -DRZ1352-05	●	2	13	121	78	52	20	27	Rc1/8	+0.5	SB-2045TR	FT-6	GP-1	ZCMT050203 ZCMT050203SP ZCMT050203SU	
-DRZ135540-05	●		13.5	121	78	54									+0.5
-DRZ1456-05	●		14	126	83	56									+0.5
-DRZ145580-05	●		14.5	126	83	58									+0.5
-DRZ1560-05	●		15	130	87	60									+0.5
-DRZ155620-05	●		15.5	130	87	62									+0.5
S25 -DRZ1664-06	●	2	16	147	93	64	25	32	Rc1/8	+1.1	SB-2260TR	DT-7	GP-1	ZCMT06T204 ZCMT06T204SP ZCMT06T204SU	
-DRZ165660-06	●		16.5	147	93	66									+0.9
-DRZ1768-06	●		17	149	95	68									+0.8
-DRZ175700-06	●		17.5	149	95	70									+0.7
-DRZ1872-06	●		18	153	99	72									+0.6
-DRZ185740-06	●		18.5	153	99	74									+0.6
-DRZ1976-06	●		19	157	103	76									+0.5
-DRZ195780-06	●		19.5	157	103	78									+0.5
-DRZ2080-06	●		20	156	102	80									+0.5
-DRZ205820-06	●		20.5	161	107	82									+0.3
-DRZ2184-06	●		21	161	107	84									+0.2
-DRZ215860-08	●		21.5	169	115	86									+1.8
-DRZ2288-08	●	22	169	115	88	+1.6									
-DRZ225900-08	●	22.5	169	115	90	+1.4									
-DRZ2392-08	●	23	173	119	92	+1.3									
-DRZ235940-08	●	23.5	173	119	94	+1.2									
-DRZ2496-08	●	2	24	176	122	96	25	33	Rc1/8	+1.1	SB-2570TR	DT-8	GP-1	ZCMT080304 ZCMT080304SP	
-DRZ245980-08	●		24.5	176	122	98									+0.9
-DRZ25100-08	●		25	180	126	100									+0.8
-DRZ2551020-08	●		25.5	180	126	102									+0.7
-DRZ26104-08	●		26	184	130	104									+0.6
-DRZ2651060-08	●		26.5	184	130	106									+0.5

• When offset machining, reduce feed rate to 0.0024 ipr or less

Hole Diameter Tolerance (4D)

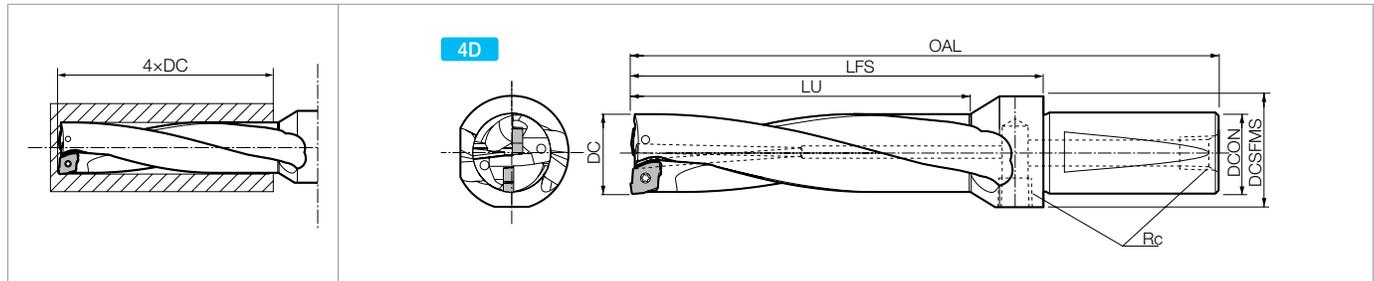
DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.25 / -0.10
Ø27mm - Ø40mm	+0.30 / -0.15
Ø41mm - Ø50mm	+0.35 / -0.20

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K82](#)
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K
DRILLING
DRA
DRC
DRV
DRS
DRZ
DRX
HOLESHOT
COREMASTER
COREDRILL
STINGER
DRILL
COUNTERBORE
COUNTERSINK

DRZ (Drilling Depth: 4 x DC) Continued...



Toolholder Dimensions - 4D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66										
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug									
S32 -DRZ27108-10	●	2	27	200	141	108	32	42	Rc1/4	+2.5	SB-4085TR	DT-15	GP-2	ZCMT10T304 ZCMT10T304SP									
-DRZ2751100-10	●		27.5	200	141	110									+2.3								
-DRZ28112-10	●		28	204	145	112									+2.2								
-DRZ2851140-10	●		28.5	204	145	114									+2.1								
-DRZ29116-10	●		29	208	149	116									+2.0								
-DRZ2951180-10	●		29.5	208	149	118									+1.8								
-DRZ30120-10	●		30	211	152	120									+1.7								
-DRZ3051220-10	●		30.5	211	152	122									+1.5								
-DRZ31124-10	●		31	214	155	124									+1.5								
-DRZ3151260-10	●		31.5	214	155	126									+1.3								
-DRZ32128-10	●	32	219	160	128	+1.2																	
-DRZ3251300-10	●	32.5	219	160	130	+1.0																	
-DRZ33132-12	●	2	33	226	167	132	32	55	Rc1/4	+2.9	SB-5085TR	DT-20	GP-2	ZCMT12T306 ZCMT12T304SP									
-DRZ34136-12	●		34	231	172	136									+2.7								
-DRZ35140-12	●		35	234	175	140									+2.4								
-DRZ36144-12	●		36	239	180	144									+2.2								
-DRZ37148-12	●		37	242	183	148									+1.9								
-DRZ38152-12	●		38	246	187	152									+1.7								
-DRZ39156-12	●		39	250	191	156									+1.4								
-DRZ40160-12	●		40	252	193	160									+1.2								
S40 -DRZ33132-12	●		2	33	236	167									132	40	55	Rc1/4	+2.9	SB-5085TR	DT-20	GP-2	ZCMT12T306 ZCMT12T304SP
-DRZ34136-12	●			34	241	172									136									+2.7
-DRZ35140-12	●	35		244	175	140	+2.4																
-DRZ36144-12	●	36		249	180	144	+2.2																
-DRZ37148-12	●	37		252	183	148	+1.9																
-DRZ38152-12	●	38		256	187	152	+1.7																
-DRZ39156-12	●	39		260	191	156	+1.4																
-DRZ40160-12	●	40		262	193	160	+1.2																
-DRZ41164-15	●	41		265	196	164	+4.0																
-DRZ42168-15	●	42		269	200	168	+3.7																
-DRZ43172-15	●	43	273	204	172	+3.5																	
-DRZ44176-15	●	44	277	208	176	+3.2																	
-DRZ45180-15	●	45	279	210	180	+3.0																	
-DRZ46184-15	●	46	287	218	184	+2.7																	
-DRZ47188-15	●	47	292	223	188	+2.5																	
-DRZ48192-15	●	48	296	227	192	+2.2																	
-DRZ49196-15	●	49	300	231	196	+2.0																	
-DRZ50200-15	●	50	301	232	200	+1.7																	

• When offset machining, reduce feed rate to 0.0024 ipr or less

Hole Diameter Tolerance (4D)

DC	Hole Diameter Tolerance (mm)
Ø13mm - Ø26.5mm	+0.25 / -0.10
Ø27mm - Ø40mm	+0.30 / -0.15
Ø41mm - Ø50mm	+0.35 / -0.20

The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

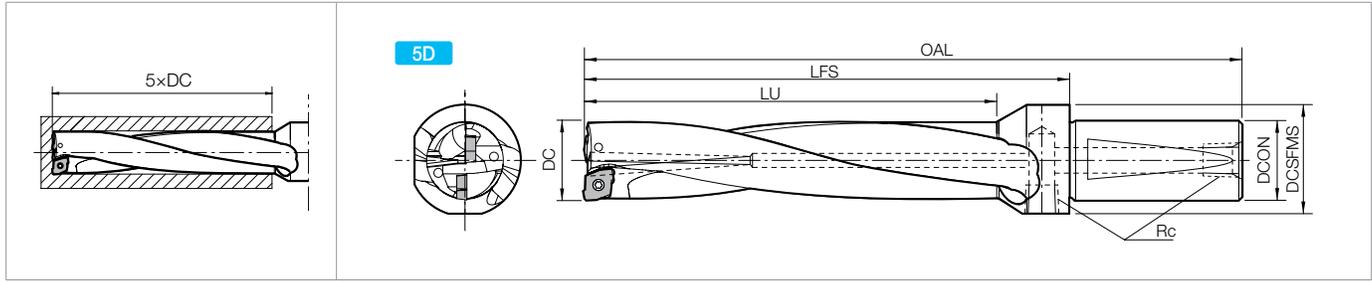
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INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
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 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

DRZ (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts			Applicable Insert See Page K66	
			DC	OAL	LFS	LU	DCON	DCSFMS		Rc	Insert Screw	Wrench		Plug
S32 -DRZ27135-10	●	2	27	227	168	135	32	42	Rc1/4	+2.5	SB-4085TR	DT-15	GP-2	ZCMT10T304 ZCMT10T304SP
-DRZ28140-10	●		28	232	173	140				+2.2				
-DRZ29145-10	●		29	237	178	145				+2.0				
-DRZ30150-10	●		30	241	182	150				+1.7				
-DRZ31155-10	●		31	245	186	155				+1.5				
-DRZ32160-10	●		32	251	192	160				+1.2				
S40 -DRZ33165-12	●	2	33	269	200	165	40	55	Rc1/4	+2.9	SB-5085TR	DT-20	GP-2	ZCMT12T306 ZCMT12T304SP
-DRZ34170-12	●		34	275	206	170				+2.7				
-DRZ35175-12	●		35	279	210	175				+2.4				
-DRZ36180-12	●		36	285	216	180				+2.2				
-DRZ37185-12	●		37	289	220	185				+1.9				
-DRZ38190-12	●		38	294	225	190				+1.7				
-DRZ39195-12	●		39	299	230	195				+1.4				
-DRZ40200-12	●		40	302	233	200				+1.2				
-DRZ41205-15	●		41	306	237	205				+4.0				
-DRZ42210-15	●		42	311	242	210				+3.7				
-DRZ43215-15	●	43	316	247	215	+3.5								
-DRZ44220-15	□	44	321	252	220	+3.2								
-DRZ45225-15	●	2	45	324	255	225	40	60	Rc1/4	+3.0	SB-5085TR	DT-20	GP-2	ZCMT150408 ZCMT150406SP
-DRZ46230-15	●		46	333	264	230				+2.7				
-DRZ47235-15	●		47	339	270	235				+2.5				
-DRZ48240-15	●		48	344	275	240				+2.2				
-DRZ49245-15	●		49	349	280	245				+2.0				
-DRZ50250-15	●		50	351	282	250				+1.7				

• When offset machining, reduce feed rate to 0.0020 ipr or less

Hole Diameter Tolerance (5D)

DC	Hole Diameter Tolerance (mm)
Ø27mm - Ø40mm	+0.35 / -0.15
Ø41mm - Ø50mm	+0.40 / -0.20

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K82](#)

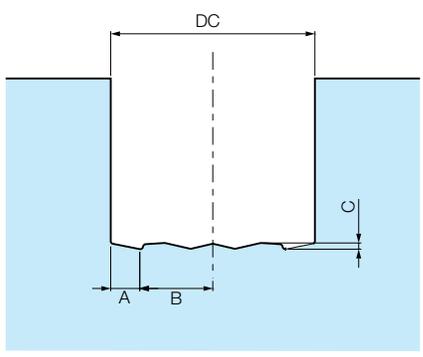
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Troubleshooting [K95](#)

- K DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER COREDRILL
- STINGER DRILL
- COUNTERBORE COUNTERSINK

DRZ Hole Bottom Shape (Common for 2D, 3D, 4D, and 5D Lengths)

DRZ Inch Diameters (in)				DRZ Metric Diameters (mm)							
DC	A	B	C	DC	A	B	C	DC	A	B	C
0.562	0.083	0.198	0.016	13.0	2.1	4.4	0.4	27.0	4.0	9.5	0.7
0.625	0.106	0.207	0.024	13.5		4.7		27.5		9.8	
0.656		0.222		14.0		4.9		28.0		10.0	
0.688		0.238		14.5		5.2	28.5	10.3			
0.750		0.269		15.0		5.4	29.0	10.5			
0.812	0.122	0.300	0.028	15.5		5.7	29.5	10.8			
0.875		0.316		0.024		16.0	5.3	30.0		11.0	
0.938		0.347		16.5		5.6	30.5	11.3			
1.000		0.378		17.0		5.8	31.0	11.5			
1.062	0.157	0.374	0.028	17.5		6.1	31.5	11.8			
1.125		0.406		18.0	6.3	32.0	12.0				
1.188		0.437		18.5	6.6	32.5	12.3				
1.250		0.468		19.0	6.8	33.0	12.3				
1.312	0.224	0.432	0.031	19.5	7.1	34.0	11.3				
1.375		0.464		20.0	7.3	35.0	11.8				
1.438		0.495		20.5	7.6	36.0	12.3				
1.500		0.526		21.0	7.8	37.0	12.8				
1.562	0.256	0.557	0.035	21.5	7.7	38.0	13.3				
1.625		0.557		22.0	7.9	39.0	13.8				
1.688		0.588		22.5	8.2	40.0	14.3				
1.750		0.619		23.0	8.4	41.0	14.5				
1.812	0.043	0.650	0.039	23.5	8.7	42.0	14.5				
1.875		0.682		24.0	8.9	43.0	15.0				
1.938		0.713		24.5	9.2	44.0	15.5				
2.000		0.744		25.0	9.4	45.0	16.0				
				25.5	9.7	46.0	16.5				
				26.0	9.9	47.0	17.0				
				26.5	10.2	48.0	17.5				
						49.0	18.0				
						50.0	18.5				
						51.0	19.0				
						52.0	19.5				
						53.0	20.0				
						54.0	18.5				
						55.0	19.0				
						56.0	19.5				
						57.0	20.0				
						58.0	20.5				
						59.0	21.0				



- Figures in chart are nominal sizes.
- (Varies from -0.004" (-0.1mm) to +0.004" (+0.1mm) depending on work material and cutting conditions)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
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GROOVING	G
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THREADING	J
DRILLING	K
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QUICK CHANGE TOOLING	N
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DRZ RECOMMENDED CUTTING CONDITIONS

◆ DRZ - Recommended Cutting Conditions (with Coolant)

Workpiece Material	Recommended Insert Grade / Cutting Speed (sfm)						Drill Dia. DC (in)	Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)			
	MEGACOAT			PVD Coated Carbide		Carbide			2D	3D	4D	5D
	PR1230 Standard, SP, SU	PR1225 Standard, SP, SU	PR1210 Standard	PR660 Standard, SP, SU	PR830 Standard, SP	KW10 Standard, SP						
Low Carbon Steel	★	☆	-	☆	☆	-	0.512-0.610	13-15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
	390 ~ 720	390 ~ 720	-	390 ~ 720	390 ~ 790	-	0.630-1.043	16-26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
	-	-	-	-	-	-	1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Carbon Steel	★	☆	-	☆	☆	-	0.512-0.610	13-15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
	330 ~ 520	330 ~ 520	-	330 ~ 520	390 ~ 590	-	0.630-1.043	16-26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
	-	-	-	-	-	-	1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Alloy Steel	★	☆	-	☆	☆	-	0.512-0.610	13-15.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
	260 ~ 460	260 ~ 460	-	260 ~ 460	330 ~ 520	-	0.630-1.043	16-26.5	0.0031 ~ 0.0059	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0020 ~ 0.0035
	-	-	-	-	-	-	1.969~	50~	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0047	-
Tool Steel	★	☆	-	☆	☆	-	0.512-0.610	13-15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0028	-
	230 ~ 430	230 ~ 430	-	230 ~ 430	260 ~ 490	-	0.630-1.043	16-26.5	0.0031 ~ 0.0047	0.0024 ~ 0.0039	0.0024 ~ 0.0031	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0028
	-	-	-	-	-	-	1.969~	50~	0.0031 ~ 0.0059	0.0024 ~ 0.0047	0.0024 ~ 0.0039	-
Stainless Steel (Austenitic)	☆	★	-	☆	☆	-	0.512-0.610	13-15.5	0.0016 ~ 0.0031	0.0016 ~ 0.0031	0.0012 ~ 0.0024	-
	200 ~ 390	200 ~ 390	-	200 ~ 390	230 ~ 460	-	0.630-1.043	16-26.5	0.0024 ~ 0.0039	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0024 ~ 0.0039	0.0024 ~ 0.0047	0.0016 ~ 0.0039	0.0016 ~ 0.0028
	-	-	-	-	-	-	1.969~	50~	0.0024 ~ 0.0047	0.0024 ~ 0.0047	0.0016 ~ 0.0039	-
Gray Cast Iron	-	-	★	-	-	☆	0.512-0.610	13-15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
	-	-	330 ~ 490	-	-	330 ~ 390	0.630-1.043	16-26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
	-	-	-	-	-	-	1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Nodular Cast Iron	-	-	★	-	-	☆	0.512-0.610	13-15.5	0.0031 ~ 0.0047	0.0031 ~ 0.0039	0.0024 ~ 0.0031	-
	-	-	260 ~ 390	-	-	260 ~ 330	0.630-1.043	16-26.5	0.0039 ~ 0.0071	0.0039 ~ 0.0059	0.0031 ~ 0.0047	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0039
	-	-	-	-	-	-	1.969~	50~	0.0039 ~ 0.0079	0.0039 ~ 0.0071	0.0031 ~ 0.0059	-
Non-ferrous Metals	-	-	-	-	-	★	0.512-0.610	13-15.5	0.0024 ~ 0.0047	0.0024 ~ 0.0039	0.0016 ~ 0.0031	-
	-	-	-	-	-	660 ~ 1970	0.630-1.043	16-26.5	0.0031 ~ 0.0071	0.0031 ~ 0.0059	0.0024 ~ 0.0059	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	0.0020 ~ 0.0039
	-	-	-	-	-	-	1.969~	50~	0.0031 ~ 0.0079	0.0031 ~ 0.0071	0.0024 ~ 0.0059	-
Titanium Alloys	-	-	-	-	-	★	0.512-0.610	13-15.5	0.0020 ~ 0.0024	0.0020 ~ 0.0024	0.0020 ~ 0.0024	-
	-	-	-	-	-	130 ~ 230	0.630-1.043	16-26.5	0.0020 ~ 0.0028	0.0020 ~ 0.0028	0.0020 ~ 0.0028	-
	-	-	-	-	-	-	1.063-1.969	27-50	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0016 ~ 0.0020
	-	-	-	-	-	-	1.969~	50~	0.0024 ~ 0.0031	0.0024 ~ 0.0031	0.0024 ~ 0.0031	-

• Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

● Cutting Conditions by Application

(Workpiece Material: 1049)

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Concave Surface	Existing Hole	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	390	390	390	390	390	390	Not Available
f (ipr)	0.004	0.002	0.002	0.002	Concave Surface: 0.002 Once drill is fully engaged: 0.004	*0.002	Not Available
Internal Coolant	Yes	Yes	Yes	Yes	Yes	Yes	Not Available

◆ Max. Depth for Drilling with External Coolant

In case of using external coolant system, chip evacuation will be bad.

Therefore D.O.C. should be measured within 1.5 times (1.5 x DC) of drill diameter (DC).

DRX MAGIC DRILL INSERTS

Applicable DRX Inserts

Usage Classification		Part Number	Dimensions (in)					Angle		MEGACOAT				Carbide	
			INSL	S	D1	W1	RE	AN	ANN	PR1230	PR1225	PR1210	GW15		
★ : 1st Recommendation ☆ : 2nd Recommendation (Steel; Non Heat Treated)															
P Carbon Steel / Alloy Steel															
Tool Steel															
M Stainless Steel															
K Cast Iron															
N Non-ferrous Metals															
Insert															
For Outer Edge / General Purpose		ZXMT 030203GM-E	0.252	0.091	0.094	0.189	0.012	7°	10°	●			●		
For Inner Edge / General Purpose		ZXMT 030203GM-I	0.232	0.091	0.094	0.189	0.012	7°	10°	●	●		●	●	
For Outer Edge / Tough Edge		ZXMT 030203GH-E	0.252	0.091	0.094	0.189	0.012	7°	10°	●					
For Outer Edge / Low Cutting Force		ZXMT 030203SM-E	0.252	0.091	0.094	0.189	0.012	7°	10°		●			●	
General Purpose		ZXMT 040203GM	0.244	0.102	0.094	0.201	0.012	13°	7°	●			●		
		05T203GM	0.287	0.109	0.098	0.217	0.012			●			●		
		06T204GM	0.339	0.114	0.110	0.252	0.016			●			●		
		070305GM	0.402	0.128	0.118	0.315	0.020			●			●		
		09T306GM	0.480	0.159	0.142	0.378	0.024			●			●		
		11T306GM	0.571	0.160	0.181	0.457	0.024			●			●		
		140408GM	0.709	0.192	0.224	0.567	0.031			●			●		
Tough Edge		ZXMT 040203GH	0.244	0.102	0.094	0.201	0.012	13°	7°	●					
		05T203GH	0.287	0.109	0.098	0.217	0.012			●					
		06T204GH	0.339	0.114	0.110	0.252	0.016			●					
		070305GH	0.402	0.128	0.118	0.315	0.020			●					
		09T306GH	0.480	0.159	0.142	0.378	0.024			●					
		11T306GH	0.571	0.160	0.181	0.457	0.024			●					
		140408GH	0.709	0.192	0.224	0.567	0.031			●					
Low Cutting Force / for Deep Drilling		ZXMT 040203SM	0.244	0.102	0.094	0.201	0.012	13°	7°		●			●	
		05T203SM	0.287	0.109	0.098	0.217	0.012				●			●	
		06T204SM	0.339	0.114	0.110	0.252	0.016				●			●	
		070305SM	0.402	0.128	0.118	0.315	0.020				●			●	
		09T306SM	0.480	0.159	0.142	0.378	0.024				●			●	
		11T306SM	0.571	0.160	0.181	0.457	0.024				●			●	
		140408SM	0.709	0.192	0.224	0.567	0.031				●			●	
170608SM	0.870	0.259	0.268	0.697	0.031		●			●					

Recommended Cutting Conditions K94

Inserts are sold in 10 piece boxes

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
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CUT-OFF	H
THREADING	J
DRILLING	K
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SPARE PARTS	P
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Chipbreaker Selection Guide (ZXMT)

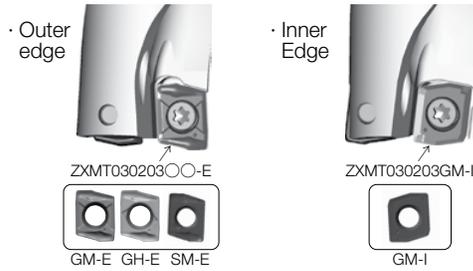
Workpiece Material	Insert Type	ZXMT											
		GM				GH				SM			
	Chipbreaker	2D	3D	4D	5D	2D	3D	4D	5D	2D	3D	4D	5D
Low Carbon Steel	Cutting Depth	☆	☆	☆	☆					★	★	★	★
Carbon Steel		★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	★
Alloy Steel		★	★	★	☆	☆	☆	☆	☆	☆	☆	☆	★
Tool Steel		☆	☆	☆	☆	★	★	★	★				
Stainless Steel										★	★	★	★
Cast Iron		★	★	★	★								
Aluminum Alloy										★	★	★	★
Brass										★	★	★	★
Titanium Alloy										★	★	★	★

★ : 1st Recommendation ☆ : 2nd Recommendation

How to Select ZXMT03

ZXMT03 type (Cutting Dia.: Ø12mm~Ø13mm)

- 1) For outer edge, please select "-E" insert from three different chipbreakers for each application.
- 2) For inner edge, please select "-I" insert (GM chipbreaker only).



Chipbreaker Advantages

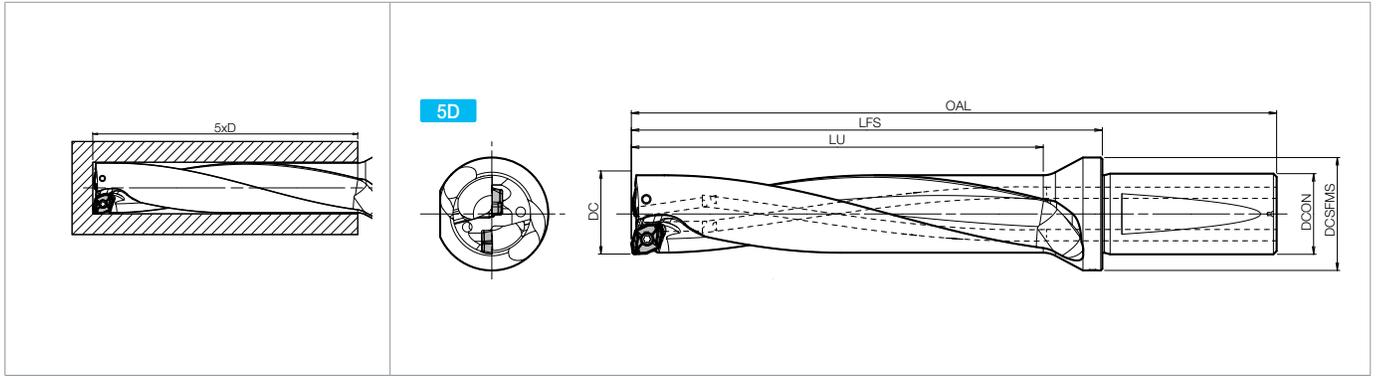
Chipbreaker		GM	GH	SM
Insert				
Advantages		1st. recommendation for carbon steel and alloy steel, 1st. recommendation for cast iron. Good balance of sharp cutting and cutting edge strength.	1st. recommendation for interrupted machining and hard materials. Cutting edge strength oriented design. Middle to high feed rates of steel machining, GM Chipbreaker alternative.	Suitable for sticky materials such as stainless steel and low carbon steel. Sharp cutting, prevents chattering. For low to medium feed rates of steel.
Outer Edge	Chipbreaker Cross-section			
	Chips from Outer Edge			
Inner Edge	Chipbreaker Cross-section			
	Chips from Inner Edge			
Workpiece Material		1049	1049	304

Identifying Magic Drill Tool Life

How to Judge Tool Life	Tool Life Indications
Tool Condition and Insert Wear	· When an insert is new, the holder is slightly bent to the side during cutting. (Therefore, the cutting diameter is slightly bigger during cutting). Once cutting is finished, the holder will return back to normal size. No tool marks will appear on the finished surface. (Although this depends on workpiece and cutting condition: during external machining slight tool mark might appear.)
	· When an insert is at the end of its tool life, Gradually the external corner part gets worn out, the holder does not bend slightly outwards - it starts to bend inwards. After the cutting is finished, the holder returns to the normal position. When taking off a holder under this condition the cutting edge of the insert creates external tool marks on the finished surface of the workpiece.
Checking Cutting Diameter	When cutting diameter is measured, suddenly it shows small diameter. In this case, a worn out insert can be the cause.
Checking the Surface on the Exit Side	If insert wear progresses, the burrs of penetrated hole entrance become bigger. This is a clear indication that the tool must be exchanged.
Variation of Cutting Noise	Light cutting noise at the beginning turns to vibration noise.
Variation of Vibration	As the end of tool life is getting closer, there is more vibration and the cutting noise changes. However, when machining smaller diameters these factors are difficult to detect.

K
 DRILLING
 DRA
 DRC
 DRV
 DRS
 DRZ
 DRX
 HOLESHOT
 COREMASTER
 COREDRILL
 STINGER
 DRILL
 COUNTERBORE
 COUNTERSINK

DRX (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Inch Diameter / Inch Shank)

Part Number	Stock	No. of Inserts	Dimensions (in)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw 	Wrench 	
S075 -DRX0562-5-04	●	2	0.562	5.34	3.65	2.81	0.75	1.06	+0.012	SB-2042TRG	DTM-6	ZXMT040203 □□
S100 -DRX0625-5-05	●	2	0.625	6.18	4.05	3.13	1.00	1.26	+0.028	SB-2045TR	DTM-6	ZXMT05T203 □□
-DRX0656-5-05	●		0.656	6.33	4.20	3.28			+0.020			
-DRX0688-5-05	●	2	0.688	6.49	4.37	3.44	1.00	1.26	+0.012	SB-2250TR	DTM-7	ZXMT06T204 □□
-DRX0750-5-06	●		0.750	6.72	4.59	3.75			+0.031			
-DRX0812-5-06	●	2	0.812	7.03	4.90	4.06	1.00	1.38	+0.016	SB-2570TR	DTM-8	ZXMT070305 □□
-DRX0875-5-07	●		0.875	7.32	5.20	4.38			+0.043			
-DRX0906-5-07	●	2	0.906	7.48	5.36	4.53	1.00	1.38	+0.035	SB-2570TR	DTM-8	ZXMT070305 □□
-DRX0938-5-07	●		0.938	7.64	5.51	4.69			+0.028			
-DRX0984-5-07	●	2	0.984	7.87	5.74	4.92	1.00	1.38	+0.016	SB-2570TR	DTM-8	ZXMT070305 □□
-DRX1000-5-07	●		1.000	7.95	5.82	5.00			+0.012			

• When offset machining, reduce feed rate to 0.0020 ipr or less

Hole Diameter Tolerance (5D)

DC	Hole Diameter Tolerance (in)
Ø0.562" - Ø1.000"	+0.012" / -0.004"

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

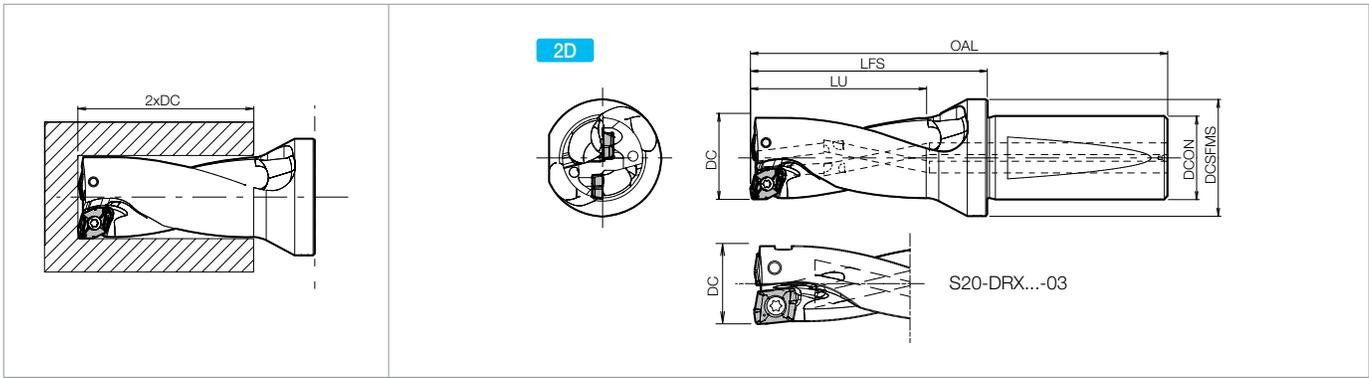
Recommended Cutting Conditions [K94](#)

Adjustable Sleeve ASL [K96](#)

Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
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THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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DRX (Drilling Depth: 2 x DC)



Toolholder Dimensions - 2D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)					Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83		
			DC	OAL	LFS	LU	DCON		DCSFMS	Insert Screw		Wrench	
S20 -DRX120M-2-03	△	2	12	88	45	24	20	27	+0.5	SB-2042TRG	DTM-6	Outer Edge ZXMT030203□□-E Inner Edge ZXMT030203GM-I	
-DRX125M-2-03	△		12.5	89	46	25							+0.4
-DRX130M-2-03	△		13	90	47	26							+0.3
-DRX135M-2-04	△	2	13.5	91	48	27	20	27	+0.5	SB-2042TRG	DTM-6	ZXMT040203□□	
-DRX140M-2-04	△		14	92	49	28							+0.4
-DRX145M-2-04	△		14.5	93	50	29							+0.3
-DRX150M-2-04	△		15	94	51	30							+0.2
S25 -DRX155M-2-05	△	2	15.5	109	55	31	25	32	+0.8	SB-2045TR	DTM-6	ZXMT05T203□□	
-DRX160M-2-05	△		16	110	56	32							+0.7
-DRX165M-2-05	△		16.5	111	57	33							+0.5
-DRX170M-2-05	△		17	112	58	34							+0.4
-DRX175M-2-05	△		17.5	113	59	35							+0.3
-DRX185M-2-06	△	2	18.5	112	58	37	25	32	+0.9	SB-2250TR	DTM-7	ZXMT06T204□□	
-DRX190M-2-06	△		19	113	59	38							+0.8
-DRX195M-2-06	△		19.5	114	60	39							+0.7
-DRX200M-2-06	△		20	115	61	40							+0.5
-DRX205M-2-06	△		20.5	116	62	41							+0.4
-DRX210M-2-06	△		21	117	63	42							+0.3
-DRX215M-2-06	△	21.5	118	64	43	+0.2							
-DRX220M-2-07	△	2	22	119	65	44	25	33	+1.2	SB-2570TR	DTM-8	ZXMT070305□□	
-DRX225M-2-07	△		22.5	120	66	45							+1.0
-DRX230M-2-07	△		23	121	67	46							+0.9
-DRX235M-2-07	△		23.5	122	68	47							+0.8
-DRX240M-2-07	△		24	123	69	48							+0.7
-DRX250M-2-07	△		25	125	71	50							+0.4
-DRX255M-2-07	△		25.5	126	72	51							+0.3
S32 -DRX270M-2-09	△	2	27	136	77	54	32	41	+1.6	SB-3080TR	DTM-10	ZXMT09T306□□	
-DRX280M-2-09	△		28	138	79	56							+1.3
-DRX290M-2-09	△		29	140	81	58							+1.1
-DRX300M-2-09	△		30	142	83	60							+0.8
-DRX310M-2-09	△		31	144	85	62							+0.6

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (2D)

DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.20 / -0.10
Ø27mm - Ø38mm	+0.25 / -0.15
Ø39mm - Ø60mm	+0.30 / -0.20

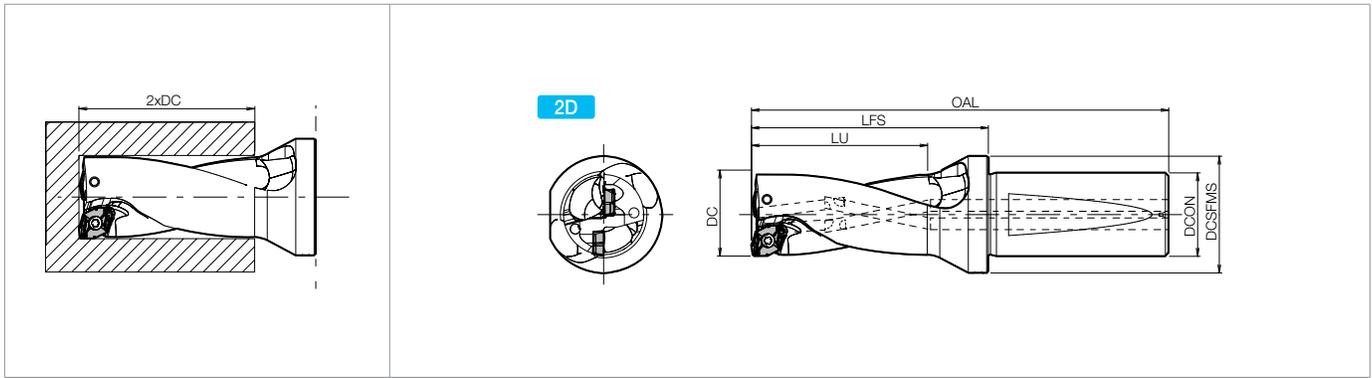
The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K94](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

■ DRX (Drilling Depth: 2 x DC) Continued...



● Toolholder Dimensions - 2D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S40 -DRX320M-2-11	△	2	32	169	100	64	40	54	+2.2	SB-4085TR	DTM-15	ZXMT11T306 □□
-DRX330M-2-11	△		33	171	102	66			+1.9			
-DRX340M-2-11	△		34	173	104	68			+1.7			
-DRX350M-2-11	△		35	175	106	70			+1.4			
-DRX360M-2-11	△		36	177	108	72			+1.2			
-DRX370M-2-11	△		37	179	110	74			+0.9			
-DRX380M-2-11	△		38	181	112	76			+0.7			
-DRX390M-2-14	△	2	39	179	110	78	40	54	+2.8	SB-5090TR	DT-20	ZXMT140408 □□
-DRX400M-2-14	△		40	181	112	80			+2.5			
-DRX410M-2-14	△		41	183	114	82			+2.3			
-DRX420M-2-14	△		42	185	116	84			+2.0			
-DRX450M-2-14	△		45	191	122	90			+1.3			
-DRX460M-2-14	△		46	193	124	92			+1.0			
-DRX470M-2-14	△		47	195	126	94			+0.8			
-DRX480M-2-17	△	2	48	194	125	96	40	59	+3.8	SB-60120TR	DT-25	ZXMT170608 □□
-DRX490M-2-17	△		49	196	127	98			+3.5			
-DRX500M-2-17	△		50	198	129	100			+3.3			
-DRX510M-2-17	△		51	200	131	102			+3.0			
-DRX520M-2-17	△		52	202	133	104			+2.8			
-DRX530M-2-17	△		53	204	135	106			+2.5			
-DRX540M-2-17	△		54	206	137	108			+2.3			
-DRX550M-2-17	△		55	208	139	110			+2.0			
-DRX560M-2-17	△		56	210	141	112			+1.8			
-DRX570M-2-17	△		57	212	143	114			+1.5			
-DRX580M-2-17	△		58	214	145	116			+1.3			
-DRX590M-2-17	△		59	216	147	118			+1.0			
-DRX600M-2-17	△	60	218	149	120	+0.8						

• When offset machining, reduce feed rate to 0.0031 ipr or less

● Hole Diameter Tolerance (2D)

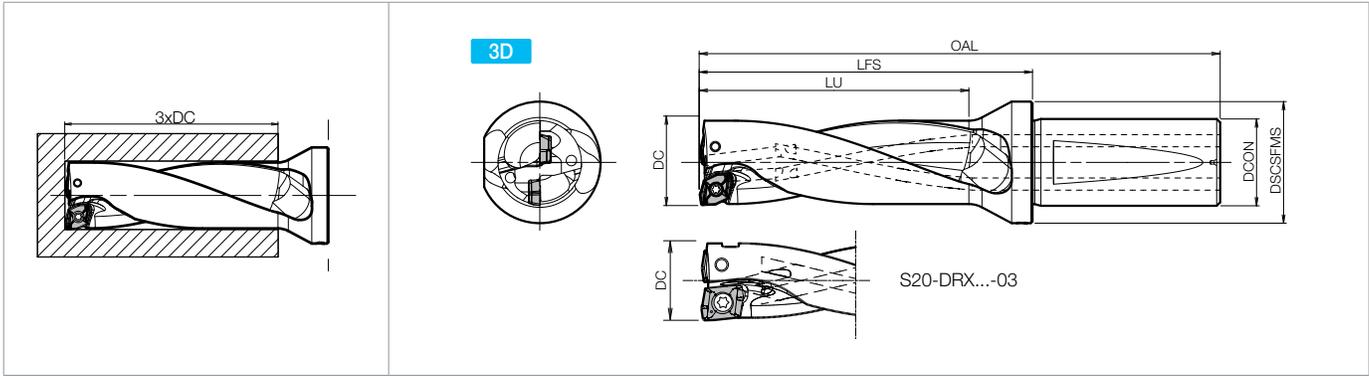
DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.20 / -0.10
Ø27mm - Ø38mm	+0.25 / -0.15
Ø39mm - Ø60mm	+0.30 / -0.20

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

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Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

INSERT GRADES	A
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DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRX (Drilling Depth: 3 x DC)



Toolholder Dimensions - 3D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20 -DRX120M-3-03	△	2	12	100	57	36	20	27	+0.5	SB-2042TRG	DTM-6	Outer Edge ZXMT030203□□-E Inner Edge ZXMT030203GM-I
-DRX125M-3-03	△		12.5	102	59	37.5			+0.4			
-DRX130M-3-03	△		13	103	60	39			+0.3			
-DRX135M-3-04	△	2	13.5	105	62	40.5	20	27	+0.5	SB-2042TRG	DTM-6	ZXMT040203□□
-DRX145M-3-04	△		14.5	108	65	43.5			+0.3			
-DRX150M-3-04	△		15	109	66	45			+0.2			
S25 -DRX155M-3-05	△	2	15.5	124	70	46.5	25	32	+0.8	SB-2045TR	DTM-6	ZXMT05T203□□
-DRX160M-3-05	△		16	126	72	48			+0.7			
-DRX165M-3-05	△		16.5	127	73	49.5			+0.5			
-DRX170M-3-05	△		17	129	75	51			+0.4			
-DRX175M-3-05	△		17.5	130	76	52.5			+0.3			
-DRX180M-3-05	△		18	132	78	54			+0.2			
-DRX185M-3-06	△	2	18.5	131	77	55.5	25	32	+0.9	SB-2250TR	DTM-7	ZXMT06T204□□
-DRX195M-3-06	△		19.5	134	80	58.5			+0.7			
-DRX200M-3-06	△		20	135	81	60			+0.5			
-DRX205M-3-06	△		20.5	137	83	61.5			+0.4			
-DRX210M-3-06	△		21	138	84	63			+0.3			
-DRX215M-3-06	△		21.5	140	86	64.5			+0.2			
-DRX225M-3-07	△	2	22.5	142	88	67.5	25	33	+1.0	SB-2570TR	DTM-8	ZXMT070305□□
-DRX230M-3-07	△		23	144	90	69			+0.9			
-DRX235M-3-07	△		23.5	145	91	70.5			+0.8			
-DRX240M-3-07	△		24	147	93	72			+0.7			
-DRX245M-3-07	△		24.5	148	94	73.5			+0.5			
-DRX250M-3-07	△		25	150	96	75			+0.4			
-DRX255M-3-07	△	2	25.5	151	97	76.5	32	41	+0.3	SB-3080TR	DTM-10	ZXMT09T306□□
-DRX260M-3-07	△		26	153	99	78			+0.2			
S32 -DRX265M-3-09	△		26.5	161	102	79.5			+1.7			
-DRX270M-3-09	△		27	163	104	81			+1.6			
-DRX275M-3-09	△		27.5	164	105	82.5			+1.5			
-DRX280M-3-09	△		28	166	107	84			+1.3			
-DRX285M-3-09	△	28.5	167	108	85.5	+1.2						
-DRX290M-3-09	△	2	29	169	110	87	+1.1	43	+0.8	+0.7	+0.5	
-DRX295M-3-09	△		29.5	170	111	88.5	+1.1					
-DRX300M-3-09	△		30	172	113	90	+0.8					
-DRX305M-3-09	△		30.5	173	114	91.5	+0.7					
-DRX315M-3-09	△		31.5	176	117	94.5	+0.5					

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.20 / -0.10
Ø26.5mm - Ø38mm	+0.25 / -0.15
Ø39mm - Ø60mm	+0.30 / -0.20

The above values are estimates.

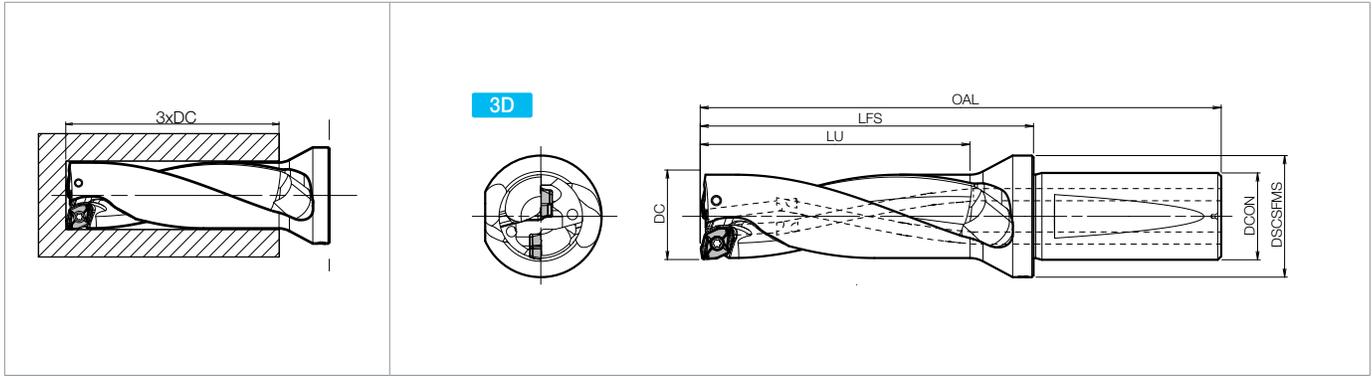
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K94](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

DRX (Drilling Depth: 3 x DC) Continued...



Toolholder Dimensions - 3D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)					Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83		
			DC	OAL	LFS	LU	DCON		DCSFMS	Insert Screw		Wrench	
S40 -DRX320M-3-11	△	2	32	201	132	96	40	54	+2.2	SB-4085TR	DTM-15	ZXMT11T306□□	
-DRX330M-3-11	△		33	204	135	99							+1.9
-DRX340M-3-11	△		34	207	138	102							+1.7
-DRX350M-3-11	△		35	210	141	105							+1.4
-DRX360M-3-11	△		36	213	144	108							+1.2
-DRX380M-3-11	△		38	219	150	114							+0.7
-DRX390M-3-14	△	2	39	218	149	117	40	54	+2.8	SB-5090TR	DT-20	ZXMT140408□□	
-DRX400M-3-14	△		40	221	152	120							+2.5
-DRX410M-3-14	△		41	224	155	123							+2.3
-DRX430M-3-14	△		43	230	161	129							+1.8
-DRX450M-3-14	△		45	236	167	135							+1.3
-DRX460M-3-14	△		46	239	170	138							+1.0
-DRX470M-3-14	△		47	242	173	141							+0.8
-DRX480M-3-17	△		48	242	173	144							+3.8
-DRX490M-3-17	△		49	245	176	147							+3.5
-DRX510M-3-17	△		51	251	182	153							+3.0
-DRX520M-3-17	△	2	52	254	185	156	40	59	+2.8	SB-60120TR	DT-25	ZXMT170608□□	
-DRX530M-3-17	△		53	257	188	159							+2.5
-DRX540M-3-17	△		54	260	191	162							+2.3
-DRX550M-3-17	△		55	263	194	165							+2.0
-DRX560M-3-17	△		56	266	197	168							+1.8
-DRX570M-3-17	△		57	269	200	171							+1.5
-DRX580M-3-17	△		58	272	203	174							+1.3
-DRX590M-3-17	△		59	275	206	177							+1.0
-DRX600M-3-17	△		60	278	209	180							+0.8

• When offset machining, reduce feed rate to 0.0031 ipr or less

Hole Diameter Tolerance (3D)

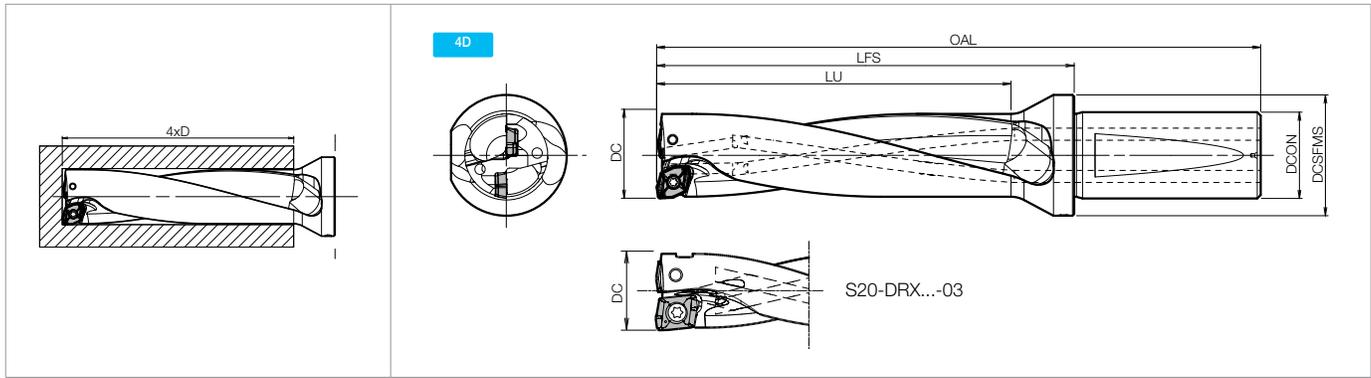
DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.20 / -0.10
Ø26.5mm - Ø38mm	+0.25 / -0.15
Ø39mm - Ø60mm	+0.30 / -0.20

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K94](#)
Adjustable Sleeve SHE [K96](#)
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INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRX (Drilling Depth: 4 x DC)



Toolholder Dimensions - 4D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20 -DRX120M-4-03	△	2	12	112	69	48	20	27	+0.5	SB-2042TRG	DTM-6	Outer Edge ZXMT030203□□-E Inner Edge ZXMT030203GM-I
-DRX125M-4-03	△		12.5	114	71	50			+0.4			
-DRX130M-4-03	△		13	116	73	52			+0.3			
-DRX135M-4-04	△	2	13.5	118	75	54	20	27	+0.5	SB-2042TRG	DTM-6	ZXMT040203□□
-DRX145M-4-04	△		14.5	122	79	58			+0.3			
-DRX150M-4-04	△		15	124	81	60			+0.2			
S25 -DRX155M-4-05	△	2	15.5	140	86	62	25	32	+0.8	SB-2045TR	DTM-6	ZXMT05T203□□
-DRX160M-4-05	△		16	142	88	64			+0.7			
-DRX165M-4-05	△		16.5	144	90	66			+0.5			
-DRX170M-4-05	△		17	146	92	68			+0.4			
-DRX175M-4-05	△		17.5	148	94	70			+0.3			
-DRX180M-4-05	△		18	150	96	72			+0.2			
-DRX185M-4-06	△	2	18.5	149	95	74	25	32	+0.9	SB-2250TR	DTM-7	ZXMT06T204□□
-DRX190M-4-06	△		19	151	97	76			+0.8			
-DRX195M-4-06	△		19.5	153	99	78			+0.7			
-DRX200M-4-06	△		20	155	101	80			+0.5			
-DRX205M-4-06	△		20.5	157	103	82			+0.4			
-DRX210M-4-06	△		21	159	105	84			+0.3			
-DRX215M-4-06	△	2	21.5	161	107	86	25	33	+0.2	SB-2570TR	DTM-8	ZXMT070305□□
-DRX220M-4-07	△		22	163	109	88			+1.2			
-DRX225M-4-07	△		22.5	165	111	90			+1.0			
-DRX230M-4-07	△		23	167	113	92			+0.9			
-DRX235M-4-07	△		23.5	169	115	94			+0.8			
-DRX240M-4-07	△		24	171	117	96			+0.7			
-DRX245M-4-07	△	2	24.5	173	119	98	32	41	+0.5	SB-3080TR	DTM-10	ZXMT09T306□□
-DRX255M-4-07	△		25.5	177	123	102			+0.3			
S32 -DRX270M-4-09	△		27	190	131	108			32				43	+1.6
-DRX280M-4-09	△	28	194	135	112	+1.3						
-DRX290M-4-09	△	29	198	139	116	+1.1						
-DRX300M-4-09	△	30	202	143	120			+0.8				

• When offset machining, reduce feed rate to 0.0024 ipr or less

Hole Diameter Tolerance (4D)

DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.25 / -0.10
Ø27mm - Ø38mm	+0.30 / -0.15
Ø39mm - Ø60mm	+0.35 / -0.20

Recommended Cutting Conditions [K94](#)

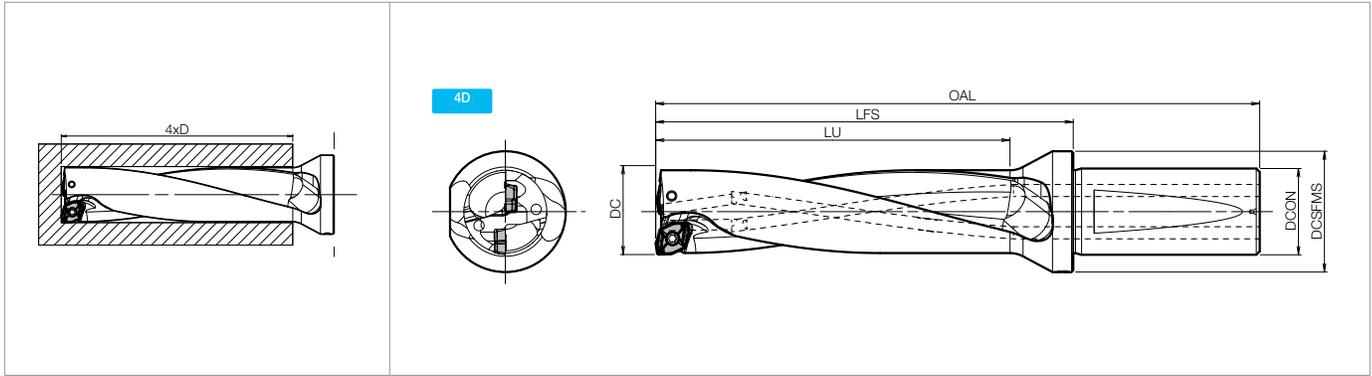
Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

The above values are estimates.

These values may change due to machine, workpiece, clamping power, and cutting conditions

DRX (Drilling Depth: 4 x DC) Continued...



Toolholder Dimensions - 4D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83					
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench						
S40 -DRX330M-4-11	△	2	33	227	158	132	40	49	+1.9	SB-4085TR	DTM-15	ZXMT11T306□□					
-DRX340M-4-11	△		34	231	162	136			+1.7								
-DRX350M-4-11	△		35	235	166	140			+1.4								
-DRX360M-4-11	△		36	239	170	144			+1.2								
-DRX370M-4-11	△		37	243	174	148			+0.9								
-DRX380M-4-11	△		38	247	178	152			+0.7								
-DRX390M-4-14	△	2	39	257	188	156	40	54	+2.8	SB-5090TR	DT-20	ZXMT140408□□					
-DRX400M-4-14	△		40	261	192	160			+2.5								
-DRX410M-4-14	△		41	265	196	164			+2.3								
-DRX420M-4-14	△		42	269	200	168			+2.0								
-DRX430M-4-14	△		43	273	204	172			+1.8								
-DRX440M-4-14	△		44	277	208	176			+1.5								
-DRX450M-4-14	△	2	45	281	212	180	40	59	+1.3	SB-60120TR	DT-25	ZXMT170608□□					
-DRX460M-4-14	△		46	285	216	184			+1.0								
S50 -DRX480M-4-17	△		48	290	221	192			50				59	+3.8	SB-60120TR	DT-25	ZXMT170608□□
-DRX490M-4-17	△		49	294	225	196								+3.5			
-DRX500M-4-17	△		50	298	229	200								+3.3			
-DRX510M-4-17	△		51	302	233	204								+3.0			
-DRX520M-4-17	△	52	306	237	208	+2.8											
-DRX530M-4-17	△	53	310	241	212	+2.5											
-DRX540M-4-17	△	2	54	314	245	216	50	64	+2.3	SB-60120TR	DT-25	ZXMT170608□□					
-DRX550M-4-17	△		55	318	249	220			+2.0								
-DRX560M-4-17	△		56	322	253	224			+1.8								
-DRX570M-4-17	△		57	326	257	228			+1.5								
-DRX580M-4-17	△		58	330	261	232			+1.3								
-DRX600M-4-17	△		60	338	269	240			+0.8								

• When offset machining, reduce feed rate to 0.0024 ipr or less

Hole Diameter Tolerance (4D)

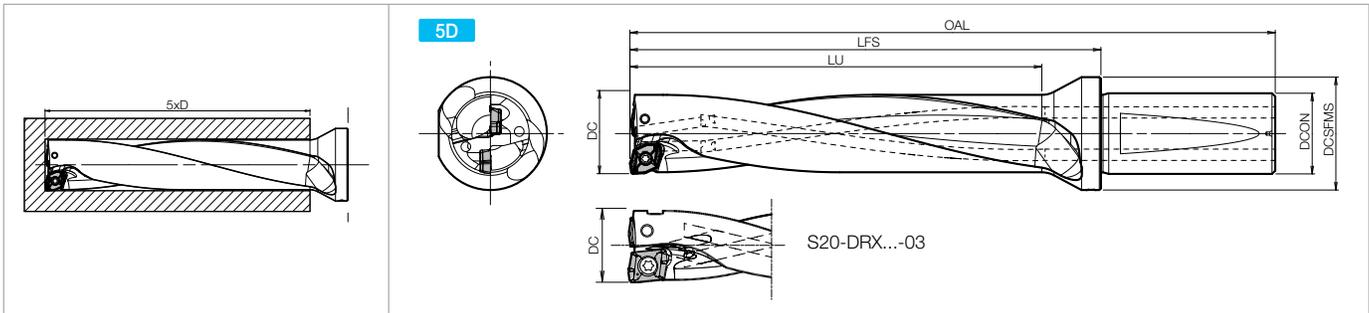
DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.25 / -0.10
Ø27mm - Ø38mm	+0.30 / -0.15
Ø39mm - Ø60mm	+0.35 / -0.20

The above values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

Recommended Cutting Conditions [K94](#)
Adjustable Sleeve SHE [K96](#)
Troubleshooting [K95](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRX (Drilling Depth: 5 x DC)



Toolholder Dimensions - 5D (Metric Diameter / Metric Shank)

Part Number	Stock	No. of Inserts	Dimensions (mm)						Max. Radial Offset (mm)	Spare Parts		Applicable Insert See Page K83
			DC	OAL	LFS	LU	DCON	DCSFMS		Insert Screw	Wrench	
S20 -DRX120M-5-03 -DRX130M-5-03 -DRX140M-5-04 -DRX150M-5-04	△	2	12	120	77	60	20	27	+0.5	SB-2042TRG	DTM-6	Outer Edge ZXMT030203□□-E Inner Edge ZXMT030203GM-I
	△		13	125	82	65			+0.3			
	△	2	14	134	91	70	20	27	+0.4	SB-2042TRG	DTM-6	ZXMT040203□□
	△		15	139	96	75			+0.2			
S25 -DRX160M-5-05 -DRX170M-5-05 -DRX180M-5-05 -DRX200M-5-06 -DRX210M-5-06 -DRX230M-5-07 -DRX240M-5-07 -DRX250M-5-07	△	2	16	158	104	80	25	32	+0.7	SB-2045TR	DTM-6	ZXMT05T203□□
	△		17	163	109	85			+0.4			
	△	2	18	168	114	90	25	32	+0.2	SB-2250TR	DTM-7	ZXMT06T204□□
	△		20	175	121	100			+0.5			
S32 -DRX280M-5-09 -DRX290M-5-09 -DRX300M-5-09 -DRX310M-5-09	△	2	21	180	126	105	25	33	+0.9	SB-2570TR	DTM-8	ZXMT070305□□
	△		23	190	136	115			+0.7			
	△	2	24	195	141	120	25	41	+0.4	SB-3080TR	DTM-10	ZXMT09T306□□
	△		25	200	146	125			+1.3			
S40 -DRX320M-5-11 -DRX330M-5-11 -DRX340M-5-11 -DRX350M-5-11 -DRX360M-5-11 -DRX370M-5-11 -DRX380M-5-11 -DRX390M-5-14 -DRX400M-5-14 -DRX410M-5-14 -DRX430M-5-14 -DRX440M-5-14 -DRX450M-5-14 -DRX470M-5-14	△	2	28	222	163	140	32	43	+0.8	SB-4085TR	DTM-15	ZXMT11T306□□
	△		29	227	168	145			+2.2			
	△	2	30	232	173	150	40	49	+0.6	SB-5090TR	DT-20	ZXMT140408□□
	△		31	237	178	155			+1.9			
S50 -DRX480M-5-17 -DRX490M-5-17 -DRX500M-5-17 -DRX510M-5-17 -DRX520M-5-17 -DRX530M-5-17 -DRX540M-5-17 -DRX550M-5-17 -DRX560M-5-17 -DRX570M-5-17 -DRX580M-5-17 -DRX590M-5-17 -DRX600M-5-17	△	2	32	255	186	160	40	54	+2.8	SB-60120TR	DT-25	ZXMT170608□□
	△		33	260	191	165			+2.5			
	△	2	34	265	196	170	50	59	+1.8	SB-60120TR	DT-25	ZXMT170608□□
	△		35	270	201	175			+3.8			
S50 -DRX480M-5-17 -DRX490M-5-17 -DRX500M-5-17 -DRX510M-5-17 -DRX520M-5-17 -DRX530M-5-17 -DRX540M-5-17 -DRX550M-5-17 -DRX560M-5-17 -DRX570M-5-17 -DRX580M-5-17 -DRX590M-5-17 -DRX600M-5-17	△	2	36	275	206	180	50	64	+1.7	SB-60120TR	DT-25	ZXMT170608□□
	△		37	280	211	185			+3.5			
	△	2	38	285	216	190	50	64	+1.4	SB-60120TR	DT-25	ZXMT170608□□
	△		39	296	227	195			+3.0			
	△	2	40	301	232	200	50	64	+0.9	SB-60120TR	DT-25	ZXMT170608□□
	△		41	306	237	205			+2.8			
	△	2	42	312	247	215	50	64	+2.3	SB-60120TR	DT-25	ZXMT170608□□
	△		43	316	252	220			+3.3			
	△	2	44	321	252	220	50	64	+1.5	SB-60120TR	DT-25	ZXMT170608□□
	△		45	326	257	225			+3.0			
	△	2	46	332	267	235	50	64	+0.8	SB-60120TR	DT-25	ZXMT170608□□
	△		47	336	267	235			+2.8			
△	2	48	338	269	240	50	64	+3.8	SB-60120TR	DT-25	ZXMT170608□□	
△		49	343	274	245			+3.3				
△	2	50	348	279	250	50	64	+3.0	SB-60120TR	DT-25	ZXMT170608□□	
△		51	353	284	255			+2.8				
△	2	52	358	289	260	50	64	+2.5	SB-60120TR	DT-25	ZXMT170608□□	
△		53	363	294	265			+2.0				
△	2	54	368	299	270	50	64	+1.8	SB-60120TR	DT-25	ZXMT170608□□	
△		55	373	304	275			+1.5				
△	2	56	378	309	280	50	64	+1.3	SB-60120TR	DT-25	ZXMT170608□□	
△		57	383	314	285			+1.0				
△	2	58	388	319	290	50	64	+0.8	SB-60120TR	DT-25	ZXMT170608□□	
△		59	393	324	295			+0.5				
△	2	60	398	329	300	50	64	+0.5	SB-60120TR	DT-25	ZXMT170608□□	
△		60	398	329	300			+0.8				

• When offset machining, reduce feed rate to 0.0020 ipr or less

Hole Diameter Tolerance (5D)

DC	Hole Diameter Tolerance (mm)
Ø12mm - Ø26mm	+0.30 / -0.10
Ø27mm - Ø38mm	+0.35 / -0.15
Ø39mm - Ø60mm	+0.40 / -0.20

The values are estimates.
These values may change due to machine, workpiece, clamping power, and cutting conditions

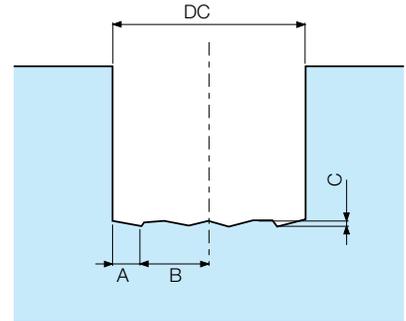
Recommended Cutting Conditions [K94](#)

Adjustable Sleeve SHE [K96](#)

Troubleshooting [K95](#)

DRX Hole Bottom Shape (Common for 2D, 3D, 4D, and 5D Lengths)

DRZ Inch Diameters (in)				DRZ Metric Diameters (mm)							
DC	A	B	C	DC	A	B	C	DC	A	B	C
0.562	0.079	0.202	0.020	12.0	1.8	4.2	0.5	26.5	3.9	9.4	1.0
0.625		0.234		12.5		4.5		27.0		9.6	
0.656		0.249		13.0		4.7		27.5		9.9	
0.688		0.265		13.5		4.8		28.0		10.1	
0.750	0.094	0.281	0.028	14.0	2	5.0	0.5	28.5	4.7	10.4	1.1
0.812		0.312		14.5		5.3		29.0		10.6	
0.875	0.126	0.312	0.031	15.0	2	5.5	0.6	29.5	5.8	10.9	1.2
0.906		0.327		15.5		5.8		30.0		11.1	
0.938		0.343		16.0		6.0		30.5		11.4	
0.984		0.366		16.5		6.3		31.0		11.6	
1.000		0.374	0.035	17.0		6.5		31.5		11.9	
				17.5		6.8		32.0		11.3	
				18.0		7.0	0.7	33.0		11.8	1.1
				18.5	2.4	6.9	0.7	34.0	4.7	12.3	1.3
				19.0		7.1		35.0		12.8	
				19.5		7.4		36.0		13.3	
				20.0		7.6		37.0		13.8	
				20.5	7.9	38.0	14.3				
				21.0	3.2	8.1	0.8	39.0	5.8	13.7	1.5
				21.5		8.4		40.0		14.2	
				22.0	3.2	7.8	0.8	41.0	7.1	14.7	1.6
				22.5		8.1		42.0		15.2	
				23.0		8.3		43.0		15.7	
				23.5		8.6		44.0		16.2	
				24.0	3.2	8.8	0.9	45.0	7.1	16.7	1.8
				24.5		9.1		46.0		17.2	
				25.0	3.2	9.3	0.9	47.0	7.1	17.7	1.9
				25.5		9.6		48.0		17.9	
				26.0		9.8		49.0		18.4	
								50.0		18.9	
						51.0		19.4		1.7	
						52.0		19.9		1.8	
						53.0		20.4		1.9	
						54.0		20.9		2.0	
						55.0		21.4		2.1	
						56.0		21.9			
						57.0		22.4			
						58.0		22.9			
						59.0					
						60.0					



- Figures in chart are nominal sizes.
- (Varies from -0.004" (-0.1mm) to +0.004" (+0.1mm) depending on work material and cutting conditions)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DRX RECOMMENDED CUTTING CONDITIONS

◆ DRX - Recommended Cutting Conditions (with Coolant)

Workpiece Material	Recommended Insert Grade Cutting Speed (sfm)					Drill Dia. DC (in)	Drill Dia. DC (mm)	Drill Depth / Feed Rate (ipr)								
	MEGACOAT			Carbide				2D / 3D			4D			5D		
	PR1230	PR1225	PR1210	GW10				GM	GH	SM	GM	GH	SM	GM	GH	SM
	GM, GH	SM	GM	SM												
Low Carbon Steel	☆ 400-800	★ 400-800			0.432-0.591	12-15	0.0024-0.0039	0.0024-0.0039	0.0016-0.0039	0.0020-0.0031	0.0020-0.0031	0.0016-0.0031	0.0016-0.0028	0.0016-0.0028	0.0016-0.0031	
					0.630-0.709	15.5-18	0.0024-0.0047	0.0024-0.0047	0.0024-0.0047	0.0020-0.0039	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031	0.0020-0.0031	0.0016-0.0035	
					0.748-1.024	18.5-26	0.0031-0.0055	0.0031-0.0055	0.0024-0.0055	0.0024-0.0047	0.0031-0.0047	0.0020-0.0047	0.0024-0.0039	0.0024-0.0039	0.0016-0.0039	
					1.063-2.362	26.5-60	0.0031-0.0055	0.0031-0.0055	0.0024-0.0055	0.0024-0.0047	0.0031-0.0047	0.0020-0.0047	0.0024-0.0039	0.0024-0.0039	0.0016-0.0039	
Carbon Steel	★ 330-600	☆ 330-600			0.432-0.591	12-15	0.0016-0.0055	0.0016-0.0055	0.0016-0.0039	0.0016-0.0039	0.0016-0.0039	0.0016-0.0031	0.0016-0.0031	0.0016-0.0031	0.0016-0.0028	
					0.630-0.709	15.5-18	0.0024-0.0063	0.0024-0.0063	0.0024-0.0047	0.0020-0.0047	0.0020-0.0047	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031		
					0.748-1.024	18.5-26	0.0031-0.0079	0.0031-0.0079	0.0024-0.0055	0.0028-0.0063	0.0028-0.0063	0.0020-0.0047	0.0024-0.0047	0.0024-0.0047	0.0020-0.0039	
					1.063-2.362	26.5-60	0.0031-0.0079	0.0031-0.0079	0.0024-0.0055	0.0028-0.0063	0.0028-0.0063	0.0020-0.0047	0.0024-0.0047	0.0024-0.0047	0.0020-0.0039	
Alloy Steel	★ 330-530	☆ 330-530			0.432-0.591	12-15	0.0016-0.0055	0.0016-0.0055	0.0016-0.0039	0.0016-0.0039	0.0016-0.0039	0.0016-0.0031	0.0016-0.0031	0.0016-0.0031	0.0016-0.0028	
					0.630-0.709	15.5-18	0.0024-0.0063	0.0024-0.0063	0.0024-0.0047	0.0020-0.0047	0.0020-0.0047	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031		
					0.748-1.024	18.5-26	0.0031-0.0079	0.0031-0.0079	0.0024-0.0055	0.0028-0.0063	0.0028-0.0063	0.0020-0.0047	0.0024-0.0047	0.0024-0.0047	0.0020-0.0039	
					1.063-2.362	26.5-60	0.0031-0.0079	0.0031-0.0079	0.0024-0.0055	0.0028-0.0063	0.0028-0.0063	0.0020-0.0047	0.0024-0.0047	0.0024-0.0047	0.0020-0.0039	
Tool Steel	★ 270-500	☆ 270-500			0.432-0.591	12-15	0.0016-0.0031	0.0016-0.0031	0.0016-0.0031	0.0016-0.0028	0.0016-0.0028	0.0016-0.0028	0.0016-0.0024	0.0016-0.0024	0.0016-0.0024	
					0.630-0.709	15.5-18	0.0024-0.0047	0.0024-0.0047	0.0024-0.0039	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031	0.0016-0.0031	0.0016-0.0031	0.0016-0.0028	
					0.748-1.024	18.5-26	0.0031-0.0059	0.0031-0.0059	0.0024-0.0047	0.0024-0.0047	0.0024-0.0047	0.0024-0.0039	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031	
					1.063-2.362	26.5-60	0.0031-0.0059	0.0031-0.0059	0.0024-0.0047	0.0024-0.0047	0.0024-0.0047	0.0024-0.0039	0.0020-0.0039	0.0020-0.0039	0.0020-0.0031	
Stainless Steel (Austenitic)	☆ 240-470	★ 240-470			0.432-0.591	12-15	0.0024-0.0039	0.0024-0.0039	0.0016-0.0039	0.0020-0.0031	0.0020-0.0031	0.0016-0.0031	0.0016-0.0028	0.0016-0.0031	0.0016-0.0031	
					0.630-0.709	15.5-18	0.0024-0.0039	0.0024-0.0039	0.0024-0.0047	0.0020-0.0031	0.0020-0.0031	0.0020-0.0043	0.0016-0.0028	0.0016-0.0028	0.0016-0.0039	
					0.748-1.024	18.5-26	0.0031-0.0047	0.0031-0.0047	0.0024-0.0055	0.0028-0.0039	0.0028-0.0039	0.0024-0.0047	0.0028-0.0039	0.0028-0.0039	0.0024-0.0047	
					1.063-2.362	26.5-60	0.0031-0.0047	0.0031-0.0047	0.0024-0.0055	0.0028-0.0039	0.0028-0.0039	0.0024-0.0047	0.0028-0.0039	0.0028-0.0039	0.0024-0.0047	
Gray Cast Iron			★ 330-500		0.432-0.591	12-15	0.0031-0.0055	-	-	0.0024-0.0047	-	-	0.0016-0.0039	-	-	
					0.630-0.709	15.5-18	0.0031-0.0071	-	-	0.0031-0.0063	-	-	0.0024-0.0047	-	-	
					0.748-1.024	18.5-26	0.0031-0.0079	-	-	0.0031-0.0071	-	-	0.0024-0.0055	-	-	
					1.063-2.362	26.5-60	0.0031-0.0079	-	-	0.0031-0.0071	-	-	0.0024-0.0055	-	-	
Nodular Cast Iron			★ 270-400		0.432-0.591	12-15	0.0031-0.0047	-	-	0.0024-0.0039	-	-	0.0016-0.0031	-	-	
					0.630-0.709	15.5-18	0.0031-0.0063	-	-	0.0031-0.0055	-	-	0.0024-0.0039	-	-	
					0.748-1.024	18.5-26	0.0031-0.0071	-	-	0.0031-0.0063	-	-	0.0024-0.0047	-	-	
					1.063-2.362	26.5-60	0.0031-0.0071	-	-	0.0031-0.0063	-	-	0.0024-0.0047	-	-	
Non-ferrous Metals				★ 660-1980	0.432-0.591	12-15	-	-	0.0024-0.0047	-	-	0.0020-0.0039	-	-	0.0016-0.0031	
					0.630-0.709	15.5-18	-	-	0.0031-0.0055	-	-	0.0024-0.0047	-	-	0.0020-0.0039	
					0.748-1.024	18.5-26	-	-	0.0031-0.0063	-	-	0.0024-0.0055	-	-	0.0020-0.0047	
					1.063-2.362	26.5-60	-	-	0.0031-0.0079	-	-	0.0031-0.0063	-	-	0.0028-0.0055	
Titanium Alloys				★ 140-240	0.432-0.591	12-15	-	-	0.0020-0.0031	-	-	0.0016-0.0028	-	-	0.0016-0.0024	
					0.630-0.709	15.5-18	-	-	0.0020-0.0031	-	-	0.0016-0.0028	-	-	0.0016-0.0024	
					0.748-1.024	18.5-26	-	-	0.0024-0.0039	-	-	0.0024-0.0031	-	-	0.0020-0.0028	
					1.063-2.362	26.5-60	-	-	0.0024-0.0039	-	-	0.0024-0.0031	-	-	0.0020-0.0028	

• Apply a sufficient amount of coolant ★ : 1st Recommendation ☆ : 2nd Recommendation

● Cutting Conditions by Application

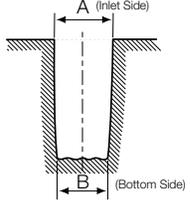
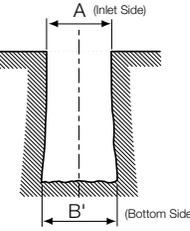
(Workpiece Material: 1049)

Applications	Plain Surface	Angled Surface	Half Cylindrical	Hole Expansion	Concave Surface	Existing Hole	Stacked Plates
Workpiece Shape							
Cutting Speed Vc (sfm)	390	390	390	390	390	390	Not Available
f (ipr)	0.004	0.002	0.002	0.002	Concave Surface: 0.002 Once drill is fully engaged: 0.004	*0.002	Not Available
Internal Coolant	Yes	Yes	Yes	Yes	Yes	Yes	Not Available

◆ Max. Depth for Drilling with External Coolant

In case of using external coolant system, chip evacuation will be bad.
Therefore, D.O.C. should be measured within 1.5 times (1.5 x DC) of drill diameter (DC).

Troubleshooting (DRV / DRZ / DRX / DRS)

Problems	Conditions	Cause	Countermeasures
Hole Diameter is Smaller at the Bottom of the Hole	 <p>A (Inlet Side) B (Bottom Side)</p> <p>$A > B$</p>	Chip jam (External or Internal edge chip stuck)	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See K62-K65, K82, K94 for "Recommended Cutting Conditions".
Hole Diameter is Larger at the Bottom of the Hole	 <p>A (Inlet Side) B' (Bottom Side)</p> <p>$A < B'$</p>	Internal edge chip jam.	Change the cutting conditions · Increase the cutting speed · Lower the feed rate See K62-K65, K82, K94 for "Recommended Cutting Conditions". · Check the core height K98-K99 (DRV) K100-K101 (DRZ / DRX)
Hole Diameter is Small at the Hole Inlet		Incorrect adjustment of hole diameter.	In case of using lathe machine, use X-axis and adjustment hole diameter. K98 (DRV) K100 (DRZ / DRX)
		No core at internal edge. (No core remains)	Adjust the center height. K98-K99 (DRV) K100-K101 (DRZ / DRX)

Identifying Tool Life of Magic Drill (DRV / DRZ / DRX / DRS)

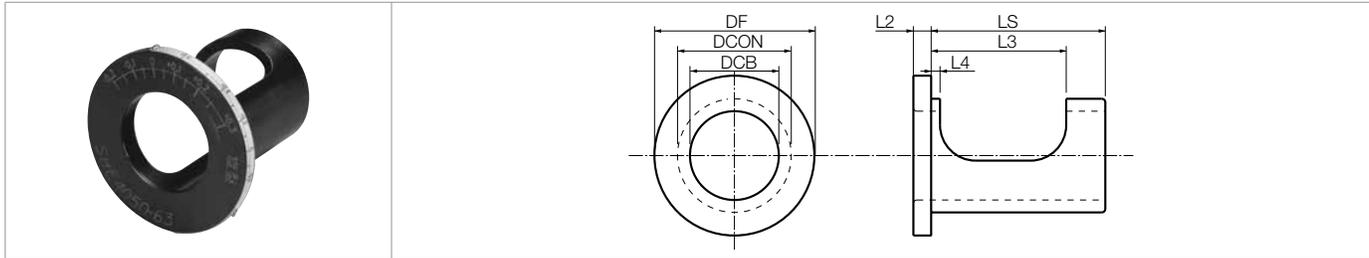
How to Judge Tool Life	Tool Life Indications
Tool Condition and Insert Wear	· When an insert is new, the holder is slightly bent to the side during cutting. (Therefore, the cutting diameter is slightly bigger during cutting). Once cutting is finished, the holder will return back to normal size. No tool marks will appear on the finished surface. (Although this depends on workpiece and cutting condition: during external machining slight tool mark might appear.)
	· When an insert is at the end of its tool life, Gradually the external corner part gets worn out, the holder does not bend slightly outwards - it starts to bend inwards. After the cutting is finished, the holder returns to the normal position. When taking off a holder under this condition the cutting edge of the insert creates external tool marks on the finished surface of the workpiece.
Checking Cutting Diameter	When cutting diameter is measured, suddenly it shows small diameter. In this case, a worn out insert can be the cause.
Checking the Surface on the Exit Side	If insert wear progresses, the burrs of penetrated hole entrance become bigger. This is a clear indication that the tool must be exchanged.
Variation of Cutting Noise	DRV / DRZ / DRX → Light drilling noise at the beginning turns to dull noise with vibration. DRS → Light drilling noise at the beginning turns to a whir-like noise. Although, it is difficult to recognize DRV / DRZ / DRX type's smaller drill diameters or DRS type's variation of drilling noise because of main motor noise or coolant discharge.
Variation of Vibration	As the end of tool life is getting closer, there is more vibration and the cutting noise changes. However, when machining smaller diameters these factors are difficult to detect.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

ADJUSTABLE SLEEVES FOR DRV / DRZ / DRX

ASL / SHE for DRV, DRZ, and DRX Magic Drills

Diameter Adjustment / Center Height Adjustment

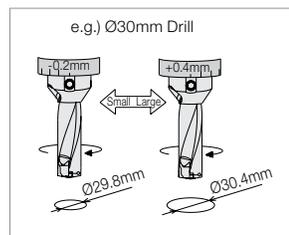


Sleeve Dimensions (Use ASL for inch size drills and SHE for metric size drills)

Part Number	Stock	Unit	Dimensions							Dia. Adjustment Range	Center Height Adjustment Range
			DCB	DCON	DF	LS	L2	L3	L4		
ASL 75100-175	●	inch	0.750	1.000	1.614	1.750	0.157	1.417	0.118	+0.016 ~ -0.008	+0.008 ~ -0.006
100125-212	●		1.000	1.250	1.929	2.125	0.236	1.496	0.098	+0.016 ~ -0.008	+0.008 ~ -0.006
125150-238	●		1.250	1.500	2.283	2.375	0.236	1.693	0.098	+0.016 ~ -0.008	+0.008 ~ -0.006
SHE 2025-43	●	mm	20	25	41	43	4	36	3.0	+0.4 ~ -0.2	+0.2 ~ -0.15
2532-48	●		25	32	49	48	6	38	2.5	+0.4 ~ -0.2	+0.2 ~ -0.15
3240-53	●		32	40	58	53	6	43	2.5	+0.4 ~ -0.2	+0.2 ~ -0.15
4050-63	●		40	50	74	63	6	49	3.0	+0.4 ~ -0.2	+0.3 ~ -0.2

- Diameter adjustment range refers to the cutting diameter.
- ASL and SHE should only be used with the DRV, DRX, or DRZ Magic Drills. They are NOT recommended for the small diameter DRS Magic Drill because the adjustment range is too large.

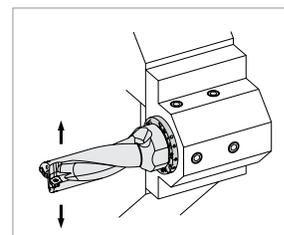
1. Diameter Adjustment (for Machining Center)



• Diameter Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.016 ~ -0.008	Ø20	+0.4 ~ -0.2
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.6 ~ -0.2

2. Center Height Adjustment (for Lathe Operations)



• Center Height Adjustment

ASL (in)		SHE (mm)	
Shank Dia.	Adjustment Range	Shank Dia.	Adjustment Range
Ø0.750"	+0.008 ~ -0.006	Ø20	+0.2 ~ -0.15
Ø1.000"		Ø25	
Ø1.250"		Ø32	
-	-	Ø40	+0.3 ~ -0.2

• How to Use the Adjustable Sleeve

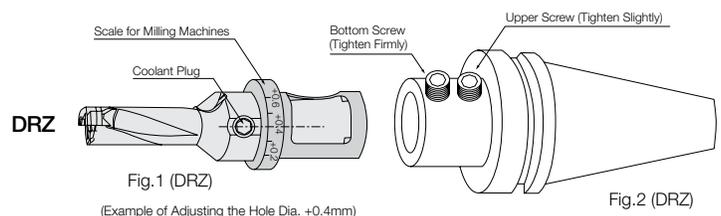
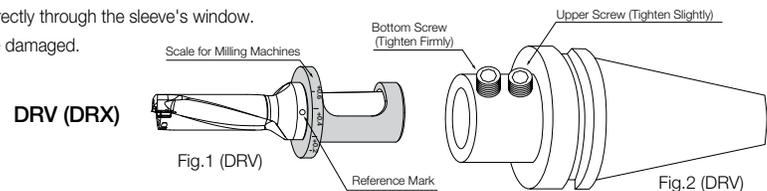
1. Hole Diameter Adjustment when Drilling

- (1) Adjust the scale at the flange periphery of the sleeve to the center of the drill coolant plug. (Fig.1)
- (2) When making the hole diameter larger, rotate the sleeve in (+) direction and to make it smaller, rotate the sleeve in (-) direction.
- (3) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.
- (4) Using the bottom screw of the side-lock arbor, firmly tighten on the drill directly through the sleeve's window.

The upper screw should be tightened slightly so that the sleeve will not be damaged.

Caution:

- Not applicable with Collet Chuck type Arbor.
- Scale on the sleeve is the reference value. Check the actual hole diameter after adjusting.



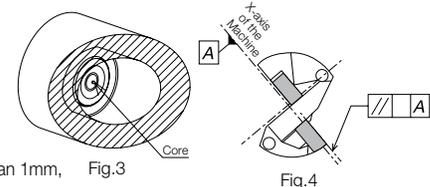
2. Center-Height Adjustment for Lathes

Most Lathe problems occur due to Center Height Deviation. The Center Height is appropriate if a core approximately 0.5mm diameter remains at the center of the end face. (Fig.3)

Center-height adjustment is necessary if:

- ◆ No core remains or ◆ Core diameter is more than 1mm

- (1) Align the drill with the outer insert face parallel to the X-axis of the tool turret. (Fig.4)
- (2) Align the scale (for the lathe) on the flange face of the sleeve to the center of the drill coolant plug.
- (3) When no core remains, rotate the sleeve to (+) direction to make the core larger, and when the core diameter is more than 1mm, rotate the sleeve to (-) direction to make the core smaller.
- (4) When rotating the sleeve, insert the wrench supplied with the drill into the hole on the flange periphery to rotate the sleeve.
- (5) After Completing the adjustment, firmly tighten on the drill directly through the sleeve's window.

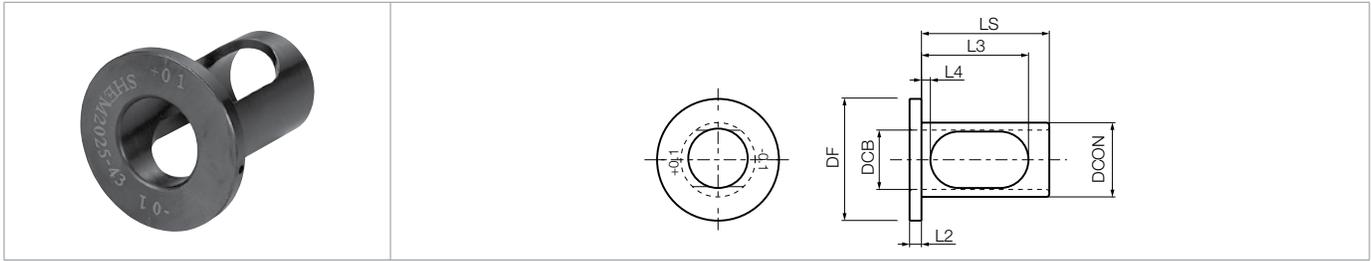


Note: Depending on amount of the center height adjustment, the hole diameter may change. It is recommended that the hole diameter is checked after the center height adjustment.

- DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER COREDRILL
- STINGER DRILL
- COUNTERBORE COUNTERSINK

SHEM for DRS Mini Magic Drills

Diameter Adjustment



Sleeve Dimensions

Part Number	Stock	Unit	Dimensions							Dia. Adjustment Range
			DCB	DCON	DF	LS	L2	L3	L4	
SHEM 2025-43	●	mm	20	25	41	43	4	36	3.0	+ 0.1 ~ - 0.1
2032-43	●			32	49				6		2.5

● Diameter adjustment range refers to the cutting diameter.

How to Use the Adjustable Sleeve

- SLEM is designed for only MagicDrill Mini (DRS type)
- SLEM is for drill diameter adjustment only. (up to +0.1mm or -0.1mm)
- SLEM is not for center height adjustment like conventional adjustable sleeve (SHE type)
- Apply SLEM when adjusting the hole diameter for pre-drilling before threading.

- (1) Set the outer edge horizontally with 90° to making line on the sleeve. (Fig.1)
- (2) When making the hole diameter larger, align the +0.1 mark on the sleeve with the flat on the drill shank.
To adjust to smaller diameter, align the -0.1 mark on the sleeve with the flat on the drill shank. (Fig.1)
- (3) Using the bottom screw of the side-lock arbor, firmly tighten on the drill directly through the sleeve's window.
The upper screw should be tightened slightly so that the sleeve will not be damage. (Fig.2.)

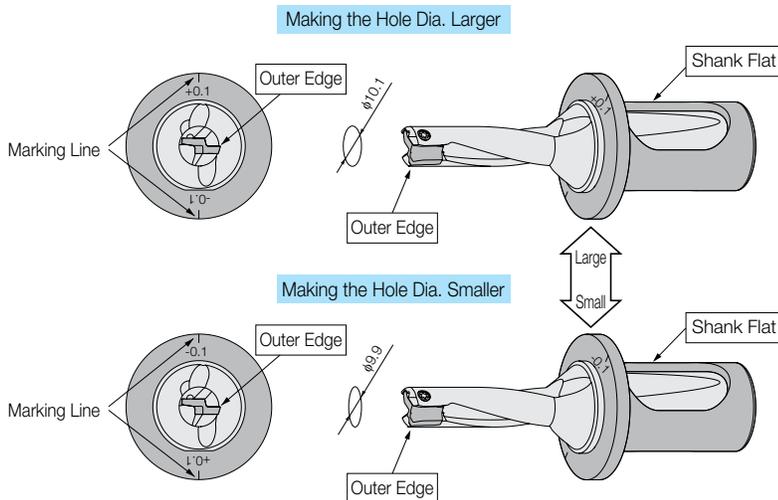


Fig.1 Diameter Adjustment Method (e.g.) Ø10mm Drill

Caution: Not applicable for Collet Chuck type Arbor.

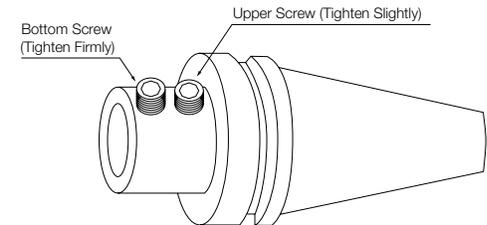


Fig.2

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Magic Drill Setup for Lathes

Installation

- The top face of the outer insert should be parallel to the X-axis to allow for offset cutting. (Cutting diameter can be changed by moving in the X-axis.)
- It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator. (Fig.1)
(It is also possible to use it by setting it in 180° reverse position)
If the lathe has two turrets, when installing the drill into the lower turret, the outer insert should be set to face the operator.
(It is also possible to use it by setting at 180° reverse position)

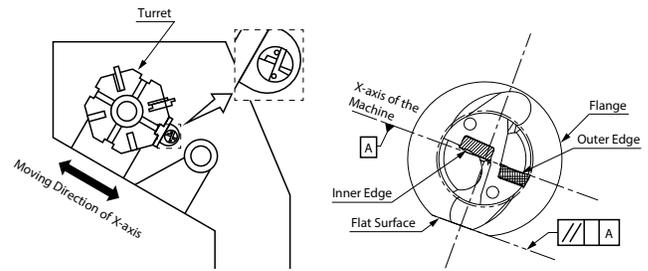


Fig.1 Installed into the Lathe

Cutting Diameter Adjustment

1 Cutting Diameter Adjustment

- Cutting diameter is adjusted by moving X-axis.
The moving direction of the X-axis depends on the position of the toolholder.
- For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig.2, Fig.3)
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction.
(This movement of the axis is called an "Offset")
Be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (0.008"). Otherwise, the toolholder will interfere with the drilled hole. (Fig.4)
Ex.) When using $\varnothing 20\text{mm}$ drill, the hole diameter must not be smaller than 19.8mm (0.780")

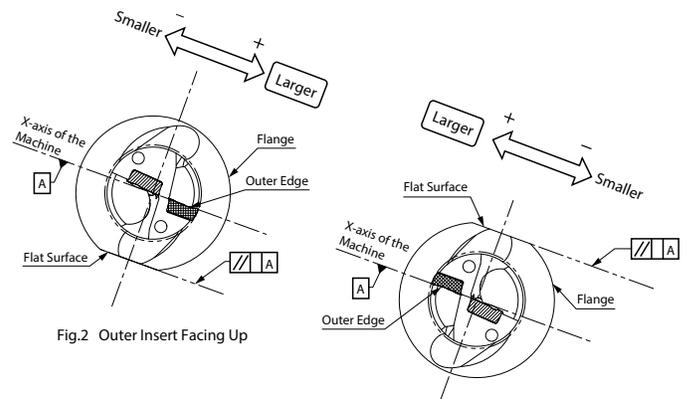


Fig.2 Outer Insert Facing Up

Fig.3 Outer Insert Facing Down

2 Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimensions table. (The figure in the Toolholder Dimensions table shows how much it is possible to offset the drill in the radial direction.)
Ex.) When using $\varnothing 20\text{mm}$ ($\varnothing 0.787''$) drill, for example, it is possible to make a hole up to $\varnothing 21.1\text{mm}$ ($0.831''$) since "Max. Offset (Radial)" is $+0.55\text{mm}$ ($+0.022''$).

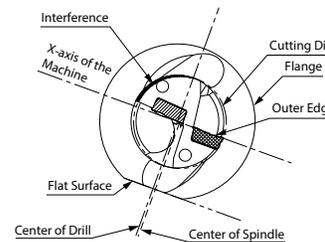


Fig.4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1 Center Height of the Inner Insert

When installing inner insert as shown in Fig.1, it will be set around 0.05mm (0.002") below the Center of Spindle. (Fig.5)
This is the normal position of the center height.
However, in case that the turret of the lathe is out of alignment with the Center of Spindle, sometimes the inner insert may be above or below center.
For stable machining, it is essential to check the Center Height of the inner insert carefully

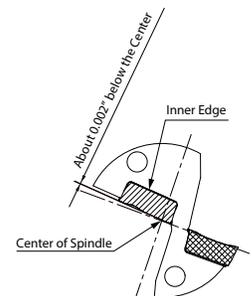


Fig.5 Front View of the Drill

2 How to Check the Center Height

For checking the center height of the inner insert, see the core which remains at the center of the bottom of the drilled hole.
If the center height is in the normal position, a core of about 0.5mm (0.020") in diameter, will remain after machining. (Fig.6)
Adjustment of center height is required if no core is present or a large core diameter of 1mm (0.039") or more remains.
* The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

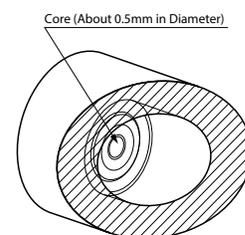


Fig.6 Center Core

K DRILLING

DRA
DRC
DRV
DRS
DRZ
DRX
HOLESHOT
COREMASTER COREDRILL
STINGER DRILL
COUNTERBORE COUNTERSINK

3 Center Height Adjustment

1. When there is no remaining core and the inner insert is chipping

This occurs when the inner insert is set above center. (Fig.7)

How to Adjust
<p>A. Install the drill rotated by 180° Most problems will be solved by this method (Fig.8)</p>
<p>B. If the core diameter becomes too large after the above adjustment, install the drill by rotating 90° counter-clockwise as shown in Fig.9 (outer edge is positioned lower) and adjust the center height by moving the tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned above), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.</p>

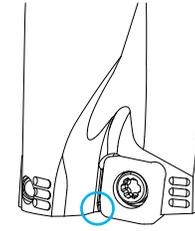


Fig.7 Insert breakage near the center of the drill

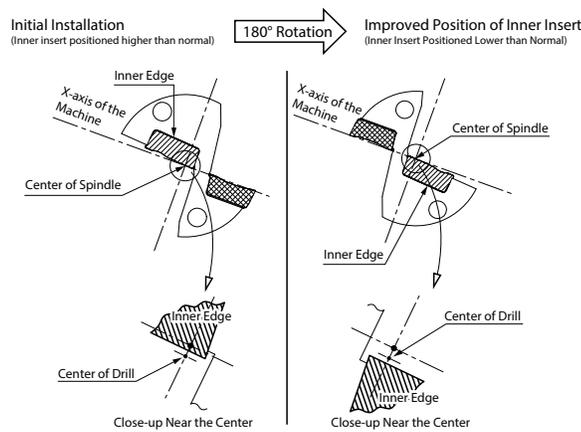


Fig.8

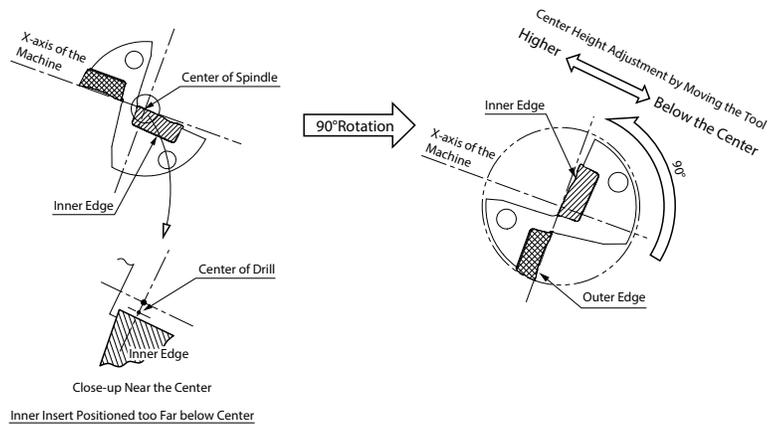


Fig.9

2. Core with Excessively Large Diameter More than 1mm (0.039")

This occurs when the inner insert is below center

This condition causes poor chip evacuation and an adjustment is required.

How to Adjust
<p>Install the drill rotated 90° as shown in Fig.10. (outer insert is positioned on the upper side) and adjust the center height by moving tool in the X-axis direction. (However, this will make it impossible to adjust the cutting diameter) Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The best solution is to readjust the center position of the turret itself.</p>

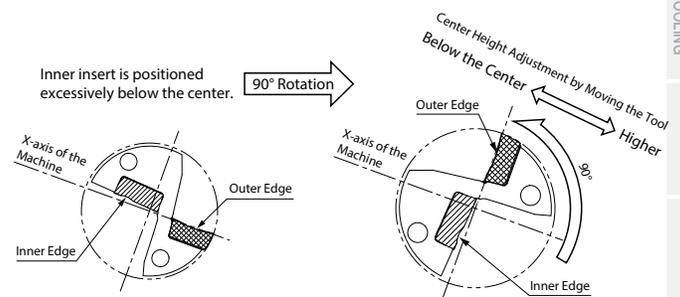


Fig.10

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Magic Drill Setup for Lathes

Installation

- The top face of the outer insert should be parallel to the X-axis to allow for offset cutting. (Cutting diameter can be changed by moving in the X-axis.)
- It is recommended to set the outer insert as shown in Fig.1 with the outer insert facing the operator. (It is also possible to use it by setting 180° reverse position.)
In case of the lathe with two turrets, when installing the drill to the lower turret, the outer insert should be set so as to face the operator. (It is also possible to use it by setting at 180° reverse position)

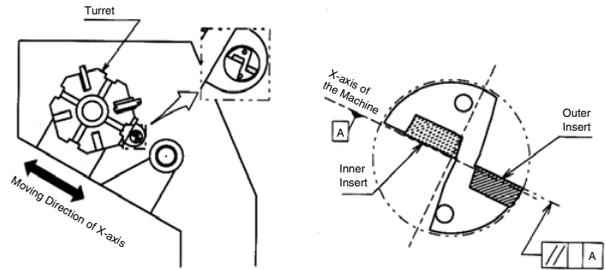


Fig.1 Installation to the Turning Lathe

Cutting Diameter Adjustment

1. Cutting Diameter Adjustment

- Cutting diameter is adjusted by moving the tool in the X-axis direction. The moving direction of the X-axis movement depends on the position of the toolholder.
- For making the hole diameter larger, slide the tool along the X-axis toward the outer insert side. (Fig. 2, Fig. 3)
For making the hole diameter smaller, slide the tool along the X-axis in the opposite direction. (This movement of the axis is called an "Offset")
However, be sure not to make the hole diameter smaller than the drill diameter by more than 0.2mm (.008"). Otherwise, the toolholder will interfere with the drilled hole. (Fig. 4)
e.g.) when using $\varnothing 20$ ($\varnothing .787$ ") drill, the hole diameter must not be smaller than 19.8mm (.780").

2. Offset Limit of the Cutting Diameter

For the maximum limit of the cutting diameter, refer to "Max. Offset (Radial)" in the Toolholder Dimension table. (The figure in the table shows how much it is possible the offset the drill in the radial direction.)
e.g.) In case of using $\varnothing 20$ ($\varnothing .787$ ") drill, it is possible to make a hole up to $\varnothing 21$ ($\varnothing .827$ ") since "Max. Offset (Radial)" is +0.5mm (.02").

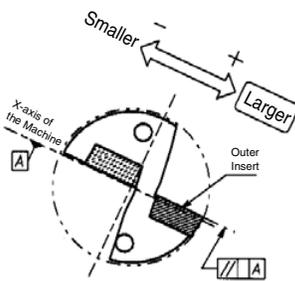


Fig. 2 Outer Insert Facing Up

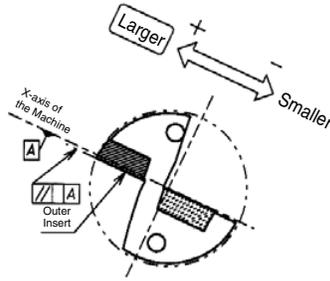


Fig. 3 Outer Insert Facing Down

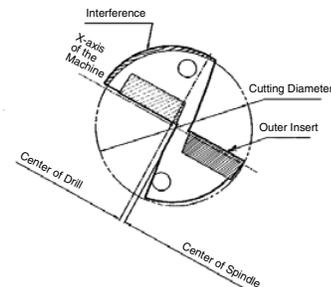


Fig. 4 Excessive Offset (For Smaller Hole Diameter)

Center Height Adjustment

1. Center Height of the Inner Insert

When installing inner insert as shown in Fig. 1, it will be set around 0.2mm (.008") below the Center line of the Spindle. (Fig. 5)
This is the normal position of the center height and the inner insert is designed to be set at this position. However, in case that the turret of the lathe is out of alignment with the center of spindle, sometimes the inner insert may be above or below center.
For stable machining, it is essential to check the center height of the inner insert carefully.

2. How to Check the Center Height of Inner Insert

For checking the center height of the inner insert, see the core which remains at the center of the drilled hole. (Fig. 6)
If the center height is in the normal condition, a core of about 0.5mm (.020") in diameter will remain after machining.

In the following case, it is necessary to adjust the center height.

- No core remains
- Core diameter is more than 1mm (.039")

The drilled hole for verification purposes needs to be machined at approximately 10mm (0.375") in depth and at a feed rate of 0.004 ipr or lower.

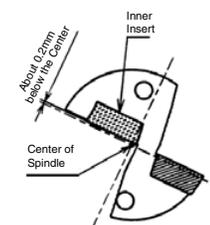


Fig. 5 Front View of the Drill

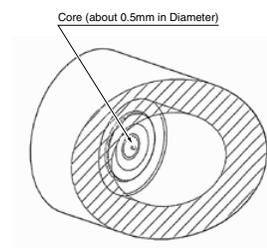


Fig. 6 Center Core

K	DRILLING
	DRA
	DRC
	DRV
	DRS
DRZ	
DRX	
HOLESHOT	
COREMASTER COREDRILL	
STINGER DRILL	
COUNTERBORE COUNTERSINK	

3. Center Height Adjustment

a) No Core or Cores with Small Diameter

This occurs when the inner insert is set above center.

In this case, adjustment is necessary since insert breakage is likely at the center of the drill. (Fig. 7)

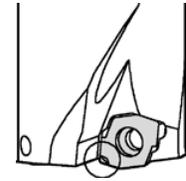


Fig. 7 Insert Breakage near the Center of Drill

Adjustments

- 1 Install the drill rotated at the 180°. Most problems will be solved by this method.

- 2 If the core diameter becomes too large after the above adjustment, install the drill rotated 90° counter-clockwise as shown in Fig.9 (outer insert is positioned lower) and adjust the center height by moving the tool in the X-axis direction. (However, this makes it impossible to adjust the cutting diameter.)

Caution: In case of installing the drill in the opposite direction (outer insert is positioned upper), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole. The fundamental solution is to readjust the center position of the turret itself.

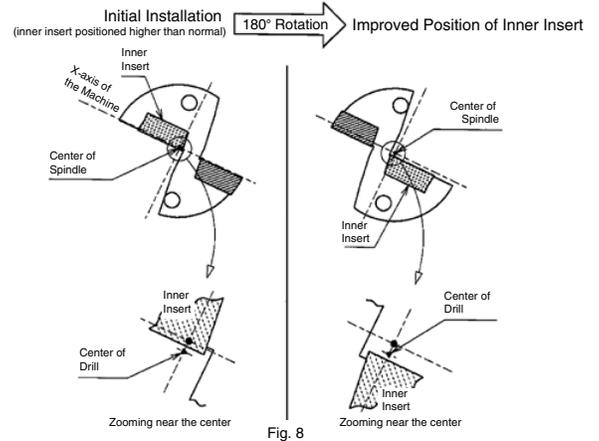


Fig. 8

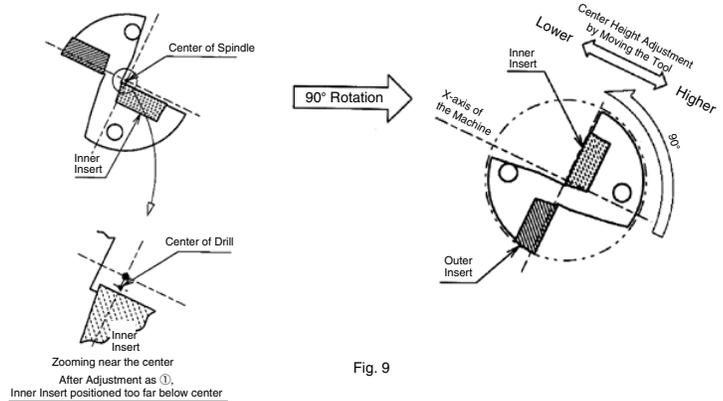


Fig. 9

b) Core with Excessively Large Diameter (More than 1mm/.04")

This occurs when the inner insert is below center.

This condition causes poor chip evacuation and on adjustment is required.

Adjustments

Install the drill rotated 90° counter-clockwise as shown in Fig.10 (outer insert is positioned upper), and adjust the center height by moving the tool in the X-axis direction.

(However, this makes it impossible to adjust the cutting diameter.)

Caution: When installing the drill in the opposite direction (outer insert is positioned lower), the cutting diameter will become smaller, which may cause the drill body to interfere with the drilled hole.

The fundamental solution is to readjust the center position of the turret itself.

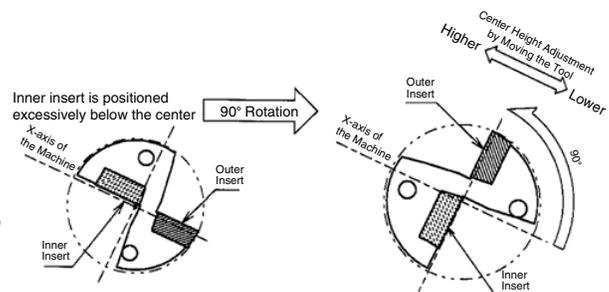


Fig. 10

INSERT GRADES	A
TURNING INSERTS	B
CEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

HOLESHOT™ Drill

Sharp Cutting with Enhanced Chip Evacuation
 Superior Fracture Resistance and Long Tool Life with
 MEGACOAT NANO Coating Technology



- 1 Drill Diameters from 0.688" to 4.000"
- 2 Flute Designs Optimized for Maximum Rigidity and Good Chip Evacuation
- 3 WCMX Inserts Available in MEGACOAT Grade PR1230

Patented Swept Back Design



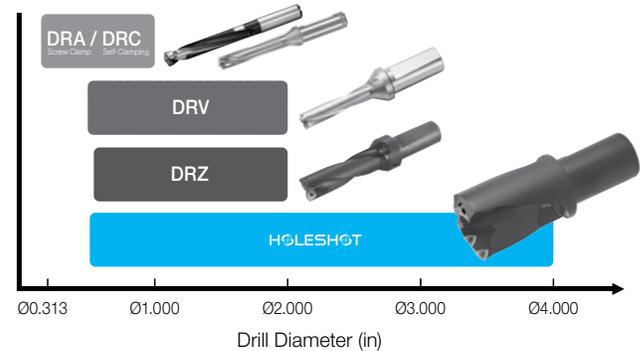
- Enables Drilling of Stacked Plates and Welded Assemblies
- Reduces Slug Formation
- Provides Excellent Chip Control

Applicable Workpieces

Plain Surface	Stacked Plates	Hole Expansion	Angled Surface

• Hole Expansion: Overlap amount of through hole must be 1/5DC (0.2 x DC) or less. Expansion of blind holes is not possible because chips are built up in the next hole and will cause chip recutting issues

HOLESHOT™ Drill Diameter Range



K	DRILLING
	DRA
	DRC
	DRV
	DRS
	DRZ
	DRX
	HOLESHOT
	COREMASTER COREDRILL
	STINGER DRILL
	COUNTERBORE COUNTERSINK

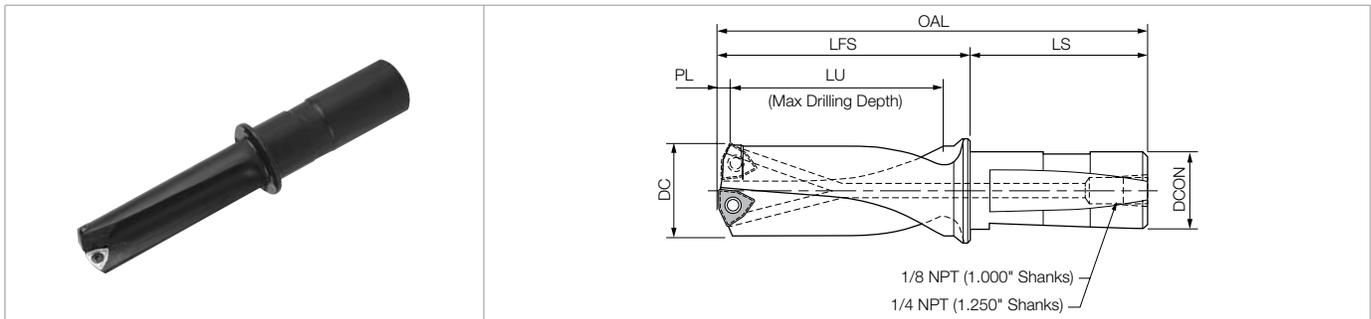
Applicable HOLESHOT™ Inserts

Usage Classification		P	M	K	N	S	MEGA COAT							CVD Carbide	Carbide
★ : 1st Recommendation ☆ : 2nd Recommendation		Carbon Steel / Alloy Steel	Tool Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Heat-resistant Alloy	PR1230	PR660	PR830	PR905	PR915	SP51	SC42	KW10
	WCMX S30204-M1A	3/16	0.094	0.084	1/64	●						●			
	040204-M1A	1/4				●						●			
	050308-M1	5/16	1/8	0.125	1/32	●						●			
	06T308-M1	3/8	5/32	0.146	1/32	●						●			
	06T308-M1A	3/8	5/32	0.146	1/32	1/32	●					●			

WCMX...M1 : General purpose drilling insert; First choice for Med-High Carbon Steel, Tool Steels, and Cast Iron; also available for general purpose drilling in Stainless Steel. Tougher edge than M1A chipbreaker. WCMX...M1A: First choice for Low-carbon Steel, Aluminum, and other "sticky" materials. Freer cutting than M1 chipbreaker.

HOLESHOT™ Drills (DR)

Inserts are sold in 10 piece boxes



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K103	
			DC	DCON	LU	OAL	LFS	LS	PL	Insert Screw		Wrench
DR -0515-X3N	●	2	0.515	0.750	1.54	4.23	2.20	2.03	0.070	SCR-07	T6	WCMX S30204-M1A
-0531-X3N	●		0.531	0.750	1.59	4.29	2.26	2.03	0.072			
-0563-X3N	●		0.563	0.750	1.70	4.36	2.33	2.03	0.079			
-0594-X3N	●		0.594	0.750	1.78	4.49	2.46	2.03	0.083			
-0625-X3N	●		0.625	0.750	1.87	4.62	2.59	2.03	0.087			
-0630-X3N	●		0.630 (16mm)	0.750	1.89	4.68	2.65	2.03	0.088			
-0656-X3N	●	0.656	0.750	1.96	4.75	2.72	2.03	0.091				
DR -0688-X3N	●	2	0.688	0.750	2.06	4.87	2.84	2.03	0.090	SCR-01	T7	WCMX 040204-M1A
-0709-X3N	●		0.709 (18mm)	0.750	2.13	5.04	3.01	2.03	0.092			
-0719-X3N	●		0.719	0.750	2.15	5.00	2.97	2.03	0.093			
-0750-X3N	●		0.750	0.750	2.25	5.13	3.10	2.03	0.102			
-0781-X3N	●		0.781	0.750	2.34	5.26	3.23	2.03	0.106			
-0787-X3N	●		0.787 (20mm)	0.750	2.36	5.29	3.26	2.03	0.106			
-0813-X3N	●		0.813	0.750	2.44	5.39	3.36	2.03	0.110			
-0827-X3N	●		0.827 (21mm)	0.750	2.48	5.41	3.38	2.03	0.112			
-0844-X3N	●		0.844	0.750	2.53	5.52	3.49	2.03	0.114			
DR -0866	●		2	0.866 (22mm)	1.000	1.75	4.78	2.50	2.28				0.130	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
-0866-X3N	●	2.60				5.80	3.52					
-0875	●	0.875		1.000	1.75	4.78	2.50	2.28	0.131			
-0875-X3N	●				2.63	5.79	3.51					
-0906	●	0.906 (23mm)		1.000	1.75	4.78	2.50	2.28	0.135			
-0906-X3N	●				2.71	5.88	3.60					
-0937	●	0.937		1.000	1.75	4.78	2.50	2.28	0.139			
-0937-X3N	●				2.81	5.98	3.70					
-0945	●	0.945 (24mm)		1.000	1.75	4.78	2.50	2.28	0.140			
-0945-X3N	●				2.83	6.04	3.76					
-0969	●	0.969		1.000	1.75	4.78	2.50	2.28	0.143			
-0969-X3N	●				2.91	6.08	3.80					
-0984	●	0.984 (25mm)		1.000	1.75	4.78	2.50	2.28	0.145			
-0984-X3N	●				2.95	6.17	3.89					

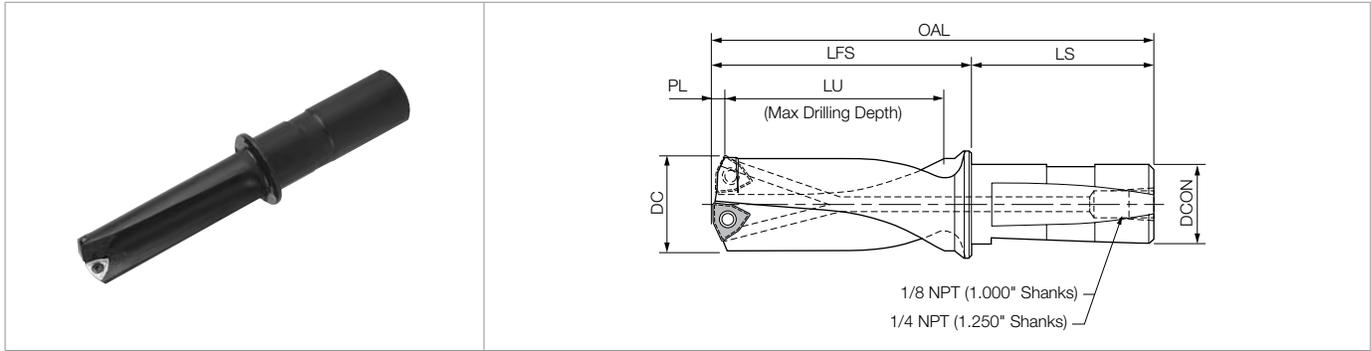
Recommended Cutting Conditions K108

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

HOLESHOT™ Drills (DR)



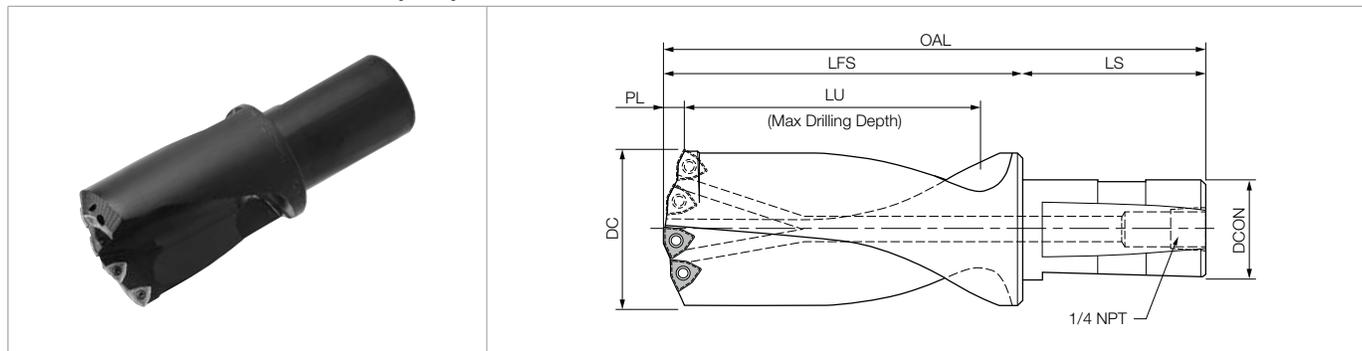
● Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K103	
			DC	DCON	LU	OAL	LFS	LS	PL	Insert Screw		Wrench
DR -1000	●	2	1.000	1.000	1.75	4.78	2.50	2.28	0.147	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
-1000-X3N	●				3.00	6.18	3.90					
-1024	●		1.024 (26mm)	1.000	1.75	4.78	2.50	2.28	0.150			
-1024-X3N	●				3.07	6.29	4.01					
-1031	●		1.031	1.000	2.13	5.16	2.88	2.28	0.151			
-1031-X3N	●				3.09	6.27	3.99					
-1062	●		1.062 (27mm)	1.000	2.13	5.16	2.88	2.28	0.155			
-1062-X3N	●				3.18	6.37	4.09					
-1094	●		1.094	1.000	2.13	5.16	2.88	2.28	0.159			
-1094-X3N	●				3.28	6.47	4.19					
-1102	●		1.102 (28mm)	1.000	2.13	5.16	2.88	2.28	0.160			
-1102-X3N	●				3.31	6.53	4.25					
-1125	●		1.125	1.000	2.13	5.16	2.88	2.28	0.163			
-1125-X3N	●				3.37	6.56	4.28					
-1142	●		1.142 (29mm)	1.000	2.13	5.16	2.88	2.28	0.165			
-1142-X3N	●	3.43			6.66	4.38						
-1156	●	1.156	1.000	2.13	5.16	2.88	2.28	0.167				
-1156-X3N	●			3.47	6.67	4.39						
DR -1181	●	2	1.181 (30mm)	1.000	2.13	5.16	2.88	2.28	0.169	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
-1181-X3N	●				1.000	3.54	6.78						4.50
-1187	●		1.187	1.000	2.13	5.16	2.88	2.28	0.169			
-1187-X3N	●				1.250	3.56	6.76						4.48
-1219	●		1.219	1.000	2.50	5.53	3.25	2.28	0.173			
-1219-X3N	●				1.250	3.66	6.86						4.58
-1250	●		1.250	1.000	2.50	5.53	3.25	2.28	0.177			
-1250-X3N	●				1.250	3.75	6.96						4.68
-1260	●		1.260 (32mm)	1.000	2.50	5.53	3.25	2.28	0.179			
-1260-X3N	●				1.250	3.78	7.03						4.75
-1281	●		1.281	1.000	2.50	5.53	3.25	2.28	0.181			
-1281-X3N	●				1.250	3.84	7.05						4.77
-1299	●		1.299 (33mm)	1.000	2.50	5.53	3.25	2.28	0.184			
-1299-X3N	●				1.250	3.90	7.15						4.87
-1312	●		1.312	1.000	2.50	5.53	3.25	2.28	0.185			
-1312-X3N	●	1.250			3.94	7.16	4.88					
-1339	●	1.339 (34mm)	1.000	2.50	5.53	3.25	2.28	0.189				
-1339-X3N	●			1.250	4.02	7.27			4.99			
-1344	●	1.344	1.000	2.50	5.53	3.25	2.28	0.190				
-1344-X3N	●			1.250	4.03	7.25			4.97			
-1375	●	1.375	1.000	2.50	5.53	3.25	2.28	0.193				
-1375-X3N	●			1.250	4.12	7.34			5.06			
-1406	●	1.406	1.000	2.75	5.78	3.50	2.28	0.197				
-1406-X3N	●			1.250	4.22	7.45			5.17			
-1417	●	1.417 (36mm)	1.000	2.75	5.78	3.50	2.28	0.199				
-1417-X3N	●			1.250	4.25	7.52			5.24			
-1437	●	1.437	1.000	2.75	5.78	3.50	2.28	0.196				
-1437-X3N	●			1.250	4.31	7.54			5.26			
-1457	●	1.457 (37mm)	1.000	2.75	5.78	3.50	2.28	0.199				
-1457-X3N	●			1.250	4.37	7.64			5.36			
-1469	●	1.469	1.000	2.75	5.78	3.50	2.28	0.200				
-1469-X3N	●			1.250	4.40	7.63			5.35			
-1496	●	1.496 (38mm)	1.000	2.75	5.78	3.50	2.28	0.204				
-1496-X3N	●			1.250	4.49	7.76			5.48			

Recommended Cutting Conditions [K108](#)

K
 DRILLING
 DRA
 DRC
 DRV
 DRS
 DRZ
 DRX
 HOLESHOT
 COREMASTER
 COREDRILL
 STINGER
 DRILL
 COUNTERBORE
 COUNTERSINK

HOLESHOT™ Drills (DR)



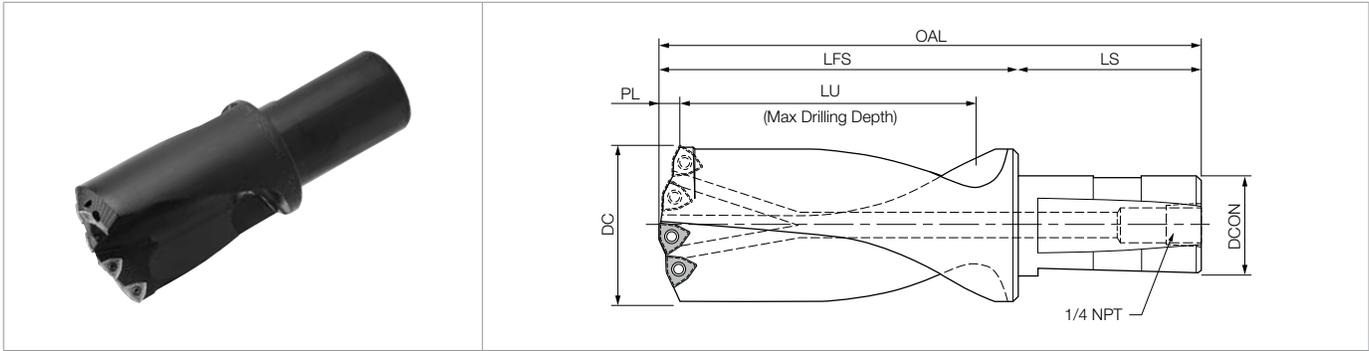
● Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page ● K103					
			DC	DCON	LU	OAL	LFS	LS	PL	Insert Screw 		Wrench 				
DR -1500	●	2	1.500	1.000	2.75	5.78	3.50	2.28	0.204	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A				
-1500-X3N	●			1.250	4.50	7.73	5.45	2.28								
-1531	●		1.531	1.250	2.88	6.16	3.88	2.28					0.208			
-1531-X3N	●			1.250	4.59	8.08	5.80	2.28								
-1535-X3N	●		1.535 (39mm)	1.250	4.61	8.08	5.80	2.28					0.209			
-1562	●		1.250	2.88	6.16	3.88	2.28									
-1562-X3N	●	1.562	1.250	4.68	8.17	5.89	2.28	0.212								
DR -1575	●	3	1.575 (40mm)	1.250	2.88	6.16	3.88	2.28	0.208	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A				
-1575-X3N	●			1.500	4.72	8.61	5.92	2.69								
-1594	●		1.594	1.250	2.88	6.16	3.88	2.28	0.210							
-1594-X3N	●			1.500	4.78	8.68	5.99	2.69								
-1614	●		1.614 (41mm)	1.250	2.88	6.16	3.88	2.28	0.212							
-1614-X3N	●			1.500	4.84	8.73	6.04	2.69								
-1625	●		1.625	1.250	2.88	6.16	3.88	2.28	0.214							
-1625-X3N	●			1.500	4.87	8.77	6.08	2.69								
-1656	●		1.656	1.250	2.88	6.16	3.88	2.28	0.218							
-1656-X3N	●			1.500	4.96	8.87	6.18	2.69								
-1687	●		1.687	1.250	2.88	6.16	3.88	2.28	0.221							
-1687-X3N	●			1.500	5.06	8.97	6.28	2.69								
-1693	●		1.693 (43mm)	1.250	2.88	6.16	3.88	2.28	0.222							
-1693-X3N	●			1.500	5.08	8.97	6.28	2.69								
-1719	●		1.719	1.250	3.00	6.41	4.13	2.28	0.225							
-1719-X3N	●			1.500	5.15	9.20	6.51	2.69								
DR -1732	●		4	1.732 (44mm)	1.250	3.00	6.41	4.13	2.28				0.224	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
-1732-X3N	●				1.500	5.20	9.29	6.60	2.69							
-1750	●	1.750		1.250	3.00	6.41	4.13	2.28	0.225							
-1750-X3N	●			1.500	5.25	9.30	6.61	2.69								
-1772	●	1.772 (45mm)		1.250	3.00	6.41	4.13	2.28	0.231							
-1772-X3N	●			1.500	5.31	9.42	6.73	2.69								
-1781	●	1.781		1.250	3.00	6.41	4.13	2.28	0.223							
-1781-X3N	●			1.500	5.34	9.38	6.69	2.69								
-1812	●	1.812		1.250	3.00	6.41	4.13	2.28	0.230							
-1812-X3N	●			1.500	5.43	9.48	6.79	2.69								
-1844	●	1.844		1.250	3.38	6.78	4.50	2.28	0.233							
-1844-X3N	●			1.500	5.53	9.58	6.89	2.69								
-1850	●	1.850 (47mm)		1.250	3.38	6.78	4.50	2.28	0.233							
-1850-X3N	●			1.500	5.55	9.66	6.97	2.69								
-1875	●	1.875		1.250	3.38	6.78	4.50	2.28	0.240							
-1875-X3N	●			1.500	5.62	9.68	6.99	2.69								
-1890-X3N	●	1.890 (48mm)		1.500	5.67	9.79	7.10	2.69	0.246							
-1906	●	1.906		1.250	3.38	6.78	4.50	2.28		0.254						
-1906-X3N	●			1.500	5.72	9.79	7.10	2.69								
-1929	●	1.929 (49mm)		1.250	3.38	6.78	4.50	2.28	0.259							
-1929-X3N	●			1.500	5.79	9.92	7.23	2.69								
-1937	●	1.937		1.250	3.38	6.78	4.50	2.28	0.259							
-1937-X3N	●			1.500	5.81	9.89	7.20	2.69								
-1969	●	1.969 (50mm)		1.250	3.38	6.78	4.50	2.28	0.260							
-1969-X3N	●			1.500	5.91	9.99	7.30	2.69								

Recommended Cutting Conditions ● K108

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

HOLESHOT™ Drills (DR)



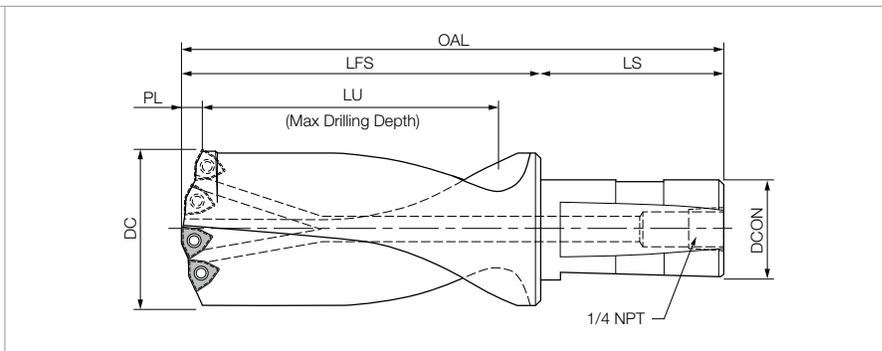
● Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K103	
			DC	DCON	LU	OAL	LFS	LS	PL	Insert Screw 		Wrench 
DR -2000	●	4	2.000	1.250	3.38	6.78	4.50	2.28	0.267	SCR-03	T9	WCMX 050308-M1 WCMX 050308-M1A
-2000-X1	●			1.250	2.13	6.06	3.38	2.28				
-2000-X3N	●			1.500	6.00	10.09	7.40	2.69				
-2008	●		2.008 (51mm)	1.250	3.38	6.78	4.50	2.28	0.267			
-2008-X3N	●			1.500	6.02	10.16	7.47	2.69				
-2031	●		2.031	1.500	3.50	7.44	4.75	2.69	0.268			
-2031-X1	●			1.500	2.13	6.06	3.38	2.69				
-2031-X3N	●			1.500	6.09	10.30	7.61	2.69				
-2047	●	1.500		3.50	7.44	4.75	2.69					
-2047-X3N	●	2.047 (52mm)	2.000	6.14	10.91	7.66	3.25	0.259				
-2062	●	1.500	3.50	7.44	4.75	2.69						
-2062-X1	●	2.062	1.500	2.13	6.06	3.38	2.69	0.260				
-2062-X3N	●		2.000	6.18	10.94	7.69	3.25					
-2094	●	2.094	1.500	3.50	7.44	4.75	2.69	0.267				
-2094-X1	●		1.500	2.13	6.06	3.38	2.69					
-2094-X3N	●		2.000	6.28	11.05	7.80	3.25					
-2125	●	2.125 (54mm)	1.500	3.50	7.44	4.75	2.69	0.266				
-2125-X1	●		1.500	2.13	6.06	3.38	2.69					
-2125-X3N	●		2.000	6.37	11.14	7.89	3.25					
-2156	●	2.156	1.500	3.88	7.81	5.13	2.69	0.270				
-2156-X1	●		1.500	2.31	6.25	3.56	2.69					
-2156-X3N	●		2.000	6.47	11.24	7.99	3.25					
-2187	●	2.187	1.500	3.88	7.81	5.13	2.69	0.273				
-2187-X1	●		1.500	2.31	6.25	3.56	2.69					
-2187-X3N	●		2.000	6.56	11.33	8.08	3.25					
-2205	●	2.205 (56mm)	1.500	3.88	7.81	5.13	2.69	0.283				
-2205-X3N	●		2.000	6.61	11.41	8.16	3.25					
-2219	●	2.219	1.500	3.88	7.81	5.13	2.69	0.277				
-2219-X1	●		1.500	2.31	6.25	3.56	2.69					
-2219-X3N	●		2.000	6.66	11.44	8.19	3.25					
-2244	●	2.244 (57mm)	1.500	3.88	7.81	5.13	2.69	0.281				
-2244-X3N	●		2.000	6.73	11.52	8.27	3.25					
-2250	●	2.250	1.500	3.88	7.81	5.13	2.69	0.281				
-2250-X1	●		1.500	2.31	6.25	3.56	2.69					
-2250-X3N	●		2.000	6.75	11.53	8.28	3.25					
-2281	●	2.281	1.500	3.88	7.81	5.13	2.69	0.283				
-2281-X1	●		1.500	2.31	6.25	3.56	2.69					
-2281-X3N	●		2.000	6.84	11.62	8.37	3.25					
-2312	●	2.312	1.500	3.88	7.81	5.13	2.69	0.287				
-2312-X1	●		1.500	2.31	6.25	3.56	2.69					
-2312-X3N	●		2.000	6.93	11.72	8.47	3.25					
-2323	●	2.323 (59mm)	1.500	3.88	7.81	5.13	2.69	0.290				
-2344	●	2.344	1.500	4.13	8.19	5.50	2.69	0.289				
-2344-X1	●		1.500	2.50	6.56	3.88	2.69					
-2344-X3N	●		2.000	7.03	11.95	8.70	3.25					

Recommended Cutting Conditions [K108](#)

K
 DRILLING
 DRA
 DRC
 DRV
 DRS
 DRZ
 DRX
 HOLESHOT
 COREMASTER
 COREDRILL
 STINGER
 DRILL
 COUNTERBORE
 COUNTERSINK

HOLESHOT™ Drills (DR)



● Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K103	
			DC	DCON	LU	OAL	LFS	LS	PL	Insert Screw 		Wrench
DR -2362	●	4	2.362 (60mm)	1.500	4.13	8.19	5.50	2.69	0.301	SCR-30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
-2362-X3N	●			2.000	7.09	12.02	8.77	3.25				
-2375	●		2.375	1.500	4.13	8.19	5.50	2.69	0.298			
-2375-X1	●			1.500	2.50	6.56	3.88	2.69				
-2375-X3N	●	2.000	7.12	12.05	8.80	3.25	0.304					
-2406	●	2.406	1.500	4.13	8.19	5.50		2.69				
-2406-X1	●		1.500	2.50	6.56	3.88	2.69					
-2406-X3N	●	2.000	7.22	12.15	8.90	3.25	0.309					
-2437	●	2.437	1.500	4.13	8.19	5.50		2.69				
-2437-X1	●		1.500	2.50	6.56	3.88	2.69					
-2437-X3N	●	2.000	7.31	12.25	9.00	3.25	0.309					
-2441	●	2.441 (62mm)	1.500	4.13	8.19	5.50		2.69				
-2441-X3N	●		2.000	7.32	12.26	9.01	3.25					
-2469	●	4	2.469	1.500	4.13	8.19	5.50	2.69	0.319			
-2469-X1	●			1.500	2.50	6.56	3.88	2.69				
-2469-X3N	●			2.000	7.41	12.36	9.11	3.25				
-2480	●	2.480 (63mm)	1.500	4.13	8.19	5.50	2.69	0.310				
-2480-X3N	●		2.000	7.44	12.38	9.13	3.25					
-2500	●	2.500	1.500	4.13	8.19	5.50	2.69	0.329				
-2500-X1	●		1.500	2.50	6.56	3.88	2.69					
-2500-X3N	●		2.000	7.50	12.46	9.21	3.25					
-2625	●	2.625	2.000	6.50	11.25	8.00	3.25	0.326				
-2625-X1	●		2.000	2.75	7.50	4.25	3.25					
-2750	●	2.750	2.000	6.50	11.25	8.00	3.25	0.340				
-2750-X1	●		2.000	2.75	7.50	4.25	3.25					
-2875	●	2.875	2.000	6.50	11.25	8.00	3.25	0.357				
-2875-X1	●		2.000	3.00	7.75	4.50	3.25					
-3000-X1	●	3.000	2.000	3.00	7.75	4.50	3.25	0.369				
-3000	●		2.000	6.50	11.25	8.00	3.25					
-3125	●	3.125	2.000	7.63	12.50	9.25	3.25	0.393				
-3125-X1	●		2.000	3.25	8.13	4.88	3.25					
-3250	●	3.250	2.000	7.63	12.50	9.25	3.25	0.387				
-3250-X1	●		2.000	3.25	8.13	4.88	3.25					
-3375	●	3.375	2.000	7.63	12.50	9.25	3.25	0.393				
-3375-X1	●		2.000	3.50	8.38	5.13	3.25					
-3500	●	6	3.500	2.000	7.63	12.50	9.25	3.25	0.440			
-3500-X1	●			2.000	3.50	8.38	5.13	3.25				
-3625	●		3.625	2.000	7.94	12.67	9.42	3.25	0.441			
-3625-X1	●	2.000		3.75	8.75	5.50	3.25					
-3750	●	3.750	2.000	8.00	13.00	9.75	3.25	0.459				
-3750-X1	●		2.000	3.75	8.75	5.50	3.25					
-3875	●	3.875	2.000	8.44	13.44	10.19	3.25	0.470				
-3875-X1	●		2.000	4.00	9.38	6.13	3.25					
-4000	●	4.000	2.000	8.56	13.88	10.63	3.25	0.482				
-4000-X1	●		2.000	4.00	9.38	6.13	3.25					

Recommended Cutting Conditions [K108](#)

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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HOLESHOT™ - Recommended Cutting Conditions (with Coolant)

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)								Notes
		MEGA COAT	PVD Coated Carbide					CVD Carbide	Carbide	
		PR1230	PR660	PR830	PR905	PR915	SP51	SC42	KW10	
Low Carbon Steel	0.0015-0.0035	★ 800-900	☆ 800-900	☆ 800-900	-	-	☆ 800-900	☆ 800-1,000	-	Coolant
Carbon Steel	0.005-0.009	★ 400-800	☆ 400-800	☆ 400-800	-	-	☆ 400-800	☆ 400-800	-	
Alloy Steel	0.004-0.010	★ 250-750	☆ 250-750	☆ 250-750	-	-	☆ 250-750	☆ 250-750	-	
Tool Steel	0.004-0.010	★ 250-750	☆ 250-750	☆ 250-750	-	-	☆ 250-750	☆ 250-750	-	
Stainless Steel (Austenitic)	0.0025-0.006	★ 200-600	☆ 200-600	☆ 200-600	-	-	☆ 200-600	☆ 200-600	-	
Gray Cast Iron	0.005-0.011	-	-	-	★ 400-800	-	-	-	☆ 400-800	
Nodular Cast Iron	0.004-0.010	-	-	-	★ 300-500	-	-	-	☆ 300-500	
Non-ferrous Metals	0.008-0.010	-	-	-	-	-	-	-	★ 1,800-2,000	
Heat-resistant Alloy	0.0010-0.0015	★ 75-150	-	☆ 75-150	-	☆ 100-150	☆ 75-150	-	-	
Titanium Alloys	0.0025-0.0030	-	-	-	★ 100-210	★ 100-210	-	-	☆ 150-250	

• Apply a sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation

HOLESHOT™ Applications

DRILL APPLICATION HOLESHOT INDEXABLE DRILL

Stationary

For stationary (lathe) applications the drill should be mounted in a toolholder that is concentric within 0.003 TIR and parallel to the machine centerline. Flats on the shank should be precisely aligned so that the cutting edges are parallel to the x-axis, which will help chip flow.

A disc is normally produced as the drill breaks through the hole. Although the disc is usually minimal with holeshot, adequate guarding should be provided for and in place.

holeshot drills can be used to back bore an existing hole to a desired size. The drill can be offset by up to 0.015" for back boring.

Rotating

Make certain the spindle is rigid with minimal runout. Since both machine and fixture rigidity are key factors, make sure the workpiece is fixed rigidly and secured. Mount drill for the least possible overhang and make sure the drill flange is flush against the face of the adapter.

Coolant - Chip removal and tool life are enhanced by feeding coolant through the drill. 30 P.S.I. minimum coolant pressure is recommended for horizontal applications. Vertical position requires a higher coolant pressure (40 to 60 P.S.I.) to flush chips properly.

Through the tool coolant is preferred for holeshot drilling, but due to the unique flute design, coolant deficiencies can be overcome. Especially in smaller, lower horsepower machine tools, strong flood coolant can be utilized with excellent results. When flooding the cut, direct coolant directly into the drilling area.

K	DRILLING
	DRA
	DRC
	DRV
	DRS
	DRZ
	DRX
	HOLESHOT
	COREMASTER COREDRILL
	STINGER DRILL
COUNTERBORE COUNTERSINK	

Coremaster Coredrill

Fast and Effective way to Expand Pre-Existing Holes
 Superior Fracture Resistance and Long Tool Life with
 MEGACOAT Coating Technology



- 1** Two Effective Flutes Allow High Feed Rates for Improved Productivity
- 2** WCMX Inserts Available in MEGACOAT Grade PR1230
- 3** Deeper Drilling Depths Available in XL Series

Coremaster Coredrill available in both **Fixed Pocket** and **Adjustable Cartridge**
 Adjustable cartridges can be adjusted 0.075" per side, providing 0.150" adjustment capability on diameter

Applicable Coremaster Coredrill Inserts

Usage Classification		P	M	K	N	S									
★ : 1st Recommendation ☆ : 2nd Recommendation		Carbon Steel / Alloy Steel		☆	★								☆		
		Tool Steel	☆	☆	★	☆	☆						☆		
		Stainless Steel	☆	☆	★	☆	☆							☆	
		Cast Iron												★	☆
		Non-ferrous Metals													★
	S	Heat-resistant Alloy				★				☆			☆		
Insert	Part Number	Dimensions (in)				Cermet	PVD Cermet	MEGA COAT	PVD Coated Carbide				Carbide		
		IC	S	D1	RE	TN60	PV90	PR1230	PR660	PR830	PR905	PR915	KW10		
	WCMX 050308-M1	5/16	1/8	0.125	1/32	●		●	●	●	●	●	●		
	050308-M1A						●	●	●	●	●	●			
	06T308-M1	3/8	5/32	0.146		●	●	●	●	●	●	●	●		
	06T308-M1A						●	●	●	●	●	●	●		

WCMX...M1 : General purpose drilling insert; First choice for Med-High Carbon Steel, Tool Steels, and Cast Iron; also available for general purpose drilling in Stainless Steel. Tougher edge than M1A chipbreaker.
 WCMX...M1A: First choice for Low-carbon Steel, Aluminum, and other "sticky" materials. Freer cutting than M1 chipbreaker.

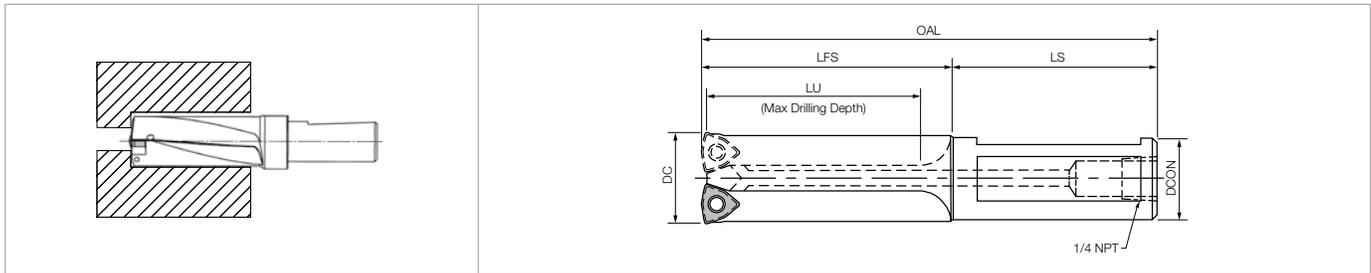
Applicable Toolholders [K110-K111](#)

Inserts are sold in 10 piece boxes

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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Coremaster Coredrills (CD)

Fixed Pocket



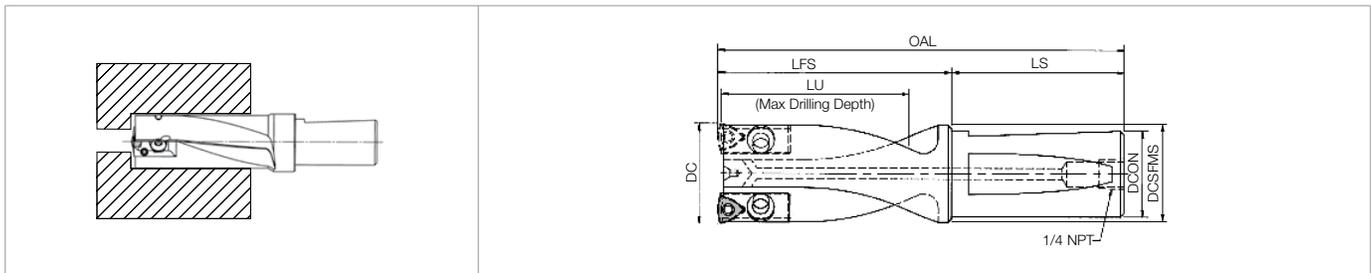
Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K109
			DC	DCON	LU	OAL	LFS	LS	Insert Screw	Wrench	
CD -0825	●	2	0.825	1.000	1.750	4.750	2.250	2.500	SCR03	T9	WCMX 050308-M1 WCMX 050308-M1A
-0865	●		0.865								
-0938	●		0.938								
-0990	●		0.990								
-1052	●		1.052								
-1115	●	2	1.115	1.000	2.500	5.500	3.000	2.500	SCR30	T10	
-1178	●		1.178								
-1240	●		1.240								
-1303	●		1.303								

• Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Coremaster Coredrills (CD)

Adjustable Cartridge



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)							Spare Parts				Applicable Insert See Page K109
			DC	DCON	DCSFMS	LU	OAL	LFS	LS	Insert Screw	Wrench	Cartridge	Cartridge Screw	
CD -1360-C	●	2	1.36-1.46	1.250	1.27	2.750	6.250	3.500	2.750	SCR30	T10	02-03	01-01	WCMX 06T308-M1 WCMX 06T308-M1A
-1460-C	●		1.46-1.56											
-1560-C	●		1.56-1.66											
-1660-C	●		1.66-1.76											
-1760-C	●		1.76-1.86											
-1860-C	●		1.86-1.96											
-1960-C	●		1.96-2.06											
-2060-C	●		2.06-2.16											
-2160-C	●		2.16-2.26											
-2260-C	●		2.26-2.36											
-2360-C	●		1.500	2.36-2.46	3.125	7.000	4.000	3.000	01-02					
-2460-C	●			2.46-2.56										
-2560-C	●			2.56-2.66										
-2660-C	●			2.66-2.76										
-2760-C	●			2.76-2.86										
-2860-C	●			2.86-2.96										
-2960-C	●	2.96-3.06												

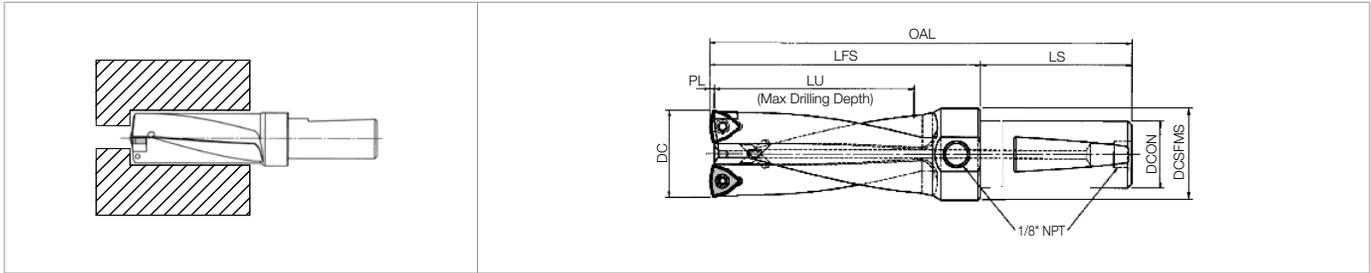
• Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions [K112](#)

DRILLING
 K
 DRA
 DRC
 DRV
 DRS
 DRZ
 DRX
 HOLESHOT
 COREMASTER
 COREDRILL
 STINGER
 DRILL
 COUNTERBORE
 COUNTERSINK

Coremaster Coredrills (CD-XL)

Extended Length - Fixed Pocket



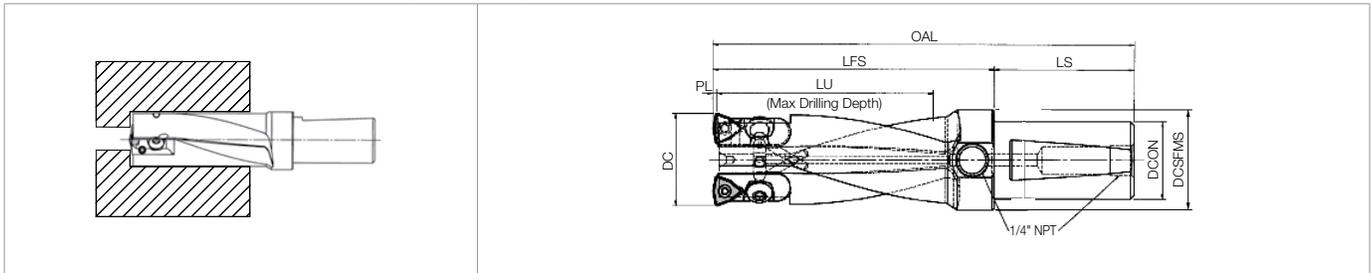
Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts		Applicable Insert See Page K109	
			DC	DCON	DCSFMS	LU	OAL	LFS	LS	Insert Screw		Wrench
CD -0825-XL	●	2	0.825	1.000	1.375	2.250	5.530	3.250	2.280	SCR03	T9	WCMX 050308-M1 WCMX 050308-M1A
-0865-XL	●		0.865	1.000	1.375	2.250	5.530	3.250	2.280			
-0938-XL	●		0.938	1.000	1.375	2.500	5.780	3.500	2.280			
-0990-XL	●		0.990	1.000	1.375	2.500	5.780	3.500	2.280	SCR30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
-1052-XL	●		1.052	1.000	1.375	2.500	5.780	3.500	2.280			
-1115-XL	●		1.115	1.000	1.375	3.000	6.280	4.000	2.280			
-1178-XL	●		1.178	1.000	1.375	3.000	6.280	4.000	2.280	SCR30	T10	WCMX 06T308-M1 WCMX 06T308-M1A
-1240-XL	●		1.240	1.000	1.375	3.000	6.280	4.000	2.280			
-1303-XL	●		1.303	1.000	1.375	3.000	6.280	4.000	2.280			

• Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Coremaster Coredrills (CD-LC)

Extended Length - Adjustable Cartridge



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)						Spare Parts				Applicable Insert See Page K109	
			DC	DCON	DCSFMS	LU	OAL	LFS	LS	Insert Screw	Wrench	Cartridge		Cartridge Screw
CD -1350-LC	●	2	1.35-1.50	1.250	1.63	3.500	6.780	4.500	2.280	SCR30	T10	02-03	01-01	WCMX 06T308-M1 WCMX 06T308-M1A
-1500-LC	●		1.50-1.65											
-1650-LC	●		1.65-1.80	1.500	1.88	4.500	8.190	5.500	2.690					
-1800-LC	●		1.80-1.95											
-1950-LC	●		1.95-2.10	1.500	-	4.500	8.190	5.500	2.690					
-2100-LC	●		2.10-2.25											
-2250-LC	●		2.25-2.40	2.000	2.38	5.500	9.750	6.500	3.250				01-02	
-2400-LC	●		2.40-2.55	2.000	-	5.500	9.750	6.500	3.250					
-2550-LC	●		2.55-2.70											
-2700-LC	●		2.70-2.85	2.000	-	6.000	10.250	7.000	3.250					
-2850-LC	●		2.85-3.00											
-3000-LC	●		3.00-3.15											

• Maximum material removal: WCMX 050308 – 5/16" per side, WCMX 06T308 – 3/8" per side.

Recommended Cutting Conditions [K112](#)

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX

COREMASTER COREDRILL RECOMMENDED CUTTING CONDITIONS

Coremaster Coredrills (CD) - Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)							Notes
		Cermet	MEGACOAT	PVD Coated Carbide				Carbide	
		TN60	PR1230	PR660	PR830	PR905	PR915	KW10	
Low Carbon Steel	0.003-0.007	-	★ 800-900	☆ 800-900	☆ 800-900	-	-	-	Coolant
Carbon Steel	0.010-0.018	-	★ 400-800	☆ 400-800	☆ 400-800	-	-	-	
Alloy Steel	0.008-0.020	-	★ 250-750	☆ 250-750	☆ 250-750	-	-	-	
Tool Steel	0.008-0.020	-	★ 250-750	☆ 250-750	☆ 250-750	-	-	-	
Stainless Steel (Austenitic)	0.005-0.012	-	★ 200-600	☆ 200-600	☆ 200-600	-	-	-	
Gray Cast Iron	0.010-0.022	-	-	-	-	★ 400-800	-	☆ 400-800	
Nodular Cast Iron	0.008-0.020	-	-	-	-	★ 300-500	-	☆ 300-500	
Non-ferrous Metals	0.016-0.020	☆ 1,800-2,000	-	-	-	-	-	★ 1,800-2,000	
Heat-resistant Alloy	0.002-0.005	-	★ 75-150	-	☆ 75-150	-	☆ 100-150	-	
Titanium Alloys	0.005-0.006	-	-	-	-	★ 100-210	★ 100-210	☆ 150-250	

★ : 1st Recommendation ☆ : 2nd Recommendation

K	DRILLING
	DRA
	DRC
	DRV
	DRS
	DRZ
	DRX
	HOLESHOT
	COREMASTER COREDRILL
	STINGER DRILL
COUNTERBORE COUNTERSINK	

Stinger Drills



- 1** Economic Alternative to the Magic Drill
- 2** Perfect for Job Shop or Small Quantity Production
- 3** Ideal for Low Horsepower Machines
- 4** Cermet and Coated Carbide Inserts Available

Applicable Stinger Drill Inserts

Usage Classification		P		M		K		N		S	
★ : 1st Recommendation ☆ : 2nd Recommendation		Carbon Steel / Alloy Steel		Stainless Steel		Cast Iron		Non-ferrous Metals		Heat-resistant Alloy	
		Tool Steel									
Insert	Part Number	Dimensions (in)				Cermet	PVD Cermet	CVD Coated Carbide	PVD Coated Carbide	Carbide	
		IC	S	D1	RE	TN60	PV90	CA6535	PR830	KW10	
	TCMT 12122HP	5/32	0.078	0.087	1/32	●	●	●	●	●	
	18152HP	7/32	3/32	0.094	1/32	●	●	●	●	●	

*Unless noted, use the same grade insert in all pockets

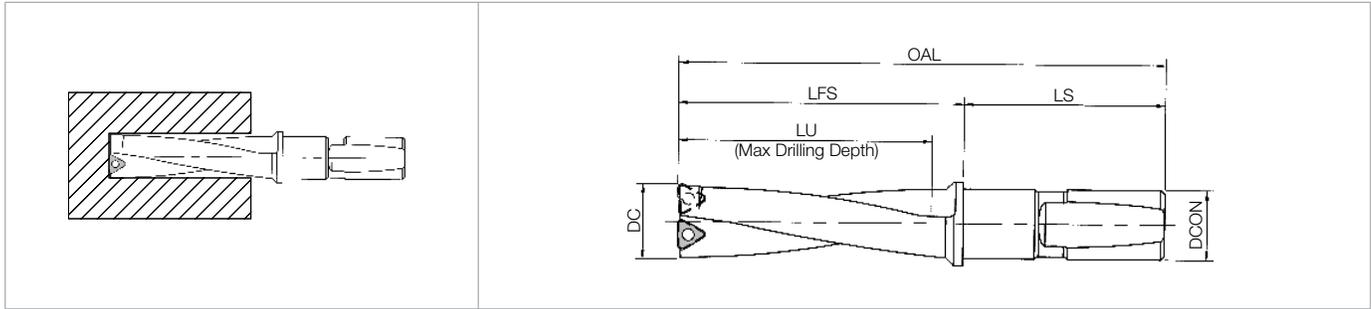
Applicable Toolholders **K114**

Inserts are sold in 10 piece boxes

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

STINGER DRILLS

Stinger Drills (SDR)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Spare Parts		Applicable Insert See Page K113	
			DC	DCON	LU	OAL	LFS	LS	Insert Screw		Wrench
SDR -0484	●	2	0.484	0.500	1.45	3.45	1.95	1.50	SCR07	T6	TCMT 12122HP
-0492	●		0.492 (12.5mm)								
-0500	●		0.500								
-0512	●		0.512 (13mm)								
-0516	●		0.516								
-0531	●		0.531								
-0547	●		0.547								
-0551	●		0.551 (14mm)								
-0563	●		0.563								
-0578	●		0.578								
-0591	●		0.591 (15mm)								
-0594	●		0.594								
-0609	●		0.609								
-0625	●		0.625								
-0630	●		0.630 (16mm)								
SDR -0641	●	2	0.641	0.500	1.80	3.80	2.30	1.50	SCR07	T6	TCMT 12122HP
-0656	●		0.656								
-0669	●		0.669 (17mm)								
-0672	●		0.672								
-0688	●		0.688								
-0703	●		0.703								
-0709	●	0.709 (18mm)									
SDR -0719	●	2	0.719	0.625	2.16	4.41	2.66	1.75	SCR-05	T7	TCMT 18152HP
-0734	●		0.734								
-0748	□		0.748 (19mm)								
-0750	●		0.750								
-0766	●		0.766								
-0781	●		0.781								
-0787	●		0.787 (20mm)								
-0797	●		0.797								
-0813	●		0.813								
-0828	●		0.828								
-0844	●	0.844									

*Unless noted, use the same grade insert in all pockets

Recommended Cutting Conditions [K115](#)

STINGER DRILL RECOMMENDED CUTTING CONDITIONS

Stinger Drills (SDR) - Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipr)	Recommended Insert Grade / Cutting Speed (sfm)					Notes
		Cermet	PVD Cermet	CVD Coated Carbide	PVD Coated Carbide	Carbide	
		TN60	PV90	CA6535	PR830	KW10	
Low Carbon Steel	0.001-0.002	☆ 300-900	☆ 250-900	-	★ 250-700	-	Coolant
Carbon Steel	0.001-0.003	☆ 450-700	☆ 400-700	-	★ 400-600	-	
Alloy Steel	0.001-0.003	☆ 450-700	☆ 400-700	-	★ 400-600	-	
Tool Steel	0.001-0.002	☆ 300-450	☆ 250-450	-	★ 200-400	-	
Stainless Steel (Austenitic)	0.001-0.002	-	-	★ 350-600	★ 300-550	-	
Gray Cast Iron	0.001-0.003	☆ 500-900	-	-	★ 300-500	★ 250-450	
Nodular Cast Iron	0.001-0.003	☆ 400-700	-	-	★ 300-450	★ 250-400	
Non-ferrous Metals	0.001-0.006	☆ 500-1,200	-	-	-	★ 400-1,100	
Heat-resistant Alloy	0.0005-0.0015	-	-	★ 75-200	☆ 75-125	-	
Titanium Alloys	0.0008-0.0015	-	-	-	-	☆ 50-125	

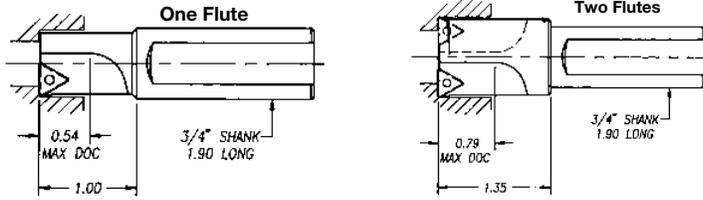
*Unless noted, use the same grade insert in all pockets

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Counterbores

For Socket Head Cap Screw Sizes 1/4"~3/4" and 6mm~16mm

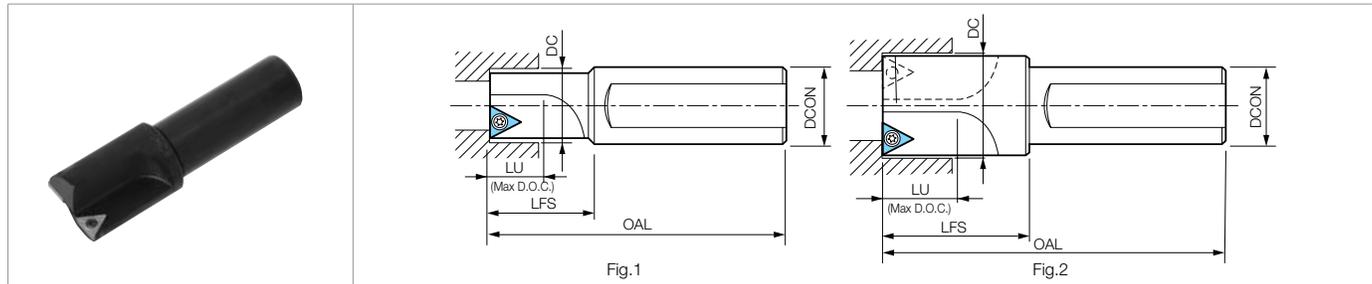


Applicable Counterbore Inserts

Usage Classification		P	M	K	N	S							
★ : 1st Recommendation ☆ : 2nd Recommendation		Carbon Steel / Alloy Steel Tool Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Heat-resistant Alloy							
Insert	Part Number	Dimensions (in)				Cermet	PVD Cermet		CVD Carbide		PVD Carbide	Carbide	
		IC	S	D1	RE	TN60	PV7010	PV7025	PV90	CA6535	CA525	PR830	KW10
	TCMT 18151HP	7/32	3/32	0.094	1/64	●			●	●		●	●
	TCMT 18151HQ	7/32	3/32	0.098	1/64	●	△	△			●		

Counterbores (SHCS-CB)

Inserts are sold in 10 piece boxes



Toolholder Dimensions (Inch & Metric Sizes)

Part Number	Stock	Unit	No. of Inserts	Dimensions					Drawing	Spare Parts		Applicable Insert See Table Above	
				SHCS Size	DC	DCON	LU	OAL		LFS	Insert Screw		Wrench
1/4-SHCS-CB	●	inch	1	1/4	0.422	0.750	0.54	2.90	1.00	Fig.1	SCR-05	FT-7	TCMT 18151HP TCMT 18151HQ
5/16-SHCS-CB	●			5/16	0.515								
3/8-SHCS-CB	●			3/8	0.609								
7/16-SHCS-CB	●			7/16	0.703								
1/2-SHCS-CB	●	mm	2	1/2	0.797	0.750	0.54	2.90	1.00	Fig.1	SCR-05	FT-7	TCMT 18151HP TCMT 18151HQ
5/8-SHCS-CB	●			5/8	1.000								
3/4-SHCS-CB	●			3/4	1.187								
M6-SHCS-CB	●			M6	0.440								
M8-SHCS-CB	●	mm	1	M8	0.558	0.750	0.54	2.90	1.00	Fig.1	SCR-05	FT-7	TCMT 18151HP TCMT 18151HQ
M10-SHCS-CB	●			M10	0.676								
M12-SHCS-CB	●			M12	0.755								
M16-SHCS-CB	●			M16	1.00								

● Maximum material removal per side is 1/4"

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

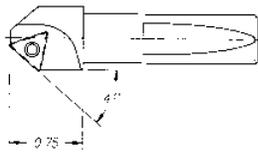
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

- K
- DRILLING
- DRA
- DRC
- DRV
- DRS
- DRZ
- DRX
- HOLESHOT
- COREMASTER
COREDRILL
- STINGER
DRILL
- COUNTERBORE
COUNTERSINK

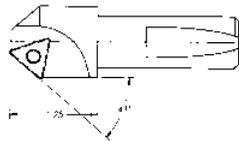
Countersinks

For Flat Head Cap Screw Sizes #10 ~ 3/4"

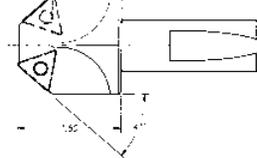
CS-82-177



CS-82-362



CS-82-612

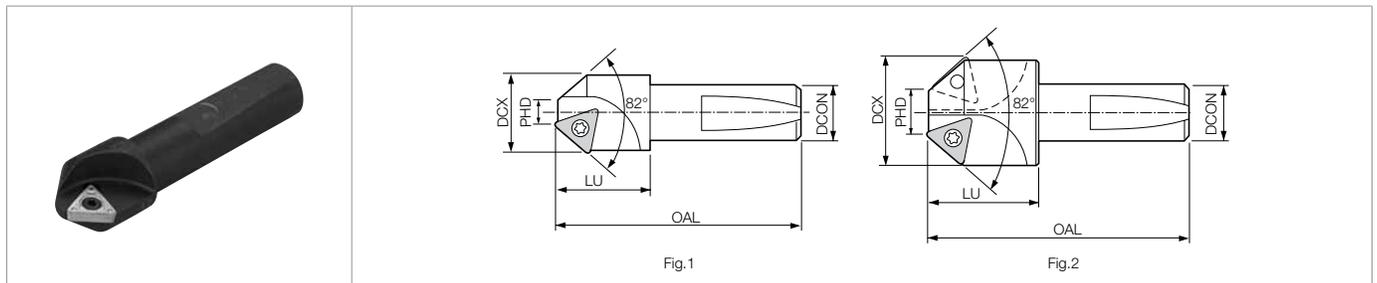


Applicable Countersink Inserts

Usage Classification		P	M	K	N	S							
★ : 1st Recommendation ☆ : 2nd Recommendation		Carbon Steel / Alloy Steel	☆	☆	☆	★	★	☆					
		Tool Steel	☆	☆	☆	★	★	☆					
		Stainless Steel					★	★	☆				
		Cast Iron			☆		☆					☆	
		Non-ferrous Metals	☆									☆	
		S								☆			
Insert	Part Number	Dimensions (in)				Cermet	PVD Cermet		CVD Carbide	PVD Coated Carbide		Carbide	
		IC	S	D1	RE	TN60	PV7010	PV720	CA525	PR830	PR930	KW10	
	TCMT 2151HQ	1/4	3/32	0.110	1/64	●	△	●	●	●	●	●	
	3252HQ	3/8	5/32	0.173	1/32	●		●	●	●			

Countersinks (CS)

Inserts are sold in 10 piece boxes



Toolholder Dimensions (Inch Sizes)

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle		Drawing	FHCS Size	Spare Parts		Applicable Insert See Table Above
			DCX	PHD	DCON	OAL	LU	A.R.	R.R.			Insert Screw	Wrench	
CS 82-177	●	1	0.673	0.177	0.500	2.530	0.750	0°	0°	Fig.1	#10, 1/4", 5/16"	SCR-01	FT-7	TCMT2151
82-362	●	1	1.073	0.362	0.750	3.280	1.250				3/8", 7/16", 1/2"	SCR-02	FT-15	TCMT3252
82-612	●	2	1.464	0.612	0.750	3.530	1.500				5/8", 3/4"			

● CS82-612 is one flute effective with staggered inserts.

A INSERT GRADES
 B TURNING INSERTS
 C GEN/PCD INSERTS
 D TURNING HOLDERS
 E SMALL TOOLS
 F BORING
 G GROOVING
 H CUT-OFF
 J THREADING
 K DRILLING
 M MILLING
 N QUICK CHANGE TOOLING
 P SPARE PARTS
 R TECHNICAL
 T INDEX

Custom Drills

Several customization options available for your specific drilling applications

Add Multiple Counterbores, Countersinks, or Chamfer Inserts

Custom Shanks Available

CAT
ABS
BT
HSK
Metric

Special Diameters & Lengths

Custom Diameters and Lengths Available

Customized Drill Ordering Procedure

To request a quote for a custom drill, please follow the steps below:

1. Photocopy and fill out the Special Tool Design Worksheet on adjacent page.
2. Fax the completed form along with any necessary prints and drawings to the Kyocera Quotations Department at 828-692-1344.
3. Contact the Kyocera Quotations Department at 800-823-7284 with any questions regarding the custom drill quotation procedure.

SPECIAL TOOL DESIGN WORKSHEET

DATE: _____

CUSTOMER INFORMATION

Company Name: _____

Phone: _____

Contact: _____

Fax: _____

Address: _____

Email: _____

City, State, Zip: _____

Kyocera Distributor Name: _____

PART INFORMATION

Part Number or Description: _____

Material: _____

Hardness (Rc): _____

Current problem or objective: _____

MACHINE INFORMATION

Machine being tooled: _____

Machine condition, age: _____

Spindle Hp: _____

Max RPM: _____

Max IPM: _____

Circle one of each: Horizontal or vertical spindle? Stationary or rotating tooling?

TOOL INFORMATION

Describe the tool (drill, mill, combo tool?) _____

Quantity to quote: _____

Shank size/description: _____

Right or left hand cutting: _____

Thru coolant? (and inlet type/location): _____

Size or weight restrictions (if applicable): _____

Prints and Drawings

Finished part

Raw stock or casting

Fixturing

Special inserts, hardware, etc.

Process sheet

Existing tooling

Supplied information should include:

Tolerance requirements, raw stock tolerances

Surface finish requirements (witness lines ok?)

Depth(s) of cut

Fillets, inside corner radii (insert nose radii)

Allowable overtravel on thru cuts

Amount of finish stock to leave

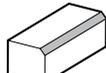
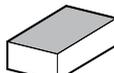
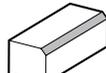
MILLING

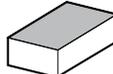
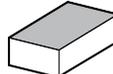
M

M1 - M256

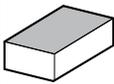
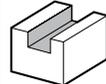
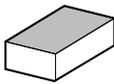
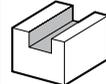
MILLING SERIES		M2 - M10
PRODUCT LINEUP		M2
MILLING INSERTS		M12 - M30
45° / 66° / 70° LEAD ANGLE		M31 - M44
MFPN45		M31
MFPN66		M36
MFLN45 / MFLN70		M40
MFK	for Cast Iron Machining	M46
MOF45		M52
75° LEAD ANGLE		M53 - M57
MSRS15		M53
90° / 88° LEAD ANGLE		M58 - M161
MEW	M-FOUR	M58
MEC / MECX		M68
MEV	M-THREE	M84
MEWH / MECH / MECHT	Helical End Mills	M92
MFWN	M-SIX	M106
MFSN88		M118
MFLN90		M122
MSRS90		M124
MSR / MSR-BT50		M130
MTP90		M137
DMC / DMC-SX / DMC-H		M138
MFAH	for Aluminum Machining	M142
MEAS	for Aluminum Machining	M150
EM / EM-LE / FM-90		M156
FM-AL / EM-AL	for Aluminum Machining	M159
MAP / CEM		M160
HIGH FEED MILLING		M162 - M187
MFH	MFH-RAPTOR	M164
MFH	MFH-RAPTOR Mini	M175
MFH	MFH-RAPTOR Micro	M182
FINISH MILLING		M188 - M193
MFF		M188
MULTI-FUNCTION END MILLS (MEY / MEZ-G)		M194 - M197
SLOT MILLS (MSTA / MSTB / MSTC)		M198 - M223
BALL-NOSE / RADIUS CUTTERS		M224 - M243
MRF / MRFW		M224
MRW	RAD-8	M226
MRX	RAD-6	M234
OTHER APPLICATIONS		M244 - M256
API	Ring Groover	M244
CM / CM-AL	Chamfering End Mill	M247
MCSE	Chamfering End Mill	M248
MEF	Bolt Countersink End Mill	M250
METS	T-Slot Mill	M252
MGI	Grooving End Mills for M/C	M254
MVG	Ring Grooving End Mills for M/C	M256

45° / 66° / 70° / 75° Lead Angles

Lead Angle	Applications		Lead Angle	Applications	
	Facing	Chamfering		Facing	Chamfering
					
	Shape			Shape	
45°	MFPN45  M31	<ul style="list-style-type: none"> • 10-edge pentagonal inserts • Double-sided pentagonal insert Economical with 10-edge insert • Low cutting force due to helical cutting-edge design • Fractures suppressed with double-edge position 	45°	MFLN45  M42	<ul style="list-style-type: none"> • Heavy milling • Tangentially mounted inserts for high stability • Large D.O.C. and high feed rates • Maximum D.O.C. = 12mm
	MFPN45  M33	<ul style="list-style-type: none"> • 10-edge pentagonal inserts • Double-sided pentagonal insert Economical with 10-edge insert • Low cutting force due to helical cutting-edge design • Fractures suppressed with double-edge position • With weldon or cylindrical shank 		MOF45  M52	<ul style="list-style-type: none"> • Octagonal insert with 8 cutting edges • Insert sizes are available in 05 and 07 • Silver coated

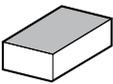
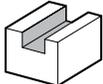
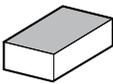
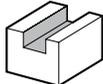
Lead Angle	Applications		Lead Angle	Applications	
	Facing			Facing	
					
	Shape			Shape	
66°	MFPN66  M37	<ul style="list-style-type: none"> • Double-sided 10-edge insert • Cutting edge angle of 66° • Reduces chattering with a low cutting force design 	70°	MFLN70  M43	<ul style="list-style-type: none"> • Heavy milling • Tangentially mounted inserts for high stability • Large D.O.C. and high feed rates • Maximum D.O.C. = 17mm
	MFPN66  M38	<ul style="list-style-type: none"> • Double-sided 10-edge insert • Cutting edge angle of 66° • Reduces chattering with a low cutting force design • With Ø32mm and Ø40mm cylindrical shanks 		MFK  M48	<ul style="list-style-type: none"> • High efficiency multi-edge cutter for cast iron • Economical double-sided 10-edge inserts • Low cutting forces due to helical cutting-edge design • Improved surface finish, minimizing chattering and prevents burr formation • Dual cutting edge design (high toughness)
	MSRS15  M54	<ul style="list-style-type: none"> • For heavy cutting • Max D.O.C. 0.472" • Metal removal rate is increased drastically 		MFK-SF  M50	<ul style="list-style-type: none"> • Cutter for cast iron with adjustable cutting edge height • High speed and high precision machining of cast iron by combining ceramic and CBN wiper inserts

90° / 88° Lead Angles (Double-sided Insert)

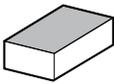
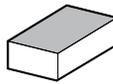
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
90°	MEW End Mill  M60	<ul style="list-style-type: none"> Economical 4-edge Insert Obtuse edge increases cutting edge toughness Smooth surface wall due to low cutting forces Good anti-chatter performance 	MFWN Face Mill  M108	<ul style="list-style-type: none"> Economical 6-edge Insert Superior fracture resistance due to thick edge design Dynamic slant design reduces shock when cutting edge enters the workpiece Low cutting forces End mills have weldon or cylindrical shanks 					
	MEW Face Mill  M62				MFWN End Mill  M111				
	MEW Modular  M64				MFWN-Mini Face Mill NEW  M114				
88°			MFWN-Mini End Mill NEW  M115	<ul style="list-style-type: none"> Small diameter for 5mm D.O.C. or less Economical 6-edge insert Superior fracture resistance due to thick edge design Dynamic slant design reduces shock when cutting edge enters the workpiece Low cutting forces and chatter resistance 					
		MFSN88 Face Mill  M119	<ul style="list-style-type: none"> Economical double-sided 8-edge insert Reduces chattering with a low cutting force design Lower machining costs for shoulder roughing End mills have Ø32mm and Ø40mm cylindrical shank 						
		MFSN88 End Mill  M120							

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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90° Lead Angles (Heavy Milling)

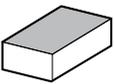
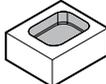
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
Shape					Shape				
0° (Long Cutting Edge)	MEWH  M93	<ul style="list-style-type: none"> Low cutting force and sharp cutting performance Excellent surface finish quality Economical double-sided 4-edge inserts High quality and stable machining during heavy milling applications 	MECH  M96	<ul style="list-style-type: none"> Notched insert promotes higher productivity Large depth of cut provides high efficiency cutting MECH is the best solution for problems with heavy milling 					
	MEWH Shell Mill  M94	<ul style="list-style-type: none"> MEWH shell mill 	MECH Shell Mill  M97	<ul style="list-style-type: none"> MECH shell mill 					
	MSR  M131	<ul style="list-style-type: none"> Low cutting force and resistance to chattering with notched insert Chipbreaker design with specialized notches improves chip evacuation Chipbreaker achieves stabilized cutting for heavy roughing applications 	MECH-BT50 MECH-BT50SA  M97~M99	<ul style="list-style-type: none"> Highly rigid, integral BT50 arbor Head exchangeable type is available (MECH-BT50SA) 					
	MSR-BT50  M133	<ul style="list-style-type: none"> Highly rigid, BT50 Arbor 	MECHT  M105	<ul style="list-style-type: none"> Designed for stable machining in titanium alloy with exceptional chatter resistance and chip control Helical end mill type available with Ø32mm shank 					
	MFLN90  M122	<ul style="list-style-type: none"> Heavy milling Tangentially mounted inserts for high stability Large D.O.C. and high feed rates Maximum D.O.C. = 20mm 	MAP  M160	<ul style="list-style-type: none"> Cutting dia. 1.000" Low cutting force, good chip evacuation High-efficiency machining 					
	MSRS90  M126	<ul style="list-style-type: none"> Notched insert reduces cutting forces Stable cutting without chatter Neutral insert allows the possibility of various custom-ordered cutters 	CEM  M161	<ul style="list-style-type: none"> Cutting dia. 0.375" to 1.500" For small milling machines 					

90° Lead Angles

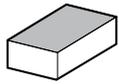
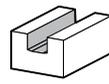
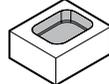
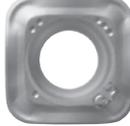
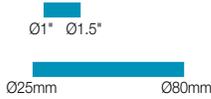
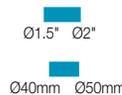
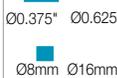
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
Shape					Shape				
90°	MEC End Mill  • Great 90 degree shoulders • Low cutting force • The silver coating prevents chip wear on the tool body • With air hole (Over Ø16) → M68				90°	MEV End Mill NEW  • New vertically mounted triangle insert design achieves low cutting forces and high rigidity • Economical 3-edge inserts • Multi-functional milling for various machining applications → M86			
	MEC Face Mill  • The twisted cutting edge improves cutting performance • Smooth surface of shoulder Wall • True 90° Corners • The silver coating prevents chip wear on the tool body • Available with coolant holes → M71					MEV Face Mill NEW  → M87			
	MEC Modular  • Great 90 degree shoulders • Low cutting force • The silver coating prevents chip wear on the tool body • With air hole (Over Ø16) → M73					MEV Modular NEW  → M88			
	MECX End Mill  • Great 90 degree shoulders • Small size Insert with multi-edge specification • Low cutting force • The silver coating prevents chip wear on the tool body • With air hole → M80					DMC  • For small milling machine, M/C → M138			
	MECX Face Mill  • Efficient machining due to small diameter cutter that holds multiple inserts • Recommended for small machines: low cutting force and high strength design • The silver coating prevents chip wear on the tool body • Available with coolant holes → M81					DMC-H  • High rake type • For small milling machine, M/C → M140			
	MTP90  • Medium to roughing of steel / cast iron • For small machines and M/C → M137					DMC-SX  • For small milling machine, M/C → M139			
	EM  • Extended length end mills → M156								
	EM-LE  • Long edge end mill → M157								
	FM-90  • Fixed pocket face mills → M158								
	FM-AL  • Aluminum cutting face mills • Fixed pocket → M159								
	EM-AL  → M159								

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Aluminum Milling Cutters

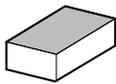
Lead Angle	Applications	Facing	Shouldering	Slotting	Pocketing
					
Shape					
90°	MFAH  M144	<ul style="list-style-type: none"> • High efficiency milling cutter for finishing aluminum • Light-weight hybrid body with internal coolant available • Adjustable blade runout • 3 different cutting edges 			
	MEAS End Mill  M152	<ul style="list-style-type: none"> • High efficiency, high-speed end mills for aluminum machining • Reliable scatter prevention • Great for multiple machining applications 			
	MEAS Face Mill  M152	<ul style="list-style-type: none"> • High efficiency, high-speed face mills for aluminum machining • Reliable scatter prevention • Great for multiple machining applications 			

High Feed Cutters

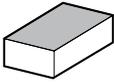
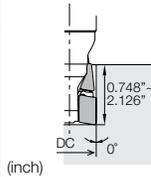
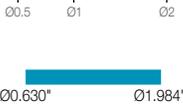
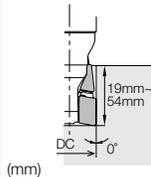
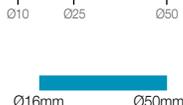
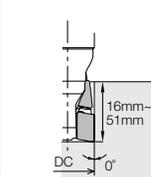
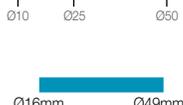
Lead Angle	Applications	Facing	Shouldering	Slotting	Pocketing	Cutting Dia. DCX	
							
Shape						00.375" 00.625" 00.5" 01" 01.5" 02" 02.5" 03" 04" 05" 06"	
90°	MFH Face Mill  M164	<ul style="list-style-type: none"> Various applications with 4 insert types 	 GM (General Milling)	 GH (Tough Edge)			
	MFH End Mill  M167	 LD (Large D.O.C.) MAX D.O.C. = 0.197" Available for Scale Removal	 FL (Wiper Edge) Available for both Roughing and Finishing				
	MFH Modular  M170	<ul style="list-style-type: none"> Convex cutting edge reduces chatter and chip biting Multi-functional cutter for ramping, helical milling, plunging etc. (GM/GH type) 					
	MFH-Mini End Mill  M176	<ul style="list-style-type: none"> Economical double-sided 4-edge insert 	 GM (General Milling)	 GH (Tough Edge)			
	MFH-Mini Face Mill  M178	<ul style="list-style-type: none"> High efficiency and high feed small diameter machining 					
	MFH-Mini Modular  M179						
	MFH Micro  M184	<ul style="list-style-type: none"> Smallest diameters in the MFH high feed milling series 	 GM (General Milling)				
	MFH Micro Modular  M185						

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Finishing Milling Cutters

Lead Angle	Applications	Facing
Shape		
90°	<p>MFF NEW</p>  <p>• Unique cutter design for finishing solutions • Features wiper edge for high-feed finishing and excellent surface finish • Easily adjustable cutting edge height</p> <p>➔ M192</p>	

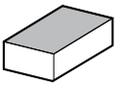
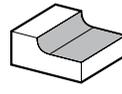
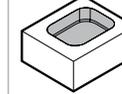
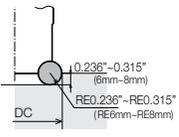
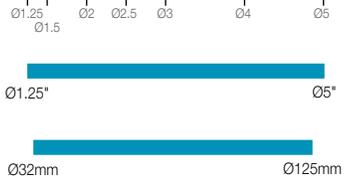
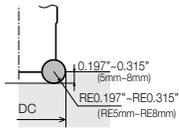
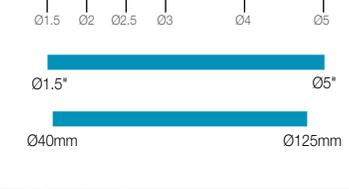
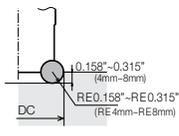
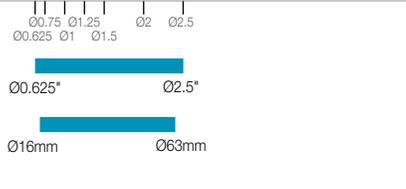
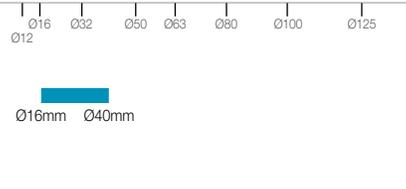
Multi-Function End Mills

Applications	Facing	Shouldering	Slotting	Deep Slotting	Pocketing	Drilling	Lead Angle and MAX D.O.C.	Cutting Dia. DC
Shape								
MEY	<ul style="list-style-type: none"> Ultra drill mill Multi-function cutting (drilling / ramping / shouldering / grooving) High-efficiency mold cutting Low cutting force, good chip evacuation <p>➔ M194</p>		<ul style="list-style-type: none"> Full 2-Flute structure and high stability Good chip control when ramping 		<ul style="list-style-type: none"> Cutting diameters that are larger than the shank diameters enables wall shouldering The silver coating prevents chip wear on the tool body 		 <p>(inch)</p>	 <p>(inch)</p>
MEZ-G	<ul style="list-style-type: none"> Silver drill mill Multi-function cutting High-efficiency mold cutting Low cutting force, Good chip evacuation <p>➔ M196</p>		<ul style="list-style-type: none"> The silver coating prevents chip wear on the tool body The clearance groove prevents chip welding 				 <p>(mm)</p>	 <p>(mm)</p>
							 <p>(mm)</p>	 <p>(mm)</p>

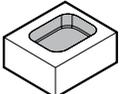
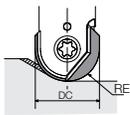
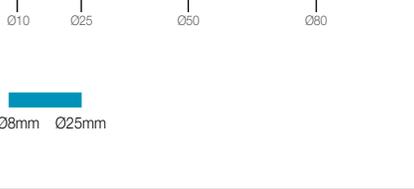
MST Slot Mills

<p>MSTA ➔ M200</p> 	<p>MSTB ➔ M204</p> 	<p>MSTC ➔ M210</p> 
<ul style="list-style-type: none"> Self-clamping system Remove insert with appropriate wrench 	<ul style="list-style-type: none"> Easy screw on tangential clamped insert 	<ul style="list-style-type: none"> Adjustable slotting width due to unique cam adjustment structure

Radius Cutters

Applications	Facing	Shouldering	Pocketing	Lead Angle and MAX D.O.C.	Cutting Dia. DC
					
Shape					
MRW (RAD-8)  M228	<ul style="list-style-type: none"> High efficiency radius cutter with multiple-edge inserts Combines sharpness and cutting edge strength (A.R. Max. +12°) Prevents insert rotation during machining with flat lock structure Wide application range from steel to heat-resistant alloys 				
MRX (RAD-6) Face Mill  M235	<ul style="list-style-type: none"> Low cutting force and high performance radius cutter Low cutting force due to helical cutting-edge design (A.R. Max. +10°) Prevents insert rotation during machining with flat lock structure Wide application range including facing, grooving, pocketing and plunging Wide application range from steel to heat-resistant alloys 				
MRX (RAD-6) End Mill  M237					
MRX (RAD-6) Modular  M239					

Ball-Nose End Mills

Applications	Contouring / Profiling	Pocketing	Lead Angle and MAX D.O.C.	Cutting Dia. DC
				
Shape				
MRF  M224	<ul style="list-style-type: none"> For high quality mold finishing High R-accuracy (insert's R-accuracy: under ±0.01mm) The bushing ensures insert installation accuracy 			
MRFW  M224	<ul style="list-style-type: none"> Carbide For high quality mold finishing High R-accuracy (Insert's R-accuracy: Under ±0.01mm) The bushing ensures insert installation accuracy Anti-vibration, and stable cutting is possible with long overhang length without chattering 			

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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PRODUCT LINEUP

Chamfering

Applications	Chamfering	Countersinking	Back Chamfering	V Shape Slotting	Lead Angle and MAX D.O.C.
Shape					
CM / CM-AL M247	<ul style="list-style-type: none"> Chamfering angles 3°-75° CM-AL for aluminum cutting 				
MCSE M248	<ul style="list-style-type: none"> Chamfering angles for 30°, 45°, 60° Economical 4-sided insert Available for back chamfering 				

Counterboring

Applications	Bolt Counterboring	Facing	Shouldering	Lead Angle and MAX D.O.C.
Shape				
MEF M250	<ul style="list-style-type: none"> Counterboring for hexagon socket bolt (M6-M30) Economical S-type insert (4-Edge) 			

T-Slotting

Applications	T-Slotting	Back Side Milling	Lead Angle and MAX D.O.C.
Shape			
METS M252	<ul style="list-style-type: none"> T-Slotting Recommended for high feed cutting with 2 flute design Economical square insert (4 cutting edges) 		

Grooving

Applications	Internal Grooving	Ring Grooving	API Ring Grooving	Lead Angle and MAX D.O.C.
Shape				
API M244			<ul style="list-style-type: none"> The most economical and reliable tool to produce API ring grooves for the oil, gas, and petrochemical industries 	
MGI M254	<ul style="list-style-type: none"> Edge Width 1.0-4.0mm Grooving for machining centers 			
MVG M256		<ul style="list-style-type: none"> Cutting dia. Ø30-Ø75mm Edge width: 4.0-4.9mm O-Ring grooving (G Series) 		

M
MILLING

MILLING INSERT IDENTIFICATION SYSTEM

Symbol	Shape
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	85° Diamond
V	35° Diamond
W	Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stands for acute angle for rhombic and parallelogram inserts.

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other Angles

Symbol (Class)	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005			0.0010	0.025
C			0.0010	0.025	0.0005	0.013
H	0.0005	0.013			0.0010	0.025
E			0.0010	0.025	0.0005	0.013
G	0.0010	0.025	0.0010	0.025	0.0010	0.025
J	0.0002	0.005				
K*	0.0005	0.013	0.0010	0.025		
L*	0.0010	0.025				
M*	0.003-0.007	0.080-0.180	0.0050	0.130	0.002-0.006	0.05-0.15
N*			0.0010	0.025		
U*	0.005-0.015	0.130-0.380	0.0050	0.130	0.003-0.009	0.08-0.25
R	Blank with grind stock on all surfaces					
S	Blank with grind stock on top and bottom surface only					

Insert's periphery is as fired.
* Tolerance difference depends on size and shape of insert

I.C. Size (inch)	Symbol
5/32	1.2
3/16	1.5
7/32	1.8
1/4	2
5/16	2.5
3/8	3
7/16	3.5
1/2	4
9/16	4.5
5/8	5
11/16	5.5
3/4	6
7/8	7
1	8
1-1/4	10

Inserts with Radius			
0	Sharp Corner	4	1/16" Radius
1	1/64" Radius	6	3/32" Radius
2	1/32" Radius	8	1/8" Radius
3	3/64" Radius		

Insert with Wiper Flats	
A	Square Insert 45° Chamfer
D	Square Insert 30° Chamfer
E	Square Insert 15° Chamfer
F	Square Insert 3° Chamfer
K	Square Insert 30° Double Chamfer
L	Square Insert 15° Double Chamfer
M	Square Insert 3° Double Chamfer
N	Truncated Triangle Insert
P	Flatted Corner Triangle
X	Triangle Insert 15° Double Chamfer

Symbol	Insert
F	Sharp Edge
E	R-honed
T	Chamfered
S	Chamfered + R-honed

ANSI (inch)

S	E	K	N	4	2	A	F	T	N	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

ISO (metric)

S	E	K	N	12	03	A	F	T	N	
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪

④ Hole / Chipbreaker		⑤ Edge Length Symbol (ISO)		⑥ Thickness				⑦ Cutting Edge Angle		⑧ Relief Angle		⑩ Tool Hand		⑪ Manufacturer's Option
Symbol	Insert	Symbol	Diagram	ISO		ANSI		Symbol	Cutting Edge Angle	Symbol	Relief Angle	R	Right-hand	Chipbreaker, etc.
W	No Chipbreaker with Hole	S		Thickness (mm)	Symbol	Thickness (inch)	Symbol	A	45°	A	3°	L	Left-hand	
T	Single-sided Chipbreaker with Hole	T		1.59	01	1/16	1	D	60°	B	5°	N	Neutral	
F	Double-sided Chipbreaker without Hole	F		1.98	T1	5/64	1.2	E	75°	C	7°			
N	No Chipbreaker without Hole	R		2.38	02	3/32	1.5	F	85°	D	15°			
R	Single-sided Chipbreaker without Hole	A,N		2.78	T2	-	-	H	87°	E	20°			
M	Single-sided Chipbreaker with Hole	M		3.18	03	1/8	2	P	90°	F	25°			
A	No Chipbreaker with Hole	O		3.97	T3	5/32	2.5	X	65°	G	30°			
		P		4.76	04	3/16	3			N	0°			
		W		5.56	05	7/32	3.5			P	11°			
				6.35	06	1/4	4			R	10°			
				7.94	07	5/16	5			S	14°			
				9.525	09	3/8	6			T	22°			
										U	23°			

Thickness displayed as the distance between bottom surface and highest point on cutting edge.

⑦⑧ Corner-R(RE)			
ISO		ANSI	
Symbol	Corner-R (RE) (mm)	Symbol	Corner-R (RE) (inch)
04	0.40	1	1/64
08	0.80	2	1/32
12	1.20	3	3/64
16	1.60	4	1/16
20	2.00	5	5/64

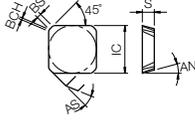
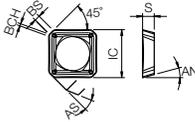
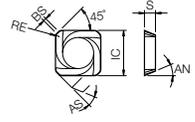
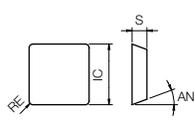
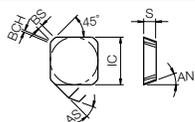
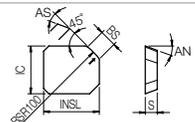
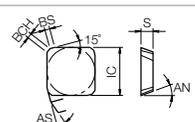
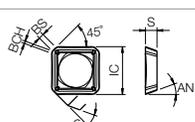
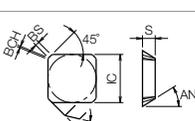
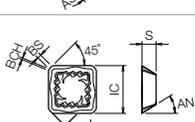
- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

Milling Inserts without Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■	■										★				
M	Stainless Steel												★				
K	Gray Cast Iron Nodular Cast Iron													★	☆		
N	Non-ferrous Metals																★
S	Heat-Resistant Alloys Titanium Alloy												★				★
H	Hard Materials																■

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)							Angle (°)		Cermets			CVD Coated Carbide		MEGACOAT (PVD Coated Carbide)		Carbide	Toolholder Page							
			IC	S	BCH RE	BS	INSL	AN	AS	TN610	TN60	TN100M	CA6535	CA420M	PR1535	PR1225	PR1210	KW10									
 	SDKN 42AUTN	SDKN 1203AUTN	0.500	0.125	0.020	0.047	-	15°	23°			●					●	●									
	42AUFN	1203AUFN																									●
	(Use ISO Part Number)	SDKN 1504AUTN		0.625	0.187																						
 	SDKR 42AUEN-S	SDKR 1203AUEN-S	0.500	0.125	0.020	0.067	-	15°	23°			●						●									
 	SDMR 42AUER-H	SDMR 1203AUER-H	0.500	0.125	0.039	0.031	-	15°	23°									●									
 	SEC 422	SEC 120308	0.500	0.125	0.031						●																
	424	120316			0.063								●														
 	SEEN 42AFTN	SEEN 1203AFTN	0.500	0.125	0.020		0.055	-	20°	25°			●					●	●								
	SEKN 42AFTN	SEKN 1203AFTN																									
	42AFFN	1203AFFN																									●
	SEKN 43AFTN	SEKN 1204AFTN																									
 	SEKN 53AFTN	SEKN 1504AFTN	0.625	0.187																							
	SEEN 42AFTR-W	SEEN 1203AFTR-W	0.500	0.125	-		0.138	0.573	20°	25°			●														
42AFFR-W	1203AFFR-W																									●	
 	SEKN 42EFTR	SEKN 1203EFTR	0.500	0.125	0.047	0.055	-	20°	25°			●															
 	SEKR 42AFEN-S	SEKR 1203AFEN-S	0.500	0.125	0.020	0.067	-	20°	25°			●						●									
 	(Use ISO Part Number)	SOKN 13T3AXTN	0.531	0.156	0.020	0.043	-	27°	32°			●						●	●								
		13T3AXFN																									
 	(Use ISO Part Number)	SOKR 13T3AXEN-J	0.531	0.156	0.020	0.043	-	27°	32°			●						●	●								

SEEN-W inserts sold in 5 piece boxes.

Other inserts sold in 10 piece boxes.

Milling Inserts

without Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■													★				
M	Stainless Steel														★				
K	Gray Cast Iron Nodular Cast Iron												★			☆	☆		
N	Non-ferrous Metals																		★
S	Heat-Resistant Alloys Titanium Alloy															★			☆
H	Hard Materials																		■

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)		Cermet		CVD Coated Carbide		MEGACOAT (PVD Coated Carbide)			Toolholder Page										
			IC	S	BCH	BS	RE	AN	AS	TN60	TN100M	CA6535	CA420M	PR1535	PR1225	PR1210	KW10											
	SPCN 42EDTR	SPCN 1203EDTR	0.500	0.125	RE=0.039	0.079	-	11°	15°	●	●																	
	SPKN 42EDTR	SPKN 1203EDTR								●	●																	
	42EDTL	1203EDTL								●	●																	
	42EDER	1203EDER																●										
	42EDFR	1203EDFR																	●									
	42EDFR	1203EDFR																								●		
	SPKN 53EDTR	SPKN 1504EDTR	0.625	0.187	0.039	0.087	-	11°	15°	●																		
	53EDFR	1504EDFR																							●			
	SPEN 42EEER	SPEN 1203EEER	0.500	0.125	0.039	0.055	-	11°	20°				●															
	42EESR	1203EESR																							●			
	SPCN 42XPTR	SPCN 1203XPTR	0.500	0.125	RE=0.039	0.079	-	11°	11°	●	●																	
	SPKN 42XPTR	SPKN 1203XPTR								●	●																	
	42XPFR	1203XPFR																								●		
	SPKN 53XETR	SPKN 1504XETR								0.625	0.187	0.039	0.087				20°	●										
	SPCN 63EETR1	SPCN 1904EETR1	0.750	0.187	0.028	0.047	-	11°	20°	●																		
	SPKR 42EDER-S	SPKR 1203EDER-S	0.500	0.125	RE=0.039	0.079	-	11°	15°	●										●								
	SPMR 42EDER-H	SPMR 1203EDER-H	0.500	0.125	RE=0.039	0.079	-	11°	15°											●								
	SPM 422	SPMN 120308	0.500	0.125	-	-	-	11°	-	●	●									●								
	423	120312								●	●																	
	SPM 432	SPMN 120408	0.375	0.125	-	-	-	11°	-				●								●							
	433	120412																										
	SPG 321	SPGN 090304	0.500	0.125	-	-	-	11°	-													●						
	322	090308																										●
SPG 421	SPGN 120304	0.500	0.125	-	-	-	11°	-														●						
422	120308																											●
	SNCN 43XNTN	SNCN 1204XNTN	0.500	0.187	0.079	0.079	-	-	-		●																	
	SNKN 43XNTN	SNKN 1204XNTN									●																	
	SNMF 43XNTN	SNMF 1204XNTN	0.500	0.187	0.079	0.079	-	-	-		●																	
	SNM 432	SNMN 120408	0.500	0.187	-	-	-	-	-												●							
	433	120412																										●
	436	120424																										

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Inserts sold in 10 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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Milling Inserts

without Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■	■													★		
	Carbon/Alloy Steel	■	■													★		
M	Stainless Steel															★		
K	Gray Cast Iron																★	☆
	Nodular Cast Iron																★	
N	Non-ferrous Metals																	★
S	Heat-Resistant Alloys																★	
	Titanium Alloy																★	☆
H	Hard Materials																■	

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)		Cermet			CVD Coated Carbide		MEGACOAT (PVD Coated Carbide)		Toolholder Page	
			IC	S	BCH	BS	RE	AN	AS	TN610	TN60	TN100M	CA6535	CA420M	PR1535	PR1225	PR1210		KW10
	TEKN 32PTTR	TEKN 1603PTTR	0.375	0.125	R0.031	0.039	-	20°	22°			●							
	32PTFR	1603PTFR	0.375	0.125	0.028	0.055	-	20°	22°										
	TEEN 43PTTR	TEEN 2204PTTR	0.500	0.187	R0.039		-	20°	22°			●							
	43PTFR	2204PTFR	0.500	0.187	0.028	0.055	-	20°	22°										
	TEKR 43PTER-S	TEKR 2204PTER-S	0.500	0.187	R0.039	0.055	-	20°	22°			●							
	TEMR 32PTER-H	TEMR 1603PTER-H	0.375	0.125	R0.031	0.047	-	20°	22°										
	TEMR 43PTER-H	TEMR 2204PTER-H	0.500	0.187	R0.039	0.055	-	20°	22°										
	TPC 32P4R	TPC 1603P4R	0.375	0.125	0.026	0.063	-					●							
	TPK 32PDTR	TPKN 1603PDTR	0.375	0.125	0.028	0.047	-	11°	15°			●							
	32PDR	1603PDR																	
	TPK 43PDTR	TPKN 2204PDTR	0.500	0.187	0.028	0.063	-	11°	15°			●							
	43PDR	2204PDR																	
	TPKR 43PDER-S	TPKR 2204PDER-S	0.500	0.187	R0.039	0.055	-	11°	15°			●							
	TPMR 32PDER-H	TPMR 1603PDER-H	0.375	0.125	R0.031	0.047	-	11°	15°										
	TPMR 43PDER-H	TPMR 2204PDER-H	0.500	0.187	R0.039	0.055	-	11°	15°										
	TPM 221	TPMN 110304	0.250					0.016											
	222	110308						0.031											
	321	160304		0.125				0.016				●							
	322	160308	0.375					0.031				●							
	323	160312						0.047				●							
	432	220408	0.500	0.187				0.031				●							
	TPG 181505	TPGN 090202						0.008											
	18151	090204	0.219	0.094				0.016				●							
	18152	090208						0.031				●							
	2205	110302						0.008				●							
	221	110304	0.250					0.016				●							
	222	110308		0.125				0.031				●							
	321	160304	0.375					0.016				●							
	322	160308						0.031				●							

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications
- MILLING

Cutting Range	Chipbreaker	Features
Finishing-Roughing	S	S chipbreaker for general-purpose machining. Low cutting resistance due to 13° chipbreaker rake angle. Recommended for various depths of cut with 3-step chipbreaker design. Ground wiper edge enables good surface finishes.
Medium-Finishing	H	H chipbreaker for general-purpose machining. Smooth chip evacuation due to the chipbreaker's smooth rake face. 20% less cutting force than flat-top inserts due to a 25° rake angle chipbreaker.

Milling Inserts

with Hole

Usage Classification
 ★ Roughing / 1st Choice
 ☆ Roughing / 2nd Choice
 ■ Finishing / 1st Choice
 □ Finishing / 2nd Choice
 (Hardness Under 45HRC)

P	Free-Cutting Steel	■		☆	★															
	Carbon/Alloy Steel	■		☆	★															
M	Austenitic Stainless Steel			☆	★															
	Martensitic Stainless Steel		★	☆	★															
	Precipitation Hardened Stainless Steel			☆	★															
K	Gray Cast Iron													★						
	Nodular Cast Iron													★						
N	Non-ferrous Metals																		★	☆
S	Heat-Resistant Alloys		★																	
	Titanium Alloy													☆						
H	Hard Materials																			★

Insert (Right-hand Shown)	Part Number	Dimensions (in)										MN [*] Cermat	CVD Carbide	MEGACOAT (PVD Coated Carbide)					DLC [*] Carbide	Toolholder Page									
		W1 IC	S	BCH	D1	L INSL	BS	RE	PV60M	CA6535	CA420M			PR1535	PR1525	PR1510	PR1225	PR1210			PR015S	PDL025	GW25						
 <p>Aluminum Alloy (2-Edge)</p>	KCGT 130504FR-AL	0.390	0.201	-	0.173	0.524	-	1/64														M152							
	130508FR-AL							1/32																					
	130512FR-AL							3/64																					
	130516FR-AL							1/16																					
	130520FR-AL							5/64																					
	130524FR-AL							3/32																					
	130530FR-AL							0.118																					
	130532FR-AL							1/8																					
	130540FR-AL							0.157																					
130550FR-AL	0.197																												
 <p>Steel & Stainless (Low Cutting Force)</p>	LNGX 120916R-TT	0.375	0.250	-	0.165	0.500	-	0.063	●			●									M192								
	LNGX 120916							0.063	●		●																		
 <p>Cast Iron</p>	LNGX 120916	0.375	0.250	-	0.165	0.500	-	0.063	●			●									M192								
	LNGX 120916							0.063	●		●																		
 <p>General Purpose</p>	LOGU 030310ER-GM	0.244	0.156	-	0.136	0.469	-	0.039	●		●	●	●								M176 M177 M178 M179								
	LOGU 030310ER-GH							0.039		●	●	●																	
 <p>Tough Edge</p>	LOGU 030310ER-GH	0.244	0.156	-	0.136	0.469	-	0.039			●	●	●								M176 M177 M178 M179								
	LOGU 030310ER-GM							0.039		●	●	●																	
 <p>Corner-R</p>	LOGU 221616ER-GM	0.492	0.654	-	0.268	0.898	0.248	0.063			●	●									M42 M43 M122								
	LOGU 221616ER-GM							0.063		●	●																		
 <p>Corner Chamfer</p>	LOGU 2216PAER-GM	0.492	0.665	0.059	0.268	0.898	0.189	-			●	●									M122								
	LOGU 2216PAER-GM							-		●	●																		

*DLC: DLC Coated Carbide
 *MN: MEGACOAT NANO

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MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel				☆	★												
	Carbon/Alloy Steel					☆	★											
M	Austenitic Stainless Steel					☆	★											
	Martensitic Stainless Steel					☆	★											
	Precipitation Hardened Stainless Steel					★												
K	Gray Cast Iron																	★
	Nodular Cast Iron																	★
N	Non-ferrous Metals																	★
	Heat-Resistant Alloys																	☆
S	Heat-Resistant Alloys									★								
	Titanium Alloy										☆							
H	Hard Materials																	★

Insert (Right-hand Shown)	Part Number	Dimensions (in)						Cemmet		CVD Carbide		MEGACOAT (PVD Coated Carbide)						DLC*	Carbide	Toolholder Page	
		W1	S	D1	L INSL	BS	RE	TN100M	CA6535	CA420M	PR1535	PR1525	PR1510	PR1225	PR1210	PR015S	PDL025				GW25
 General Purpose	LOMU 100404ER-GM					0.083	0.016		●		●	●	●								
	100408ER-GM					0.067	0.031		●		●	●	●								
	100412ER-GM	0.260	0.157	0.134	0.429	0.051	0.047		●		●	●	●								
	100416ER-GM					0.039	0.063		●		●	●	●								
	100420ER-GM					0.039	0.079		●		●	●	●								
	LOMU 150504ER-GM					0.087	0.016		●		●	●	●								
 Low Cutting Force	150508ER-GM					0.071	0.031		●		●	●	●								
	150510ER-GM					0.063	0.039				●										
	150512ER-GM	0.362	0.220	0.189	0.618	0.055	0.047		●		●	●	●								
	150516ER-GM					0.039	0.063		●		●	●	●								
	150520ER-GM					0.024	0.079		●		●	●	●								
	LOMU 100408ER-SM	0.260	0.157	0.134	0.429	0.067	0.031				●	●	●								
 Tough Edge (Heavy Milling)	LOMU 150508ER-SM	0.362	0.220	0.189	0.618	0.071	0.031		●		●	●									
	LOMU 100408ER-GH	0.260	0.157	0.134	0.429	0.067	0.031		●		●	●	●			●					
 Non-Ferrous (2-Edge)	LOGT 100408FR-AM	0.268	0.157	0.142	0.437	0.110	0.031										●	●			
	150508FR-AM	0.350	0.220	0.193	0.626	0.110	0.031										●	●			
 General Purpose	LPGT 010210ER-GM	0.165	0.086	0.083	0.247	-	0.039		●		●	●									

*DLC: DLC Coated Carbide

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

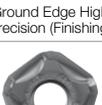
M
MILLING

Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■				☆	★		☆						
	Carbon/Alloy Steel	■							☆	★		☆			
M	Austenitic Stainless Steel								★	☆					
	Martensitic Stainless Steel								★	☆					
	Precipitation Hardened Stainless Steel								★						
K	Gray Cast Iron										★			☆	
	Nodular Cast Iron										★			☆	
N	Non-ferrous Metals														
S	Heat-Resistant Alloys								★	☆				☆	
	Titanium Alloy									★				☆	
H	Hard Materials										■				★

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Cermet		CVD Coated Carbide		MEGACOAT (PVD Coated Carbide)					Toolholder Page	
		INSL	S	D1	BCH	BS	TN620M	TN100M	CA6535	CA420M	PR1535	PR1525	PR1510	PR1225	PR1210		PR015S
 General Purpose	PNMU 0905XNER-GM						●				●	●	●				
 Low Cutting Force	PNMU 0905XNER-SM	0.575	0.219	0.185	0.079	0.079					●	●	●				M37 M38
 Tough Edge (Heavy Milling)	PNMU 0905XNER-GH										●	●	●			●	
 Ground Edge High Precision (Finishing)	PNEU 1205ANER-GL	0.689	0.219	0.244	0.106	0.106	●	●		●	●	●	●	●			
 General Purpose	PNMU 1205ANER-GM						●	●		●	●	●	●	●			
 Low Cutting Force	PNMU 1205ANER-SM	0.704	0.219	0.244	0.079	0.079			●		●	●	●	●			M31 M32 M33
 Tough Edge (Heavy Milling)	PNMU 1205ANER-GH	0.708	0.243	0.244	0.079	0.079			●		●	●	●	●	●		
 Wiper Insert (2-edge)	PNEU 1205ANER-W	0.703	0.219	0.244	0.091	0.319	●	●	●		●	●	●				
 Ground Edge High Precision (Finishing)	PNEU 1205ANEL-GL	0.689	0.219	0.244	0.106	0.106	●	●		●	●	●					M32
 General Purpose	PNMU 1205ANEL-GM	0.704	0.219	0.244	0.079	0.079	●	●		●	●	●					

PNEU-W inserts sold in 5 piece boxes.

Other inserts sold in 10 piece boxes.

Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■						☆	★										
	Carbon/Alloy Steel	■							☆	★									
M	Austenitic Stainless Steel																		
	Martensitic Stainless Steel									★									
	Precipitation Hardened Stainless Steel																		
K	Gray Cast Iron																		★
	Nodular Cast Iron																		★
N	Non-ferrous Metals																		
	Heat-Resistant Alloys										★								
S	Titanium Alloy																		★
	Hard Materials																		★

Insert (Right-hand Shown)	Part Number	Dimensions (in)							Angle (°)	Cermet		CVD Coated Carbide		MEGACOAT (PVD Coated Carbide)						Toolholder Page
		IC	S	D1	INSL	BS	RE	AN		TN620M	TN100M	CA6535	CA420M	PRI535	PRI525	PRI510	PRI225	PRI210	PR015S	
<p>General Purpose (G-Class)</p>	RDGT 0803M0ER-GM	0.315	0.125	0.118			0.157	15°			●	●	●	●					M237 ~ M239	
	RPGT 10T3M0ER-GM	0.394	0.156	0.138			0.197				●	●	●	●					M235 ~ M239	
	1204M0ER-GM	0.472	0.187	0.181			0.236	11°			●	●	●	●					M235 ~ M239	
	1605M0ER-GM	0.630	0.219	0.228			0.315				●	●	●	●					M237 ~ M239	
<p>General Purpose (M-Class)</p>	RDMT 0803M0ER-GM	0.315	0.125	0.118			0.157	15°			●	●	●	●					M237 ~ M239	
	RPMT 10T3M0ER-GM	0.394	0.156	0.138			0.197				●	●	●	●					M235 ~ M239	
	1204M0ER-GM	0.472	0.187	0.181			0.236	11°			●	●	●	●					M235 ~ M239	
	1605M0ER-GM	0.630	0.219	0.228			0.315				●	●	●	●					M237 ~ M239	
<p>For Stainless Steel / Low Cutting Force</p>	RDGT 0803M0ER-SM	0.315	0.125	0.118			0.157	15°			●	●	●						M237 ~ M239	
	RPGT 10T3M0ER-SM	0.394	0.156	0.138			0.197				●	●	●	●					M235 ~ M239	
	1204M0ER-SM	0.472	0.187	0.181			0.236	11°			●	●	●	●					M235 ~ M239	
	1605M0ER-SM	0.630	0.219	0.228			0.315				●	●	●	●					M237 ~ M239	
<p>Tough Edge (Heavy Milling)</p>	RDMT 0803M0EN-GH	0.315	0.125	0.118			0.157	15°			●	●	●	●					M237 ~ M239	
	RPMT 10T3M0EN-GH	0.394	0.156	0.138			0.197				●	●	●	●					M235 ~ M239	
	1204M0EN-GH	0.472	0.187	0.181			0.236	11°			●	●	●	●					M235 ~ M239	
	1605M0EN-GH	0.630	0.219	0.228			0.315				●	●	●	●					M237 ~ M239	
<p>Flat Top (Heavy Milling)</p>	RPMW 1204M0TN	0.472	0.187	0.181			0.236						●	●					M235 ~ M239	
	1605M0TN	0.630	0.219	0.228			0.315						●	●					M235 ~ M239	
<p>General Purpose</p>	ROMU 1204M0ER-GM	0.472	0.187	0.181	0.465		0.236				●	●	●	●					M237 ~ M239	
	1605M0ER-GM	0.630	0.216	0.244	0.622		0.315				●	●	●	●					M237 ~ M239	
<p>Low Cutting Force</p>	ROMU 1204M0ER-SM	0.472	0.187	0.181	0.465		0.236				●	●	●	●					M228 M229 M230 M231	
	1605M0ER-SM	0.630	0.216	0.244	0.622		0.315				●	●	●	●					M228 M229 M230 M231	
<p>Tough Edge (Heavy Milling)</p>	ROMU 1204M0ER-GH	0.472	0.187	0.181	0.465		0.236				●	●	●	●					M237 ~ M239	
	1605M0ER-GH	0.630	0.216	0.244	0.622		0.315				●	●	●	●					M237 ~ M239	
<p>General Purpose</p>	SNMU 130508EN-GM										●		●	●						
<p>Low Cutting Force</p>	SNMU 130508EN-SM	0.512	0.217	0.185	-	0.039	1/32	-						●	●	●			M119 M120	
<p>Tough Edge (Heavy Milling)</p>	SNMU 130508EN-GH													●	●	●				

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Inserts sold in 10 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

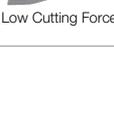
(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■						☆	★												
	Carbon/Alloy Steel	■								☆	★										
M	Austenitic Stainless Steel									☆	★										
	Martensitic Stainless Steel									☆	★										
	Precipitation Hardened Stainless Steel									☆	★										
K	Gray Cast Iron																			★	
	Nodular Cast Iron																			★	
N	Non-ferrous Metals																			★	☆
S	Heat-Resistant Alloys									★	☆										
	Titanium Alloy										★										
H	Hard Materials																			★	

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)	Cermet	CVD Coated Carbide				MEGACOAT (PVD Coated Carbide)				DLC*	Carbide	Toolholder Page					
		IC	S	D1	BS	RE			AN	TN620M	TN100M	CA6535	CA420M	PR1535	PR1525	PR1510				PR1225	PR1210	PR015S	PDL025	GW25
 General Purpose	SOMT 100420ER-GM	0.406	0.180	0.181		0.079	16°			●	●	●	●											
	140520ER-GM	0.557	0.219	0.228						●	●	●	●											
 Large D.O.C.	SOMT 100420ER-LD	0.411	0.180	0.181	0.035		16°			●	●	●	●											
	140520ER-LD	0.581	0.219	0.228	0.063					●	●	●	●											
 45°-70° Lead Angle	SOMT 100420ER-FL	0.411	0.180	0.181	0.055	0.079	16°			●	●	●	●											
	140514ER-FL	0.574	0.219	0.228	0.122	0.055				●	●	●	●											
 Wiper Edge	SOMT 100420ER-GH	0.411	0.180	0.179		0.079	16°													●				
	140520ER-GH	0.558	0.219	0.228																	●			
 High Feed Milling	SOMT 100420ER-GH	0.411	0.180	0.179		0.079	16°																	
	140520ER-GH	0.558	0.219	0.228																				
 Finish Milling	SOMT 100420ER-GH	0.411	0.180	0.179		0.079	16°																	
	140520ER-GH	0.558	0.219	0.228																				
 Multi-Function	SOMT 100420ER-GH	0.411	0.180	0.179		0.079	16°																	
	140520ER-GH	0.558	0.219	0.228																				
 Slot Mill	TOMT 060504ER-GM				0.075	1/64	-			●	●	●	●											
	060508ER-GM	0.283	0.224	0.134							●	●	●	●										
 Ball-Nose Radius	TOMT 060508ER-GM				0.059	1/32	-			●	●	●	●											
	060508ER-SM	0.283	0.224	0.134	0.059	1/32	-			●	●	●	●											
 Other Applications	TOMT 060508ER-GM				0.059	1/32	-			●	●	●	●											
	060508ER-SM	0.283	0.224	0.134	0.059	1/32	-			●	●	●	●											
 Low Cutting Force	TOMT 060508ER-GM				0.059	1/32	-			●	●	●	●											
	060508ER-SM	0.283	0.224	0.134	0.059	1/32	-			●	●	●	●											

*DLC: DLC Coated Carbide

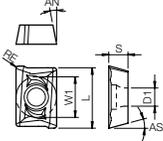
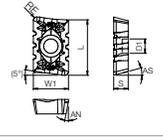
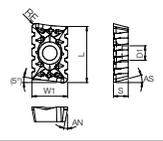
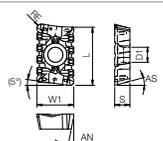
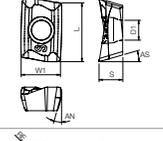
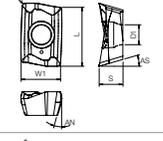
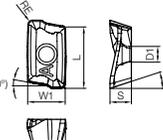
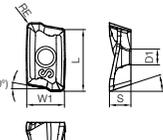
Milling Inserts

with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■	☆	★	★	☆												
	Carbon/Alloy Steel	■	☆	★	★	☆												
M	Austenitic Stainless Steel		☆	★	★	☆												
	Martensitic Stainless Steel		★	☆														
	Precipitation Hardened Stainless Steel			★														
K	Gray Cast Iron													★				
	Nodular Cast Iron													★				
N	Non-ferrous Metals																★	☆
S	Heat-Resistant Alloys		★	☆	★	★												
	Titanium Alloy			★										★				☆
H	Hard Materials											■				□		

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)		Cemet	CVD*	MN*	MEGACOAT			PVD*	DLC*	Carbide	Toolholder Page						
		W1	S	D1	L	RE	AS	AN				TN100M	CA6535	PR1535					PR1225	PR1230	PR1210	PR830	PDL025	GW25
 	APKT 1003PDER-V	0.265	0.125	0.110	0.413	0.016	11°	15°	●			●	●	●				M160						
	100308PDER-V					0.031					●	●												
	APKT 1604PDER-V	0.375	0.187	0.177	0.669	0.031					●			●	●									
	160416PDER-V					0.063					●													
 	APMT 250608ER-NB3	0.625	0.250	0.256	0.984	0.031	15°	11°				●	●				M131 M132 M133							
	250616ER-NB3					0.063					●	●												
	250640ER-NB3					0.157					●													
	APMT 250616EL-NB3	0.063			●															-				
 	APMT 250608ER-NB4	0.625	0.250	0.256	0.984	0.031	15°	11°				●	●				M131 M132 M133							
	250616ER-NB4					0.063					●	●	△											
	250640ER-NB4					0.157					●													
	APMT 250616EL-NB4	0.063			●															-				
 	APMT 250616ER-NB3P	0.625	0.250	0.256	0.984	0.063	15°	11°				●	●				M131 M132 M133							
	APMT 250616ER-NB4P	0.625	0.250	0.256	0.984	0.063	15°	11°				●	●											
 	BDMT 070302ER-JS	0.181	0.102	0.091	0.264	0.008	16°	15°	●	●	●			△			M80 M81							
	070304ER-JS					0.016					●	●	●		△									
	070308ER-JS					0.031					●	●	●		△									
 	BDMT 070302ER-JT	0.181	0.102	0.091	0.264	0.008	16°	15°	●	●	●		●	△			M80 M81							
	070304ER-JT					0.016					●	●	●		●	△								
	070308ER-JT					0.031					●	●	●		●									
 	BDGT 11T302FR-JA	0.264	0.150	0.110	0.433	0.008	18°	13°							●	●	M68 M73							
	11T304FR-JA					0.016													●	●				
	11T308FR-JA					0.031													●	●				
	BDGT 170404FR-JA	0.378	0.193	0.173	0.669	0.016			18°	13°								●	●					
	170408FR-JA					0.031														●	●			
	170420FR-JA					0.079															●	●		
170431FR-JA	0.122												●	●										
 	BDMT 110302ER-JS	0.248	0.118	0.110	0.433	0.008	18°	15°			●	●	●			△			M68 M73 M105					
	110304ER-JS					0.016															△			
	110308ER-JS					0.031												△						
	BDMT 11T302ER-JS	0.264	0.150	0.110	0.433	0.008			18°	13°	●	●	●			△								
	11T304ER-JS					0.016															△			
	11T308ER-JS					0.031															△			
BDMT 170404ER-JS	0.378	0.193	0.173	0.669	0.016	18°	13°	●			●	●			△									
170408ER-JS					0.031														△					

*CVD: CVD Coated Carbide *PVD: PVD Coated Carbide
 *MN: MEGACOAT NANO *DLC: DLC Coated Carbide

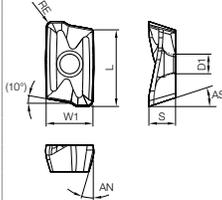
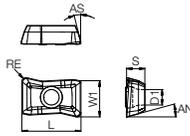
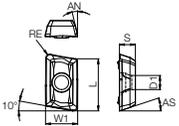
Milling Inserts

with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■			★	★														
	Carbon/Alloy Steel	■				★	★													
M	Austenitic Stainless Steel																			
	Martensitic Stainless Steel					★	☆													
	Precipitation Hardened Stainless Steel							★												
K	Gray Cast Iron																			★
	Nodular Cast Iron																			★
N	Non-ferrous Metals																			
S	Heat-Resistant Alloys					★	☆			★	★									
	Titanium Alloy							★												★
H	Hard Materials																			■

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)		Cemmet	CVD*	MN*	MEGACOAT				PVD*	Carbide	Toolholder Page				
		W1	S	D1	L	RE	AS	AN				TN100M	CA6535	PRI535	PRI225				PRI230	PRI210	PR830	GW25
 	BDMT 110302ER-JT					0.008																
	110304ER-JT	0.248	0.118	0.110	0.433	0.016	18°	15°		●	●	●	●	●	●	△						
	110308ER-JT					0.031				●	●	●	●	●	●	△						
	BDMT 11T302ER-JT					0.008				△	●	●	●	●	●	△						
	11T304ER-JT					0.016				●	●	●	●	●	●	△						
	11T308ER-JT					0.031				●	●	●	●	●	●	△						
	11T312ER-JT					0.047				●	●	●	●	●	●	△						
	11T316ER-JT	0.264	0.150	0.110	0.433	0.063	18°	13°		●	●	●	●	●	●	△						
	11T320ER-JT					0.079				●	●	●	●	●	●	△						
	11T324ER-JT					0.094				●	●	●	●	●	●	△						
	11T331ER-JT					0.122				●	●	●	●	●	●	△						
	BDMT 170404ER-JT					0.016					●	●	●	●	●	△						
	170408ER-JT					0.031				●	●	●	●	●	●	△						
170412ER-JT					0.047					●	●	●	●	●	△							
170416ER-JT					0.063					●	●	●	●	●	△							
170420ER-JT	0.378	0.193	0.173	0.669	0.079	18°	13°		●	●	●	●	●	●	△							
170424ER-JT					0.094				●	●	●	●	●	●	△							
170431ER-JT					0.122				●	●	●	●	●	●	△							
170440ER-JT					0.157				△	●	●	●	●	●	△							
 2-Notch	BDMT 11T308ER-N2	0.264	0.150	0.110	0.433	0.031	18°	13°			●	●	●	●	△							
 3-Notch	BDMT 11T308ER-N3	0.264	0.150	0.110	0.433	0.031	18°	13°			●	●	●	●	△							
 3-Notch	BDMT 170408ER-N3	0.378	0.193	0.173	0.669	0.031	18°	13°			●	●	●	●	△							
 4-Notch	BDMT 170408ER-N4	0.378	0.193	0.173	0.669	0.031	18°	13°			●	●	●	●	△							
 	GOMT 08T208ER-D	0.205	0.109	0.091	0.343							●		●	△							
	100308ER-D	0.258	0.130	0.110	0.421								●		●	△						
	13T308ER-D	0.329	0.152	0.134	0.520	0.031	13°	17°					●		●	△						
	160408ER-D	0.395	0.187	0.173	0.657								●		●	△						
 	JOMT 08T208ER-D	0.202	0.109	0.091	0.335								●		●	△						
	100308ER-D	0.252	0.125	0.110	0.402									●		●	△					
	13T308ER-D	0.318	0.146	0.134	0.520	0.031	17°	13°					●		●	△						
	160408ER-D	0.383	0.177	0.173	0.657								●		●	△						

*CVD: CVD Coated Carbide *PVD: PVD Coated Carbide
 *MN: MEGACOAT NANO

Inserts sold in 10 piece boxes.
 ● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice
(Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■				★		☆	
M	Stainless Steel					★			
K	Gray Cast Iron							★	☆
	Nodular Cast Iron							★	
N	Non-ferrous Metals								★
S	Heat-Resistant Alloys							★	
	Titanium Alloy							★	☆
H	Hard Materials							□	

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)	Coatings							Toolholder Page											
			IC	S	D1	L	RE		AN	TNT100M	TC80	CVD*	MN*	MEGACOAT			PVD*	Carbide									
														PR1225	PR1230				PR1210								
	NDCT 831R-B 831TR 831FR 832R-B	NDCT 090204R-B 090204TR 090204FR 090208R-B	0.250	0.094	0.110	0.374	0.016	15°	●	△								M161									
							0.031		●										M138								
	NDCT 032TR 032FR	NDCT 120208TR 120208FR	0.313	0.094	0.134	0.500	0.031	15°	●									M161									
									●									M138									
	NDCT 322FR-B 322FR	NDCT 150308FR-B 150308FR	0.375	0.125	0.177	0.591	0.031	15°										M161									
									●									M139									
								●									M161										
	NDCT 322TRX	NDCT 150308TRX	0.375	0.125	0.173	0.591	0.031	15°	●									M139									
																			M140								
							NDCW 032TR NDCW 3205TR 321TR 322TR 325TR 3275TR 3210TR		NDCW 120208TR NDCW 150302TR 150304TR 150308TR 150320TR 150330TR 150340TR	0.313	0.094	0.134	0.500	0.031	15°	△									M161		
														0.008		●											
														0.016		●											
														0.031		●											M139
								●																			
								●									M139										
	NDCW 322TRX 322FRX	NDCW 150308TRX 150308FRX	0.375	0.125	0.173	0.591	0.031	15°	●									M139									
																			M140								
																										M161	
	NDMM 831ER-SP NDMM 031ER-SP 032ER-SP NDMM 321ER-SP 322ER-SP	NDMM 090204ER-SP NDMM 120204ER-SP 120208ER-SP NDMM 150304ER-SP 150308ER-SP	0.250	0.094	0.110	0.374	0.016	15°	△	△								M138									
							0.016		△																		
			0.313	0.094	0.134	0.500	0.031		△												M161						
							0.016		△																		
			0.375	0.125	0.173	0.591	0.031		△													M139					
									△														M140				
																		M161									
	(Use ISO Part Number)	NDMM 12T308ER-T	0.298	0.156	0.134	0.500	0.031	15°	△							△	△										
	(Use ISO Part Number)	NDMM 12T308ER-N2	0.307	0.156	0.134	0.500	0.031	15°	△							△											
	(Use ISO Part Number)	NDMM 12T308ER-N3	0.307	0.156	0.134	0.500	0.031	15°	△							△											
	(Use ISO Part Number)	NDMT 080208ER-D 10T208ER-D	0.200	0.094	0.087	0.335	0.031	15°	●				●	●	●	●											
							0.247		●																		
		NEMT 120308ER-D 16T308ER-D	0.302	0.125	0.134	0.500	0.031		20°	●					●	●	●	●									
										0.364	●																
		(Use ISO Part Number)	NDMT 080208ER-DH 10T208ER-DH	0.200	0.094	0.087	0.335		0.031	15°	●					●	●	●	●								
											0.247	●															
NEMT 120308ER-DH 16T308ER-DH	0.302		0.125	0.134	0.500	0.031	20°	●					●	●	●	●											
								0.364	●																		

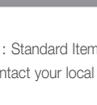
*CVD: CVD Coated Carbide *PVD: PVD Coated Carbide
*MN: MEGACOAT NANO

Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■			★	★													
M	Stainless Steel					★	★												
K	Gray Cast Iron Nodular Cast Iron												★						☆
N	Non-ferrous Metals																		★
S	Heat-Resistant Alloys Titanium Alloy												★	★					☆
H	Hard Materials												■	■					

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)		Cemet	CVD*	MN*	MEGACOAT			PVD Coated Carbide	Carbide	Toolholder Page						
		IC L	S	D1	BS W1	RE	AN	AS				TN100M	CA6535	PR1535				PR1225	PR1230	PR1210	PR630	PR915	KW10
	OFMR 070405EN-SH	0.708	0.194	-	-	0.047							●		△								
	OFMR 070408EN-GT	0.703	0.202	-	-	0.043	26°	26°					●		●								
	OFMT 050405EN-GT	0.526	0.190	0.181	0.020	0.055	26°	26°					●		●	△							
	070408EN-GT	0.703	0.202	0.232	0.031	0.047							●		●	△							
	OFMT 050405ER-SH	0.530	0.187	0.173		0.067	22°						●		●	△							
	070405EN-SH	0.708	0.192	0.228			26°						●		●	△							
	RDFG 08FR	0.260	0.083	0.122	0.315	0.157	15°	-											●				
	10FR	0.315	0.106	0.142	0.394	0.197													●				
	12FR	0.370	0.126	0.161	0.472	0.236													●				
	16FR	0.445	0.165	0.201	0.630	0.315													●				
	20FR	0.555	0.205	0.240	0.787	0.394	10°	-											●				
	25FR	0.610	0.244	0.240	0.984	0.492													●				
	RDHX 0702M0T	0.276	0.094	0.110																			
	1003M0T	0.394	0.125				15°	-															
	12T3M0T	0.472	0.156	0.150																			
	RDMT 08T2M0-H	0.315	0.109	0.134			15°	-											●				
	RPMT 10T3M0	0.394	0.156	0.134															●				
	1204M0	0.472	0.187	0.173			11°	-											●				
	RPMT 1204M0-H	0.472	0.187	0.173					●										●				
	1606M0-H	0.630	0.250	0.217			11°	-	●										●				
	2006M0-H	0.787	0.250	0.256					●										●				

*CVD: CVD Coated Carbide
*MN: MEGACOAT NANO

Inserts sold in 10 piece boxes.

RDFG inserts sold in 2 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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Milling Inserts with Hole

Usage Classification
 ★ Roughing / 1st Choice
 ☆ Roughing / 2nd Choice
 ■ Finishing / 1st Choice
 □ Finishing / 2nd Choice
 (Hardness Under 45HRC)

P	Free-Cutting Steel	■		★	★			
	Carbon/Alloy Steel	■		★	★			
M	Stainless Steel			★	★			
	Gray Cast Iron						★	☆
K	Nodular Cast Iron						★	
N	Non-ferrous Metals							★
	Heat-Resistant Alloys			★	★			
S	Titanium Alloy						★	☆
H	Hard Materials			■	■			

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)		Cermet TNT100M	CVD* CA6535	MN* PRI1535	MEGACOAT			Carbide KW10	Toolholder Page
			IC	S	D1	RE BCH	BS	AN	AS				PRI225	PRI230	PRI210		
	(Use ISO Part Number)	SDKW 09T204TN 09T204FN	0.375	0.109	0.134	-	0.016	15°	-	●						●	M248
	SEKW 421TN 421FN 422TN 422FN	SEKW 120304TN 120304FN 120308TN 120308FN	0.500	0.125	0.217	-	0.016 0.031	20°	-	●			●			●	
	(Use ISO Part Number)	SDKW 1204AESN 1204AETN	0.500	0.187	0.217	RE=0.039	0.059	15°	20°					●			
	SEKW 43AFTN	SEKW 1204AFTN				BCH=0.020	0.067	20°	25°	●			●	●	●		
	(Use ISO Part Number)	SDMT 1204AESR-H	0.500	0.187	0.217	R0.039	0.031	15°	20°					●			
	SDMT 31.81C	SDMT 09T204C	0.375	0.109	0.134	-	0.016	15°	-	●			●		●	M248	
	SEMT 421C	SEMT 120304C	0.500	0.125	0.217	-	0.016	20°	-				●		●		
	SDMT 221E-K	SDMT 060304E-K	0.250		0.110		0.016							●	●	M252	
	(Use ISO Part Number)	SDMT 080308E-K	0.315	0.125	0.134	-	0.031	15°	-					●	●		
	SDMT 432E-K	SDMT 120408E-K	0.500	0.187	0.173									●	●		
	SEKT 43AFEN-S	SEKT 1204AFEN-S	0.500	0.187	0.217	0.020	0.067	20°	25°	●			●			-	
	(Use ISO Part Number)	SOMT 0903AXEN-J	0.375	0.125	0.134	0.020	0.043	27°	32°	●					●	-	
	(Use ISO Part Number)	SOMW 0903AXTN 0903AXFN	0.375	0.125	0.134	0.020	0.043	27°	32°	●					●	-	

*CVD: CVD Coated Carbide
 *MN: MEGACOAT NANO

Inserts sold in 10 piece boxes.

Milling Inserts with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel				★	★				
M	Stainless Steel				★	★				
K	Gray Cast Iron Nodular Cast Iron									★
N	Non-ferrous Metals									
S	Heat-Resistant Alloys Titanium Alloy							★	★	★
H	Hard Materials							■	■	

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)		Cermat	CVD*	MN*	MEGACOAT			Carbide	Toolholder Page
		IC	S	D1	RE	BS	AN	AS				TN100M	CA6535	PR1535			PR1225	PR1230	PR1210	KW10
 2-Notch / General Purpose	SPMT 1806EDER-NB2	0.709	0.250	0.268	R0.047	0.122	11°	15°				●	●	●		M54 M55
 3-Notch / General Purpose	SPMT 1806EDER-NB3	0.709	0.250	0.268	R0.047	0.122	11°	15°				●	●	●		
 2-Notch / Tough Edge	SPMT 1806EDSR-NB2T	0.709	0.250	0.268	R0.047	0.122	11°	15°					●	●		M54 M55
	SPMT 1806EDSL-NB2T															
 3-Notch / Tough Edge	SPMT 1806EDSR-NB3T	0.709	0.250	0.268	R0.047	0.122	11°	15°					●	●		M54 M55
	SPMT 1806EDSL-NB3T															
 4-Notch / Low Cutting Force	SPMT 1806EDER-NB2P	0.709	0.250	0.268	R0.047	0.122	11°	15°				●	●	●		
 5-Notch / Low Cutting Force	SPMT 1806EDER-NB3P	0.709	0.250	0.268	R0.047	0.122	11°	15°				●	●	●		M54 M55
 Without Notches	SPMT 1806EDER-V	0.709	0.250	0.268	R0.047	0.122	11°	15°				●	●	●		

*CVD: CVD Coated Carbide
*MN: MEGACOAT NANO

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Inserts sold in 10 piece boxes.

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Milling Inserts

with Hole

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel			☆	★		★	★											
	Carbon/Alloy Steel			☆	★		★	★											
M	Austenitic Stainless Steel			☆	★		★	★											
	Martensitic Stainless Steel			★	☆		★	★											
	Precipitation Hardened Stainless Steel				★		★	★											
K	Gray Cast Iron						☆	★										★	☆
	Nodular Cast Iron						☆	★										★	☆
N	Non-ferrous Metals																		★
S	Heat-Resistant Alloys			★	☆								★	★					
	Titanium Alloy																	★	☆
H	Hard Materials												■		■	■			

Insert (Right-hand Shown)	Part Number	Dimensions (in)							Angle (°)	Cemet	CVD*	MEGACOAT NANO					MEGACOAT			Carbide	Toolholder Page						
		IC	S	D1	BS	L	RE	AN				TN100M	CA6535	PR1535	PR1525	PR1510	PR1225	PR1230	PR1210			KW10					
 3-Notch	SPMT 180616EN-NB3	0.709	0.250	0.268	-	-	0.063	11°																			
 4-Notch	SPMT 180616EN-NB4	0.709	0.250	0.268	-	-	0.063	11°																			
 3-Notch / Low Cutting Force	SPMT 180616EN-NB3P	0.709	0.250	0.268	-	-	0.063	11°																			
 4-Notch / Low Cutting Force	SPMT 180616EN-NB4P	0.709	0.250	0.268	-	-	0.063	11°																			
 Without Notch	SPMT 180616EN-V	0.709	0.250	0.268	-	-	0.063	11°																			
	SPMT 060204E-Z	0.250	0.094	0.098	-	-	0.016	11°																			
	060208E-Z						0.031																				
	SPMT 090304E-Z	0.375	0.125	0.134	-	-	0.016	11°																			
	090308E-Z						0.031																				
	TEMT 250624-AQ	0.625	0.250	0.217	-	0.906	0.094	20°																			

*CVD: CVD Coated Carbide

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

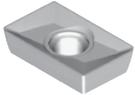
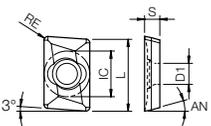
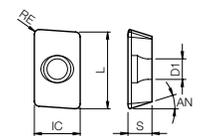
M
MILLING

Milling Inserts with Hole

Usage Classification

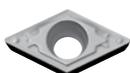
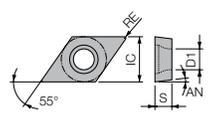
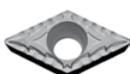
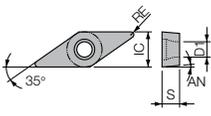
- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■	□										
	Carbon/Alloy Steel	■	□										
M	Austenitic Stainless Steel										★		
	Martensitic Stainless Steel									★	☆		
	Precipitation Hardened Stainless Steel										★		
K	Gray Cast Iron												
	Nodular Cast Iron												
N	Non-ferrous Metals												★
S	Heat-Resistant Alloys										★	☆	☆
	Titanium Alloy											★	
H	Hard Materials												

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)	Cermet		CVD*		MEGACOAT NANO		Carbide	Toolholder Page
		IC	S	D1	L	RE		TN100M	TC60	CA6535	PR1535	PR1525	KW10		
 	XPMT 090208	1/4	0.094	0.110	0.375	0.031	15°	●		●	●	●		M156 M247	
	XPMT 15T304					0.016		●	△	●	●		●	M156 M157 M158 M247	
	15T308					0.031		●		●	●				
	15T316					0.063	15°		△	●	●				
	15T324	3/8	0.156	0.157	0.607	0.094				●	●				
	15T331					0.122			△	●	●				
	15T364					0.250					●	●			
 	APET 1604PDFR					0.039							●	M159 M247	
	160416	3/8	0.188	0.157	0.630	0.062	11°						●		
	160431					0.125							●		

*CVD: CVD Coated Carbide

API Ring Groover Inserts with Hole

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)	CVD Coated Carbide			MEGACOAT Coated Carbide		PVD Coated Carbide	Toolholder Page
			IC	S	D1	RE	AN		CA525	CA5525	CA6525	PR1225	PR1425			PR660
 	DCMT 3252HQ	DCMT 11T308HQ	3/8	5/32	0.173	1/32	7°	●	●	●		△	△	M245	
 	DCMT 3253CQ	DCMT 11T312CQ	3/8	5/32	0.173	3/64	7°		●	●			●		
 	VCMT 222HQ	VCMT 110308HQ	1/4	1/8	0.110	1/32	7°				●			M245	
	VCMT 332HQ	VCMT 160408HQ	3/8	3/16	0.173	1/32	7°	●	●	●			●		
	333HQ	160412HQ	3/8	3/16	0.173	3/64	7°					●			

Inserts sold in 10 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	G
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

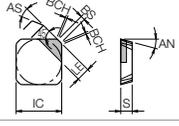
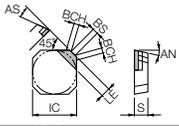
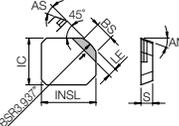
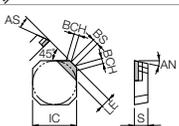
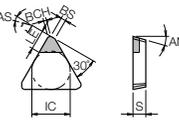
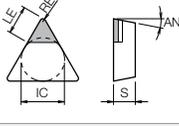
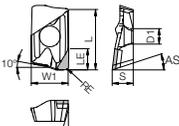
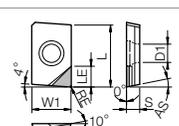
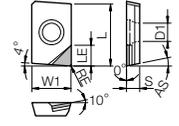
Milling Inserts

PCD

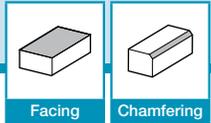
Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

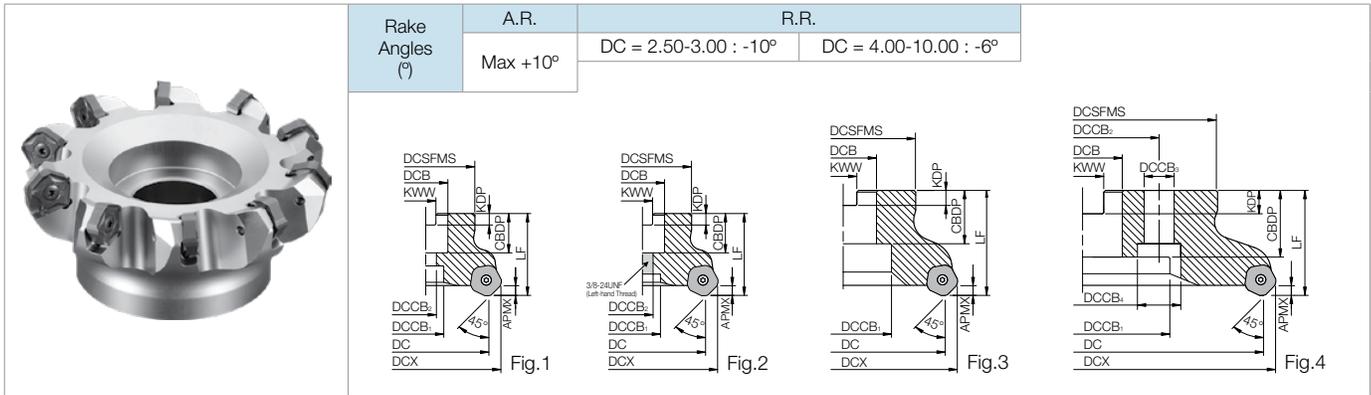
P	Free-Cutting Steel Carbon/Alloy Steel				
M	Stainless Steel Gray Cast Iron Nodular Cast Iron				
N	Non-ferrous Metals	□			■
S	Heat-Resistant Alloys Titanium Alloy	□			■
H	Hard Materials				

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)		PCD			Toolholder Page
			IC	S	BCH	BS	LE	INSL	AN	AS	KPD001	KPD010	KPD230	
		SDKN 42AUFN	SDKN 1203AUFN	0.500	0.125	0.020	0.047	0.142	-	15°	23°	●	●	-
		SEEN 42AFFN	SEEN 1203AFFN	0.500	0.125	0.020	0.055	0.138	-	20°	25°	●	●	-
		SEEN 42AFFR-W	SEEN 1203AFFR-W	0.492	0.125	-	0.138	0.067	0.573	20°	25°	●		-
		(Use ISO Part Number)	SOKN 13T3AXFN-NE	0.531	0.156	0.016	0.043	0.118	-	27°	32°		●	-
		TEEN 32PTFR-NE	TEEN 1603PTFR-NE	0.375	0.125	0.024	0.055	0.161	-	20°	22°	●	●	-
		TEEN 32PTFR	TEEN 1603PTFR					0.185						
		TEKN 43PTFR-NE	TEKN 2204PTFR-NE	0.500	0.187	0.028	0.071	0.165	-	20°	22°	●	●	-
		TEKN 43PTFR	TEKN 2204PTFR					0.189						
Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)		PCD			Toolholder Page
IC	S	RE	LE	-	-	AN	-	KPD001	KPD010	KPD230				
		TPG 2205	TPGN 110302	0.250	0.125	0.008	0.154	-	-	11°	-	●	●	-
		TPG 221	TPGN 110304			0.016	0.146							
		TPG 222	TPGN 110308			0.031	0.134							
Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)		PCD			Toolholder Page
W1	S	D1	L	RE	LE	AS	AN	KPD001	KPD010	KPD230				
		(Use ISO Part Number)	BDGT 11T302FR	0.264	0.150	0.110	0.453	0.008	0.150	18°	13°	●	●	-
		(Use ISO Part Number)	BDGT 11T304FR					1/64						
		(Use ISO Part Number)	BDGT 11T308FR					1/32						
		(Use ISO Part Number)	BDGT 11T302FR-LE					0.008	0.205					
		(Use ISO Part Number)	BDGT 11T304FR-LE					1/64						
		(Use ISO Part Number)	BDGT 11T308FR-LE					1/32						
		(Use ISO Part Number)	BDMT 11T302FR	0.264	0.150	0.110	0.433	0.008	0.142	18°	13°	●	●	-
		(Use ISO Part Number)	BDMT 11T304FR					1/64						
		(Use ISO Part Number)	BDMT 170402FR	0.378	0.193	0.173	0.669	0.008	0.173	18°	13°	●	●	-
		(Use ISO Part Number)	BDMT 170404FR					1/64						
		NDCW 3205FRX-NE	NDCW 150302FRX-NE	0.375	0.125	0.173	0.591	0.008	0.201	15°	-	●	●	M140
		NDCW 3205FRX	NDCW 150302FRX					0.224						

PCD inserts sold in 1 piece boxes.



MFPN45 Face Mill (Inch Size)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)													Drawing	Weight (kg)	Shim	
			DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	DCCB ₃	DCCB ₄					
Inch Bore Dia.	Coarse Pitch	MFPN 452500R-4T	●	4	2.500	2.815	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.313	-	-	Fig.1	0.5	Yes
		MFPN 453000R-5T	●	5	3.000	3.315	2.283	1.000	0.866	0.551	1.969	1.063	0.236	0.375	-	-	Fig.1	1.1	
		MFPN 454000R-6T	●	6	4.000	4.315	2.756	1.500	2.047	-	1.969	1.142	0.394	0.625	-	-	Fig.3	1.4	
		MFPN 455000R-7T	●	7	5.000	5.315	3.425	1.500	2.283	-	2.480	1.417	0.394	0.625	-	-	Fig.3	2.6	
		MFPN 456000R-8T	●	8	6.000	6.315	4.016	2.000	2.835	-	2.480	1.496	0.433	0.750	-	-	Fig.3	3.8	
		MFPN 458000R-10T	●	10	8.000	8.315	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.000	0.709	1.024	Fig.4	6.6	
	MFPN 4510000R-12T	●	12	10.000	10.315	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.000	0.709	1.024	Fig.4	9.3		
	Fine Pitch	MFPN 452000R-4T	●	4	2.000	2.315	1.750	0.750	-	3/8-24UNF	1.969	0.830	0.187	0.313	-	-	Fig.2	0.3	No
		MFPN 452500R-5T	●	5	2.500	2.815	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.313	-	-	Fig.1	0.5	
		MFPN 453000R-6T	●	6	3.000	3.315	2.283	1.000	0.866	0.551	1.969	1.063	0.236	0.375	-	-	Fig.1	1.1	
		MFPN 454000R-8T	●	8	4.000	4.315	2.756	1.500	2.047	-	1.969	1.142	0.394	0.625	-	-	Fig.3	1.3	
		MFPN 455000R-10T	●	10	5.000	5.315	3.425	1.500	2.283	-	2.480	1.417	0.394	0.625	-	-	Fig.3	2.6	
		MFPN 456000R-12T	●	12	6.000	6.315	4.016	2.000	2.835	-	2.480	1.496	0.433	0.750	-	-	Fig.3	3.9	
	Extra Fine Pitch	MFPN 452500R-6T	●	6	2.500	2.815	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.313	-	-	Fig.1	0.5	No
		MFPN 453000R-8T	●	8	3.000	3.315	2.283	1.000	0.866	0.551	1.969	1.063	0.236	0.375	-	-	Fig.1	1.1	
		MFPN 454000R-10T	●	10	4.000	4.315	2.756	1.500	2.047	-	1.969	1.142	0.394	0.625	-	-	Fig.3	1.3	
		MFPN 455000R-13T	●	13	5.000	5.315	3.425	1.500	2.283	-	2.480	1.417	0.394	0.625	-	-	Fig.3	2.6	
		MFPN 456000R-16T	●	16	6.000	6.315	4.016	2.000	2.835	-	2.480	1.496	0.433	0.750	-	-	Fig.3	3.9	
MFPN 458000R-18T		●	18	8.000	8.315	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.000	0.709	1.024	Fig.4	6.6		
MFPN 4510000R-20T	●	20	10.000	10.315	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.000	0.709	1.024	Fig.4	9.3			

*Dimension APMX is 0.236" for GM/SM/GH chipbreaker and 0.197" for GL chipbreaker

Spare Parts (Inch / Inch Bore)

Part Number	Clamp Screw	Wrench		Shim	Shim Screw	Wrench	Anti-seize Compound	Arbor Bolt	Mounting Screw	
		TTW	DTM							
Coarse Pitch	MFPN 452500R-4T	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH3/8-1.25	-
	HH1/2-1.25								-	
	-								-	
	-								-	
Fine Pitch	MFPN 452000R-4T	SB-50140TR	TTW-15	-	-	-	P-37	-	XNS610*2	
	HH3/8-1.25							-		
	HH1/2-1.25							-		
	-							-		
	-							-		
Extra Fine Pitch	MFPN 452500R-6T	SB-40140TRN	-	DTM-15	-	-	P-37	HH3/8-1.25	-	
	HH1/2-1.25							-		
	-							-		
	-							-		

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions M34

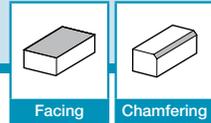
*2 Differential screw (3/8-24UNF)

Applicable Inserts M33

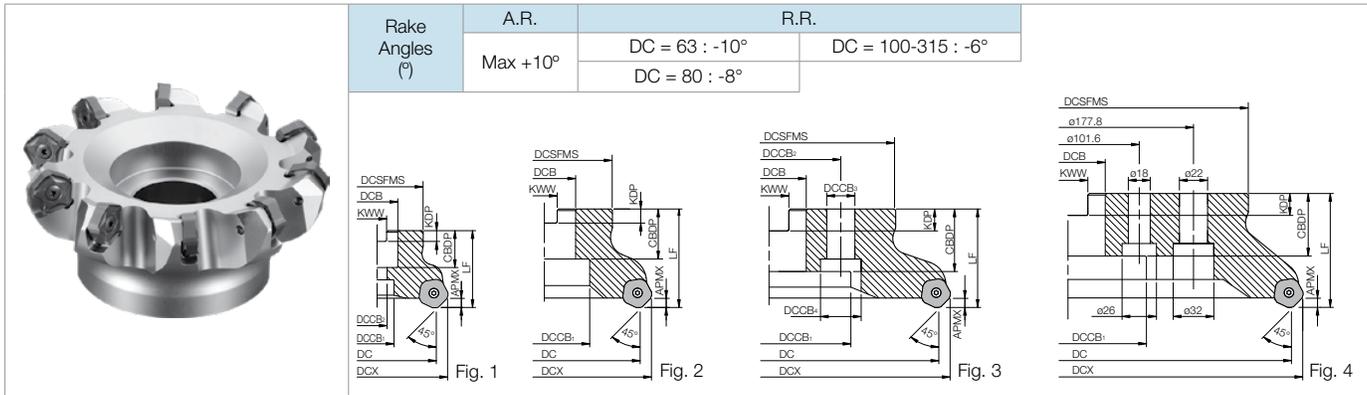
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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MFPN45 Face Mill (Metric Size)



Toolholder Dimensions

Part Number	Stock			Dimensions (mm)													Drawing	Weight (kg)	Shim	
	R	L	No. of Inserts	DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	DCCB ₃	DCCB ₄					
Inch Bore Dia.	Coarse Pitch	MFPN 45080%-5T	●	●	5	80	93	60	1.000"	22	13.0	50	1.063"	0.236"	0.375"	-	-	Fig.1	1.1	Yes
		MFPN 45100%-6T	●	●	6	100	113	70	1.250"	48	63		1.260"	0.315"	0.500"						-	-	Fig.2	1.4
		MFPN 45125%-7T	●	●	7	125	138	87	1.500"	58		63	1.417"	0.394"	0.625"	-	-	Fig.2	2.6	
		MFPN 45160%-8T	●	●	8	160	173	102	2.000"	72	63		1.496"	0.433"	0.750"					
		MFPN 45200R-10T	●	●	10	200	213	142	1.875"	110		4.000"	1.575"	0.551"	1.000"	18	26	Fig.3	6.7	
	MFPN 45250R-12T	●	●	12	250	263	142				1.875"									110	4.000"	1.575"	0.551"	1.000"	18	26	Fig.3	9.4
	Fine Pitch	MFPN 45080R-6T	●	●	6	80		93	60	1.000"		22	13.0	50	1.063"	0.236"	0.375"	-	-										Fig.1	1.1	No
		MFPN 45100R-8T	●	●	8	100	113	70	1.250"	48	63	1.260"	0.315"		0.500"	-	-			Fig.2	1.4
		MFPN 45125R-10T	●	●	10	125	138	87	1.500"	58		63	1.417"	0.394"	0.625"			-	-			Fig.2	2.7
		MFPN 45160R-12T	●	●	12	160	173	102	2.000"	72	63		1.496"	0.433"	0.750"	-	-			Fig.3	4.0
		MFPN 45200R-14T	●	●	14	200	213	142	1.875"	110		4.000"	1.575"	0.551"	1.000"			18	26			Fig.3	6.9
	MFPN 45250R-16T	●	●	16	250	263	142				1.875"					110	4.000"			1.575"	0.551"			1.000"	18	26	Fig.3	9.6
	Extra Fine Pitch	MFPN 45080R-8T	●	●	8	80		93	60	1.000"		22	13.0	50	1.063"			0.236"	0.375"			-	-						Fig.1	1.1	No
		MFPN 45100R-10T	●	●	10	100	113	70	1.250"	48	63	1.260"	0.315"		0.500"	-	-	Fig.2	1.3	
		MFPN 45125R-13T	●	●	13	125	138	87	1.500"	58		63	1.417"	0.394"	0.625"					-	-	Fig.2	2.7
MFPN 45160R-16T		●	●	16	160	173	102	2.000"	72	63	1.496"		0.433"	0.750"	-	-	Fig.3	4.0		
MFPN 45200R-18T		●	●	18	200	213	142	1.875"	110		4.000"	1.575"	0.551"	1.000"					18	26	Fig.3	6.9
MFPN 45250R-20T	●	●	20	250	263	142				1.875"					110	4.000"	1.575"	0.551"					1.000"	18	26	Fig.3	9.6
Metric Bore Dia.	Coarse Pitch	MFPN 45063R-4T-M	●	●	4		63	76	47		22	19	11.0	40					21	6.3	10.4	-						-	Fig.1	0.5	Yes
		MFPN 45080R-5T-M	●	●	5	80	93	60	27	22	13.0	50	24	7.0	12.4	-	-	Fig.2	1.1	
		MFPN 45100R-6T-M	●	●	6	100	113	70	32	48	63	30	8.0	14.4	-					-
		MFPN 45125R-7T-M	●	●	7	125	138	87	40	58		63	32	9.0		16.4	14	20	Fig.3				2.6
		MFPN 45160R-8T-M	●	●	8	160	173	102	40	68	66.7		63	32	9.0	16.4				14	20	Fig.3		3.8
	MFPN 45200R-10T-M	●	●	10	200	213	142	60	110	101.6	40	14.0		25.7	18	26	Fig.3	6.4		
	MFPN 45250R-12T-M	●	●	12	250	263							142						60	110	101.6	40	14.0	25.7	18	26	Fig.3	9.1
	MFPN 45315R-14T-M	□	□	14	315	328	220	-	-	80	-	-		-	-	-	Fig.4	21.3		
	Fine Pitch	MFPN 45063R-5T-M	●	●	5	63	76						47						22	19	11.0	40	21	6.3	10.4	-	-	Fig.1	0.5	No
		MFPN 45080R-6T-M	●	●	6	80	93	60	27	22	13.0	50	24	7.0	12.4	-	-	Fig.1	1.0	
		MFPN 45100R-8T-M	●	●	8	100	113	70	32	48	63	30	8.0	14.4	-					-
		MFPN 45125R-10T-M	●	●	10	125	138	87	40	58		63	32	9.0		16.4	14	20	Fig.2				2.5
		MFPN 45160R-12T-M	●	●	12	160	173	102	40	68	66.7		63	32	9.0	16.4				14	20	Fig.3		3.8
	MFPN 45200R-14T-M	●	●	14	200	213	142	60	110	101.6	40	14.0		25.7	18	26	Fig.3	6.5		
	MFPN 45250R-16T-M	●	●	16	250	263							142						60	110	101.6	40	14.0	25.7	18	26	Fig.3	9.1
Extra Fine Pitch	MFPN 45063R-6T-M	●	●	6	63	76	47	22	19	11.0	40	21		6.3	10.4	-	-	Fig.1											0.5	No
	MFPN 45080R-8T-M	●	●	8	80	93	60	27	22	13.0	50	24	7.0	12.4	-				-	Fig.1
	MFPN 45100R-10T-M	●	●	10	100	113	70	32	48	63	30	8.0	14.4	-		-	Fig.2	1.3		
	MFPN 45125R-13T-M	●	●	13	125	138	87	40	58		63	32	9.0		16.4				14	20	Fig.2	2.6
	MFPN 45160R-16T-M	●	●	16	160	173	102	40	68	66.7		63	32	9.0	16.4	14	20	Fig.3					3.9
MFPN 45200R-18T-M	●	●	18	200	213	142	60	110	101.6	40	14.0		25.7	18	26				Fig.3	6.6
MFPN 45250R-20T-M	●	●	20	250	263							142				60	110	101.6			40	14.0	25.7	18	26	Fig.3	9.3

*Dimension APMX is 6mm for GM, SM, GH Chipbreakers, 5mm for GL Chipbreaker and, 3mm for W Chipbreaker: PR15 series Recommended Cutting Conditions **M34**

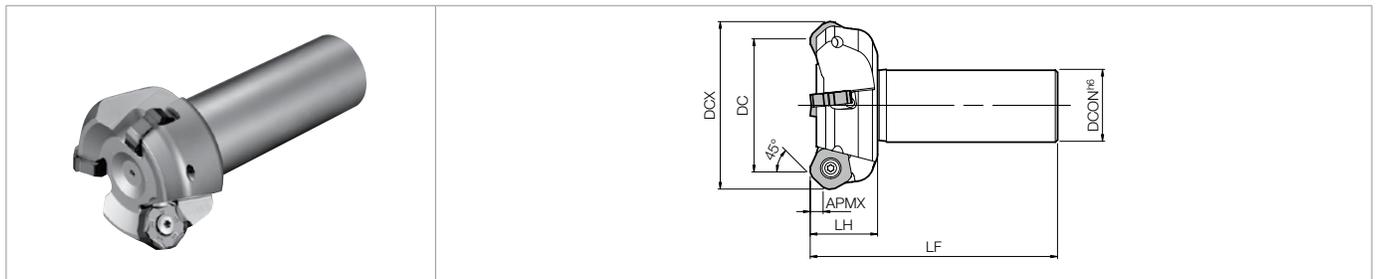
Spare Parts & Applicable Inserts **M33**

● Spare Parts (Metric Size / Inch Bore & Metric Size / Metric Bore)

Part Number	Spare Parts							
	Clamp Screw	Wrench		Shim	Shim Screw	Wrench	Anti-seize Compound	Arbor Bolt
		TTW	DTM					
Coarse Pitch MFPN 45063R-4T-M 45080R-5T(-M) 45100R-6T(-M) ~ 45315R-14T(-M)	SB-50140TR	TTW-15	-	MFPN-45	SPW-7050	LW-5	P-37	HH10x30
								HH12x35
								-
								-
Fine Pitch MFPN 45063R-5T-M 45080R-6T(-M) 45100R-8T(-M) ~ 45315R-18T(-M)	SB-50140TR	TTW-15	-	-	-	-	P-37	HH10x30
								HH12x35
								-
								-
Extra Fine Pitch MFPN 45063R-6T-M 45080R-8T(-M) 45100R-10T(-M) ~ 45250R-20T(-M)	SB-40140TRN	-	DTM-15	-	-	-	P-37	HH10x30
								HH12x35
								-
								-

🔧 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed.

■ MFPN45 End Mill



● Toolholder Dimensions

Part Number	Stock	No. of Inserts	Unit	Dimensions							Rake Angles		Shank Type	Spare Parts		
				DC	DCX	DCON	LF	LH	APMX	A.R. (Max)	R.R.	Clamp Screw		Wrench	Anti-seize Compound	
Weld on Shank MFPN 452000R-W125-3T 452500R-W125-4T 453000R-W125-5T	●	3	Inch	2.00	2.31	1.25	3.60	1.18	0.23 *(0.19)	+10°	-12°	Weld on	SB-50140TR	TTW-15	P-37	
	●	4		2.50	2.81	1.25	3.60	1.18		+10°	-10°					
	●	5		3.00	3.31	1.25	3.60	1.18		+10°	-8°					
Cylindrical Shank MFPN 45050R-S32-3T 45063R-S32-4T 45080R-S32-5T	●	3	mm	50	63	32	110	30	6 (5)	+10°	-12°	Cylindrical	SB-50140TR	TTW-15	P-37	
	●	4		63	76	32	110	30		+10°	-10°					
	●	5		80	93	32	110	30		+10°	-8°					

🔧 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed.

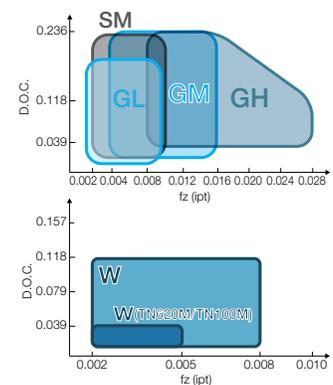
*Dimension APMX is 0.236" for GM, SM, GH Chipbreakers, 0.197" for GL Chipbreaker and, 0.118" for W Chipbreaker: PR15 series

● Applicable Inserts (Face Mill and End Mill)

Part Number	Applicable Inserts M18						
	MFPN 45...R-...	PNMU 1205ANER-GM	PNMU 1205ANER-SM	PNMU 1205ANER-GH	PNEU 1205ANER-GL	PNEU 1205ANER-W	-
MFPN 45...L-...	-	-	-	-	-	PNMU 1205ANEL-GM	PNEU 1205ANEL-GL

Recommended Cutting Conditions M34

● Applicable Chipbreaker Range



● Cutter Type and Chipbreaker Selection

Milling Purpose	Cutter Type			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra Fine Pitch	GM	SM	GH	GL	W
General milling for steel and alloy steel		●		●				
Steel and alloy steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Productivity oriented (high metal removal rate) (D.O.C. ≥ 0.1575", fz ≥ 0.0138 ipt)	●					●		
Focusing on finishing quality	●	●					●	
General milling of stainless steel		●			●			
Stainless steel (to prevent chattering due to low rigidity machine or poor clamping power)	●				●			
Cast iron (for high feed rates and high efficiency)			●	●				
Cast iron (D.O.C. ≥ 0.1575", fz ≥ 0.0138 ipt)	●					●		
Improved surface finish in high-efficiency milling		●	●					●

● How to Use Wiper Insert

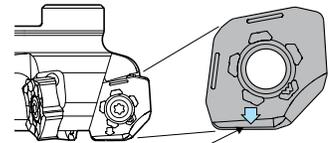
- 1) Please use one wiper insert per cutter.
(If you use more than 2 inserts on one cutter, the workpiece surface may have galling.)
- 2) Combination of Wiper Insert with other Chipbreakers

GM	SM	W
Yes	-	Yes
-	Yes	Yes

GH+W and GL+W insert chipbreaker combinations are not recommended.

- 3) For checking the protrusion amount of the wiper insert, use tool presetter. (Appropriate protrusion: 0.0039")

● How to Attach Wiper Inserts on MFPN Cutter



The down arrow symbol (↓) indicates wiper cutting edge. When attaching inserts, make sure that the arrow symbol points downward.

◆ Recommended Cutting Conditions

Inserts	Chipbreaker	Workpiece Material	fz (ipt) <i>Feeds in () are for Grade TN620M</i>	Recommended Insert Grades (Cutting Speed Vc : sfm)					
				Cermet TN620M	MEGACOAT NANO (MEGACOAT)		MEGACOAT HARD PR015S	CVD Coated Carbide CA6535	
					PR1535	PR1525 (PR1225)			PR1510 (PR1210)
45°-70° Lead Angle 75° Lead Angle 90°/88° Lead Angle High Feed Milling Finish Milling Multi-Function Slot Mill Ball-Nose Radius Other Applications	GM	Carbon Steel	0.004-0.008-0.016 (0.002-0.005-0.008)	★ 660-820-980	☆ 390-590-820	★ 390-590-820	-	-	-
		Alloy Steel	0.004-0.008-0.016 (0.002-0.005-0.008)	★ 590-720-820	☆ 330-520-720	★ 330-520-720	-	-	-
		Mold Steel	0.004-0.008-0.014 (0.002-0.003-0.006)	★ 490-590-720	☆ 260-460-590	★ 260-460-590	-	-	-
		Austenitic Stainless Steel	0.004-0.008-0.016	-	☆ 330-520-660	☆ 330-520-660	-	-	-
		Martensitic Stainless Steel	0.004-0.008-0.016	-	☆ 490-660-820	-	-	-	☆ 590-790-980
		Precipitation Hardened Stainless Steel	0.004-0.008-0.012	-	★ 300-390-490	-	-	-	-
		Gray Cast Iron	0.004-0.008-0.016	-	-	-	★ 390-590-820	-	-
		Nodular Cast Iron	0.004-0.008-0.014	-	-	-	★ 330-490-660	-	-
		Ni-base Heat Resistant Alloys	0.004-0.005-0.008	-	☆ 70-100-160	-	-	-	★ 70-100-160
MILLING	SM *(GL)	Carbon Steel	0.002-0.005-0.010 (0.002-0.004-0.006)	★ 660-820-980	☆ 390-590-820	☆ 390-590-820	-	-	-
		Alloy Steel	0.002-0.005-0.010 (0.002-0.004-0.006)	★ 590-720-820	☆ 330-520-720	☆ 330-520-720	-	-	-
		Mold Steel	0.002-0.004-0.008 (0.002-0.003-0.005)	★ 490-590-720	☆ 260-460-590	☆ 260-460-590	-	-	-
		Austenitic Stainless Steel	0.002-0.005-0.010	-	★ 330-520-660	☆ 330-520-660	-	-	-
		Martensitic Stainless Steel	0.002-0.005-0.010	-	☆ 490-660-820	-	-	-	★ 590-790-980
		Precipitation Hardened Stainless Steel	0.002-0.005-0.010	-	☆ 300-390-490	-	-	-	-
		Gray Cast Iron	0.002-0.005-0.010	-	-	-	☆ 390-590-820	-	-
		Nodular Cast Iron	0.002-0.004-0.008	-	-	-	☆ 330-490-660	-	-
		Ni-base Heat Resistant Alloys	0.002-0.004-0.006	-	☆ 70-100-160	-	-	-	☆ 70-100-160
MILLING	*2GH	Titanium Alloys	0.002-0.003-0.006	-	★ 130-200-260	-	-	-	-
		Carbon Steel	0.008-0.016-0.028	-	☆ 390-590-820	☆ 390-590-820	-	-	-
		Alloy Steel	0.008-0.016-0.024	-	☆ 330-520-720	☆ 330-520-720	-	-	-
		Mold Steel	0.008-0.014-0.020	-	☆ 260-460-590	☆ 260-460-590	-	-	-
		Austenitic Stainless Steel	0.008-0.012-0.016	-	☆ 330-520-660	☆ 330-520-660	-	-	-
		Martensitic Stainless Steel	0.008-0.012-0.016	-	☆ 490-660-820	-	-	-	☆ 590-790-980
		Precipitation Hardened Stainless Steel	0.008-0.012-0.016	-	☆ 300-390-490	-	-	-	-
		Gray Cast Iron	0.008-0.016-0.028	-	-	-	☆ 390-590-820	-	-
		Nodular Cast Iron	0.008-0.014-0.020	-	-	-	☆ 330-490-660	-	-
		Ni-base Heat Resistant Alloys	0.008-0.012-0.016	-	☆ 70-100-160	-	-	-	☆ 70-100-160
Hard Materials	0.004-0.010-0.014	-	-	-	-	★ 260-330-390	-		

- Values in bold indicate starting value of recommended condition. ★: 1st Recommendation ☆: 2nd Recommendation
- Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Machining with coolant is recommended for Ni-base heat-resistant alloys and Titanium alloys.
 - *1. GL Chipbreaker is recommended for surface finish oriented milling.
 - 2. GH Chipbreaker : Fine Pitch → fz ≤ 0.0157 ipt
 - Extra Fine Pitch → Not Recommended

● **Applicable Chipbreaker**

Cutter Type	Chipbreaker		
	GM	SM (GL)	GH
Coarse Pitch (with shim)	✓	✓	✓
Fine Pitch (without shim)	✓	✓	✓ <small>(Feed rate is recommended under fz = 0.0157 ipt)</small>
Extra Fine Pitch (without shim)	✓	✓	Not recommended

■ **Usage Precautions (How to mount an insert)**

1. Be sure to remove dust and chips from the insert mounting pocket.
2. After applying anti-seize compound on portion of taper and thread, while pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten the screw with appropriate torque. Ref. to Fig. 1 and Fig.2.
Recommended tightening torque ➔ The torque for coarse pitch (using M5 screw) is 4.2 N·m
The torque for extra fine pitch (using M4 screw) is 3.5 N·m.
3. After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the toolholder and between the insert side surfaces and the pocket wall of the toolholder.
4. **To change the cutting edge of the insert, turn the insert counterclockwise** (ref. to Fig. 3).
Insert corner identification number is stamped on the top surface of insert (Fig. 4). To protect the wiper edge, use the corners of insert in the sequence of corner numbers.

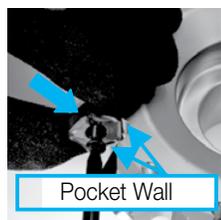


Fig.1



Fig.2



Fig.3

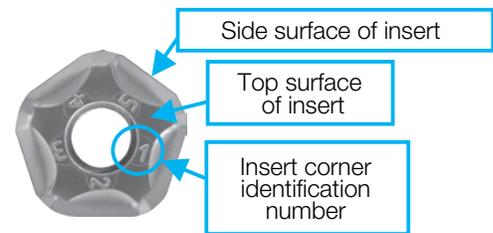


Fig.4

■ **How to Replace the Shim (Coarse Pitch)**

1. Be sure to remove dust and chips from the insert mounting pocket.
2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding pocket wall (ref. to Fig. 5) and lightly pressing the shim toward the constraint surface, insert the screw into the hole of the shim and tighten it (ref. to Fig. 6).
When tightening the screw, make sure that the screw is vertical to the bearing surface. Recommended tightening torque is 6.0N·m.
3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the bearing surface. If there is any clearance, remove the insert and mount it again according to the above steps.



Fig.5



Fig.6

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFPN66

High Efficiency Milling with a 24° Lead Angle

Economical Double-sided 10-edge Insert

Reduces Chattering with a Low Cutting Force Design

Reduces Cutting Costs when Machining Auto Parts and Other General Purpose Machining Applications

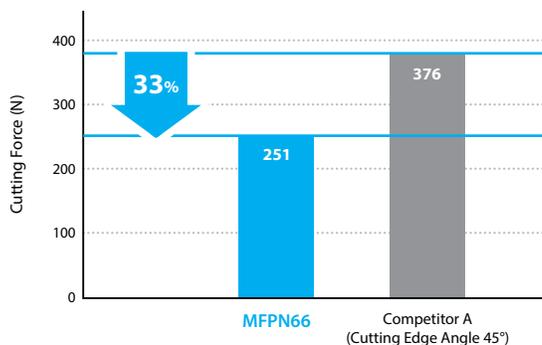
1 Economical Double-sided 10-edge Insert Large Lineup of Sizes from Ø32mm for Various Machining Applications

Cost reduction in various applications from general parts to automotive parts machining

2 Reduces Chattering with a Low Cutting Force Design Available for Small to Medium D.O.C.

Suppresses vibration for excellent surface finish with a 24° lead angle

Low Cutting Force Comparison (Internal Evaluation)



Thrust Force is Cutting Resistance

Cutting Conditions : Vc = 660 sfm, f = 0.006 ipt, D.O.C. = 0.118"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

Surface Finish (Machining with Workpiece Overhang Length of 80mm)



Excellent Surface Finish with Low Workpiece Clamping Rigidity

Cutting Conditions : Vc = 660 sfm, f = 0.008 ipt, D.O.C. = 0.020"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

3 Extended Tool Life with MEGACOAT NANO Coating Technology Insert Lineup Also Includes a Cermet Grade for Better Surface Finish



GM Chipbreaker

1st Recommendation (General Purpose)



GH Chipbreaker

Tough Edge



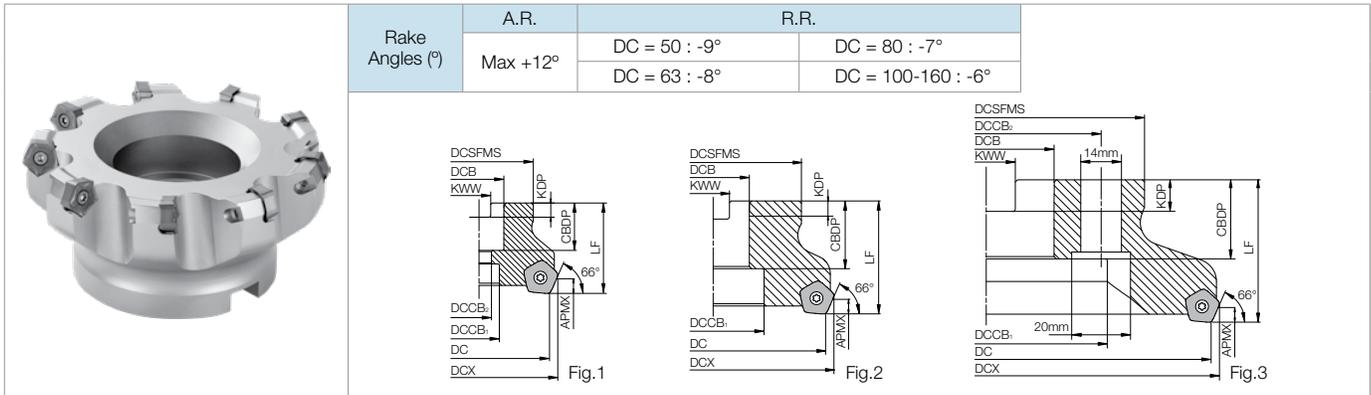
SM Chipbreaker

for Stainless Steel



Facing

MFPN66 Face Mill (Metric Size)



Toolholder Dimensions

Part Number		Stock	No. of Inserts	Dimensions (mm)										Drawing	Weight (kg)	Shim
Inch Bore Dia.	Fine Pitch	●	6	DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	Fig.1	1.2	No
				80	88	70	1.000"	20	13	50	1.063"	0.236"	0.375"				Fig.1	1.7
Inch Bore Dia.	Fine Pitch	●	7	100	107	78	1.250"	45	-	50	1.339"	0.315"	0.500"	Fig.2	1.7	No
		●	9	125	132	89	1.500"	55	-	63	1.496"	0.394"	0.625"			
Inch Bore Dia.	Fine Pitch	●	11	160	167	110	2.000"	72	-	63	1.496"	0.433"	0.750"	Fig.2	4.5	No
		●	9	80	88	70	1.000"	20	13	50	1.063"	0.236"	0.375"			
Inch Bore Dia.	Fine Pitch	●	11	100	107	78	1.250"	45	-	50	1.339"	0.315"	0.500"	Fig.1	1.7	No
		●	13	125	132	89	1.500"	55	-	63	1.496"	0.394"	0.625"			
Inch Bore Dia.	Fine Pitch	●	15	160	167	110	2.000"	72	-	63	1.496"	0.433"	0.750"	Fig.2	4.8	No
		●	4	50	58	48	22	18	11	40	21	6.3	10.4				Fig.1	0.3
Metric Bore Dia.	Fine Pitch	●	5	63	71	48	22	18	11	40	21	6.3	10.4	Fig.1	0.5	No
		●	6	80	88	70	27	20	13	50	24	7	12.4				Fig.1	1.2
Metric Bore Dia.	Fine Pitch	●	7	100	107	78	32	45	-	50	30	8	14.4	Fig.2	1.6	No
		●	9	125	132	89	40	55	-	63	33	9	16.4				Fig.2	2.8
Metric Bore Dia.	Fine Pitch	●	11	160	167	110	2.000"	72	-	63	33	9	16.4	Fig.3	3.8	No
		●	5	50	58	48	22	18	11	40	21	6.3	10.4			
Metric Bore Dia.	Extra Fine Pitch	●	7	63	71	48	22	18	11	40	21	6.3	10.4	Fig.1	0.5	No
		●	9	80	88	70	27	20	13	50	24	7	12.4				Fig.1	1.2
Metric Bore Dia.	Extra Fine Pitch	●	11	100	107	78	32	45	-	50	30	8	14.4	Fig.2	1.6	No
		●	13	125	132	89	40	55	-	63	33	9	16.4				Fig.2	3
Metric Bore Dia.	Extra Fine Pitch	●	15	160	167	110	2.000"	72	-	63	33	9	16.4	Fig.3	4	No

Recommended Cutting Conditions **M39**

Applicable Inserts **M38**

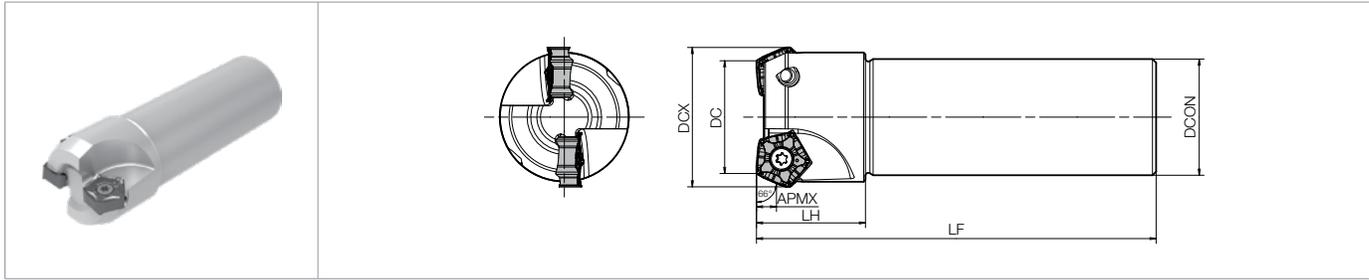
Spare Parts (Both Metric & Inch Size Bore Dia.)

Part Number	Spare Parts				
	Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt	
Fine Pitch	MFPN 66050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	66063R-5T-M-G				HH10X30
	66080R-6T(-M)-G				HH12X35
	66100R-7T(-M)-G				-
	66125R-9T(-M)-G				-
	66160R-11T(-M)-G				-
Extra Fine Pitch	MFPN 66050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	66063R-7T-M-G				HH10X30
	66080R-9T(-M)-G				HH12X35
	66100R-11T(-M)-G				-
	66125R-13T(-M)-G				-
	66160R-15T(-M)-G				-

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed.



MFPN66 End Mill (Metric Size)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)						Rake Angles		Spare Parts		
			DC	DCX	DCON	LF	LH	APMX	A.R. (Max)	R.R.	Insert Screw	Wrench	Anti-seize Compound
MFPN 66032R-S32-2T-G	●	2	32	39.5	32	110	30	5	12°	-14°	SB-4090TRP	DTPM-15	P-37
66040R-S32-3T-G	●	3	40	47.5						-12°			

Recommended Cutting Conditions **M39**

Applicable Inserts

Usage Classification
 ★ Roughing / 1st Choice
 ☆ Roughing / 2nd Choice
 ■ Finishing / 1st Choice
 □ Finishing / 2nd Choice (Hardness Under 45HRC)

Material	Free-Cutting Steel	Carbon/Alloy Steel	Austenitic Stainless Steel	Martensitic Stainless Steel	Precipitation Hardened Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloy	Hard Materials
P	■	☆	★								
M		■	☆	★	☆						
K				★							★
N											★
S									★		
H											★

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Cermet	MEGACOAT NANO				MEGA COAT HARD
		INSL	S	D1	BCH	BS		TN620M	PR1535	PR1525	PR1510		PR015S
<p>General Purpose</p>	PNMU 0905XNER-GM						●	●	●	●		
<p>Low Cutting Force</p>	PNMU 0905XNER-SM	0.575	0.219	0.185	0.079	0.079		●	●	●		
<p>Tough Edge (Heavy Milling)</p>	PNMU 0905XNER-GH							●	●	●	●	

MFPN66 RECOMMENDED CUTTING CONDITIONS

◆ Recommended Cutting Conditions (Coated Carbide)

● Coated Carbide

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)			
			MEGACOAT NANO			MEGACOAT HARD
			PR1535	PR1525	PR1510	PR015S
GM	Carbon Steel	0.004-0.008-0.012	☆ 390-590-820	★ 390-590-820	-	-
	Alloy Steel	0.004-0.008-0.012	☆ 330-520-720	★ 330-520-720	-	-
	Mold Steel	0.004-0.007-0.010	★ 260-460-590	★ 260-460-590	-	-
	Austenitic Stainless Steel	0.004-0.007-0.010	☆ 330-490-660	☆ 330-490-660	-	-
	Martensitic Stainless Steel	0.004-0.007-0.010	☆ 330-490-660	-	-	-
	Precipitation Hardened Stainless Steel	0.004-0.007-0.010	★ 300-390-490	-	-	-
	Gray Cast Iron	0.004-0.008-0.012	-	-	★ 390-590-820	-
	Nodular Cast Iron	0.004-0.007-0.010	-	-	★ 330-490-660	-
	Ni-base Heat Resistant Alloys	0.004-0.005-0.008	☆ 70-100-160	-	-	-
SM	Carbon Steel	0.002-0.005-0.008	-	☆ 390-590-820	-	-
	Alloy Steel	0.002-0.005-0.008	-	☆ 330-520-720	-	-
	Mold Steel	0.002-0.004-0.006	-	☆ 260-460-590	-	-
	Austenitic Stainless Steel	0.002-0.005-0.008	★ 330-490-660	☆ 330-490-660	-	-
	Martensitic Stainless Steel	0.002-0.005-0.008	★ 330-490-660	-	-	-
	Precipitation Hardened Stainless Steel	0.002-0.005-0.008	☆ 300-390-490	-	-	-
	Gray Cast Iron	0.002-0.005-0.008	-	-	☆ 390-590-820	-
	Nodular Cast Iron	0.002-0.004-0.006	-	-	☆ 330-490-660	-
	Ni-base Heat Resistant Alloys	0.002-0.003-0.006	★ 70-100-160	-	-	-
GH	Carbon Steel	0.006-0.010-0.014	-	☆ 390-590-820	-	-
	Alloy Steel	0.006-0.010-0.014	-	☆ 330-520-720	-	-
	Mold Steel	0.004-0.008-0.012	-	☆ 260-460-590	-	-
	Gray Cast Iron	0.006-0.010-0.014	-	-	☆ 390-590-820	-
	Nodular Cast Iron	0.004-0.008-0.012	-	-	☆ 330-490-660	-
	Hard Materials	0.004-0.008-0.012	-	-	-	★ 260-330-390

● Center value in the table indicate the most recommended value. Adjust cutting speed and feed rate according to the actual machining conditions
 ● Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★: 1st Recommendation ☆: 2nd Recommendation

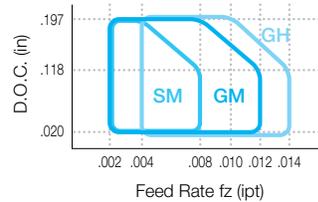
● Cermet

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Cutting Speed Vc : sfm)
			Cermet
GM	Carbon Steel	0.002-0.005-0.006	★ TN620M 660-820-980
	Alloy Steel	0.002-0.005-0.006	★ 590-720-820
	Mold Steel	0.002-0.004-0.005	★ 490-590-720

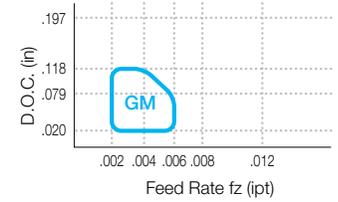
★: 1st Recommendation

● Applicable Chipbreaker Range

Coated Carbide



Cermet



● Applicable Chipbreakers

Cutter Type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	✓ (Feed rate is recommended under fz = 0.008 ipt)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFLN

4-Edge Face Mills with Tangential Inserts for Heavy Milling

Tough 4-edge tangential inserts for reliable heavy milling at large D.O.C. and high feed rates
 Three lead angle options for optimized machining in various applications

1 Tough and Reliable Inserts for Stable Heavy Milling

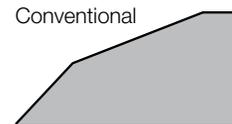
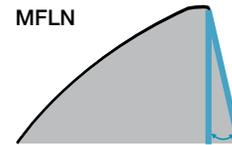
Inserts up to 20mm long offer increased rigidity

Tangentially mounted inserts provide 2 cutting edges on each side

Obtuse Edge Design

Increases the cutting edge angle only at the tip to maintain both strength and sharpness

Cross-section view of cutting edge



Wide Flat Mounting Surface

Holds insert firmly in heavy milling applications

Corner Chamfer

(only available on MFLN90)

Both general corner-R type and chamfered corner type available

Prevents chattering and insert fracturing



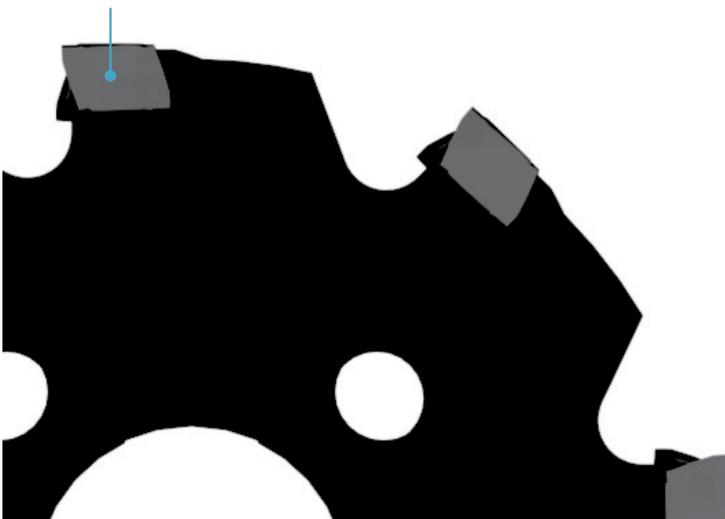
Convex cutting edge ridge

Reduced impact forces when entering the workpiece



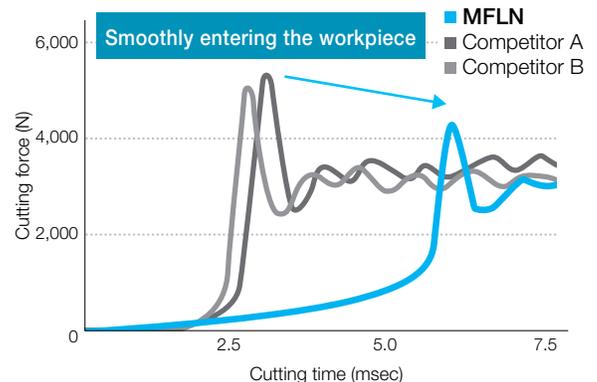
Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications
M MILLING

Tangentially mounted inserts increase rigidity

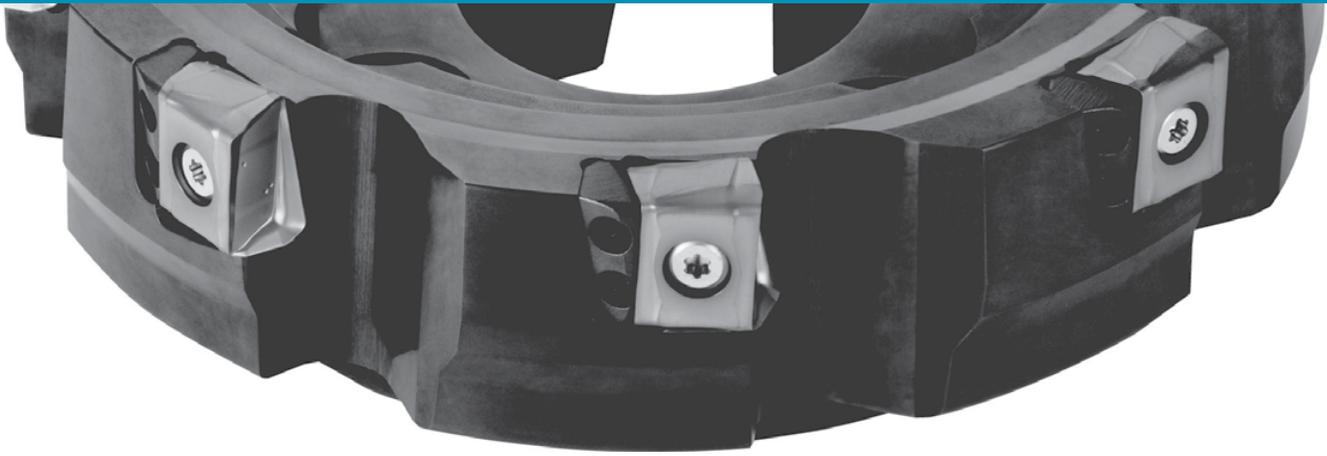


Cutting Forces when Entering the Workpiece (Internal evaluation)

MFLN90 (Insert : Chamfered corner type)



Cutting conditions : $V_c = 490$ sfm, D.O.C. \times ae = $0.197'' \times 2.95''$, $f_z = 0.012$ ipt $\phi 125$ (1 insert), Dry Workpiece : 1049

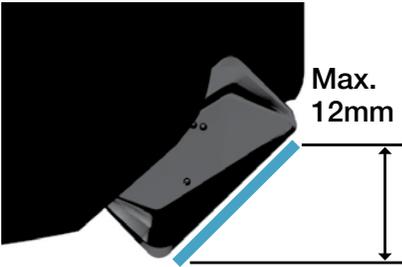


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

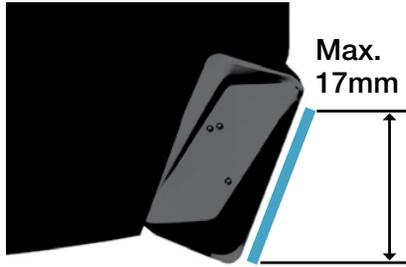
2 Large D.O.C. and High Feed Rates with 90°, 70°, and 45° Cutting Edge Angles

3 Cutter styles cover a wide variety of machining applications

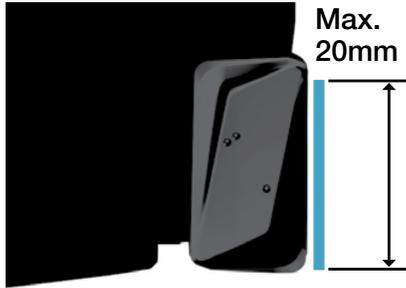
MFLN45
(Cutting edge angle 45°)



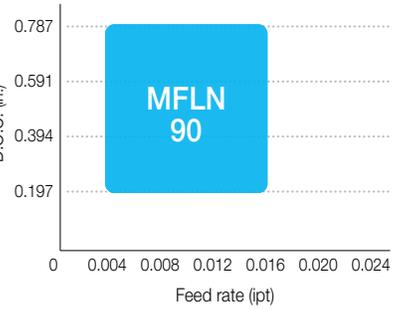
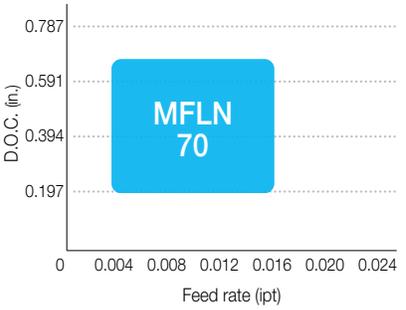
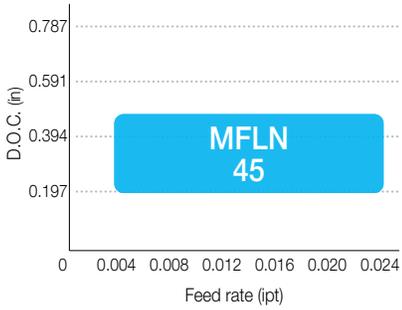
MFLN70
(Cutting edge angle 70°)



MFLN90
(Cutting edge angle 90°)



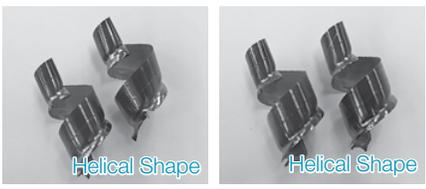
Application Range



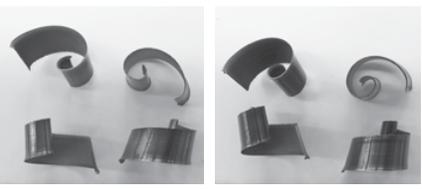
Chip Comparison (Internal evaluation)

Helix-shaped chips prevent chip recutting and provide stable machining at high feed rates.

MFLN90 **Stable**



Competitor A **Unstable**



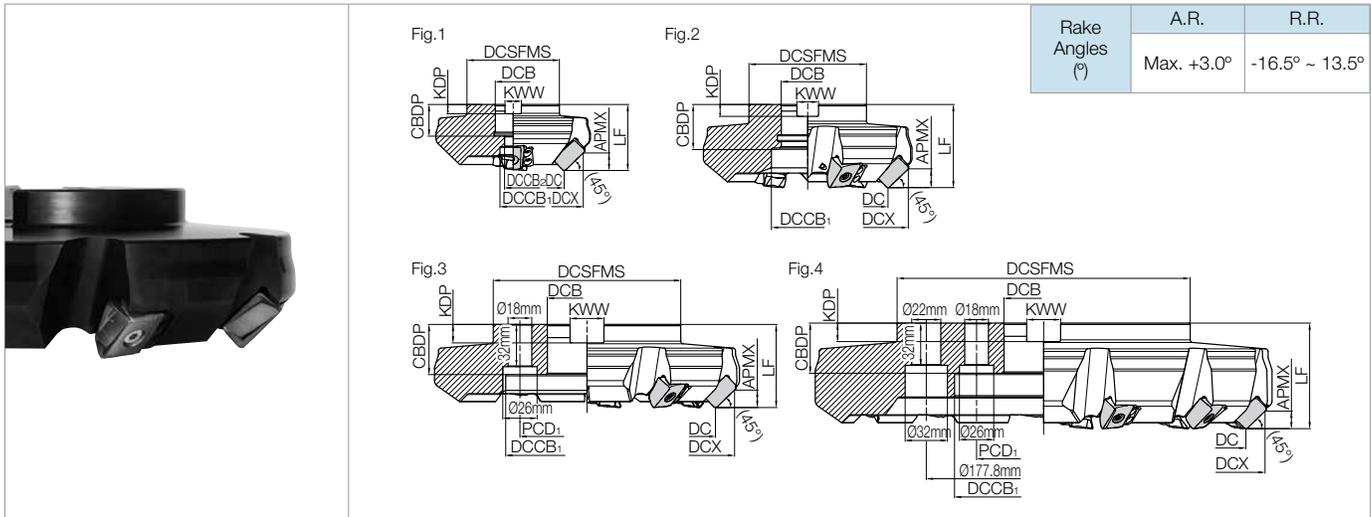
Competitor B **Unstable**



Cutting conditions : Vc = 490 sfm, ap x ae = 0.394" x 3.937", fz = 0.012, 0.016 ipt, ø125mm (1 insert), Dry Workpiece : 1049

MFLN45 Face Mill

For MFLN90, see page [M122](#)



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)												Coolant Hole	Drawing	Weight (kg)																																																																																						
			DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	PCD ₁																																																																																									
Inch Bore Dia.	●	4	MFLN 45080R-4T	80	104	70	1.000"	20	13	50	1.063"	0.236"	0.375"	-	-	-	-	Yes	Fig.1	2.0																																																																																			
			MFLN 45100R-4T	100	124	78	1.250"	45	63												1.339"	0.315"	0.500"	-	-	-	-	-	Fig.2	2.7																																																																									
			MFLN 45125R-6T	125	149	89	1.500"	55																							80	1.496"	0.394"	0.625"	12	-	-	-	-	-	Fig.3	4.6																																																													
			MFLN 45160R-7T	160	184	110	2.000"	90																																			101.6	-	0.433"	0.750"	-	-	-	-	-	-	-	Fig.4	6.8																																																
			MFLN 45200R-8T	200	224	142	1.875"	124																																																-	-	-	-	-	-	-	-	-	-	-	-	-	10.0																																		
			MFLN 45250R-10T	250	274	160		222																																																														160	-	-	-	-	-	-	-	-	-	-	-	-	-	17.1																			
MFLN 45315R-12T	315	339	215	-	215	-				-	-	-	-	-	-	-	-	-	-	-																																																		-															25.3																		
Metric Bore Dia.	●	4	MFLN 45080R-4T-M		80				104												70	27	20	13	50	24	7	12.4	-	-																																																								-	-	Yes	Fig.1	2.0													
			MFLN 45100R-4T-M		100				124												78	32	45	63							30	8	14.4	12	-	-	-	-	-	-	-	2.7																																																													
			MFLN 45125R-6T-M		125				149												89	40	55																				101.6	33	9	16.4	66.7	-	-	-	-	-	-	-	4.6																																																
			MFLN 45160R-7T-M		160		184		110												90	-	-																																	-	-	-	-	-	-	-	-	-	-	-	-	6.7																																			
			MFLN 45200R-8T-M		200		224	142	124												-																																																-		-	-	-	-	-	-	-	-	-	-	-	-	9.7																				
			MFLN 45250R-10T-M	250	274	160	60	160	-	-	-	-	-	-	-	-	-	-	-	-																																																		-														16.9																			
			MFLN 45315R-12T-M	315	339	222	215	215																																																																													-						-	-	-	-	-	-	-	-	-	-	-	-	25.1

Spare Parts

Part Number	Spare Parts							
	Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-seize Compound	Arbor Bolt	
MFPN ...080R-4T(-M)								
MFPN ...100R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35	
MFPN ...125R-6T(-M)	Recommended Torque for Insert Screw 6.0Nm		Recommended Torque for Shim Screw 3.5Nm					-
MFPN ...315R-12T(-M)	-		-					-

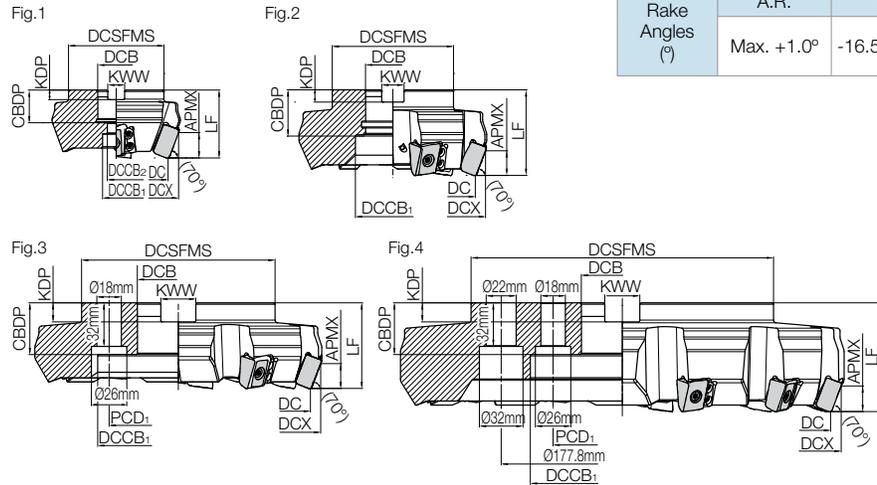
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions [M45](#)

Applicable Inserts [M44](#)

MFLN70 Face Mill

For MFLN90, see page **M122**



Rake Angles (°)	A.R.	R.R.
	Max. +1.0°	-16.5° ~ 13.5°

Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)												Coolant Hole	Drawing	Weight (kg)
			DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	PCD ₁			
Inch Bore Dia.	MFLN 70080R-4T	●	4	80	93	70	1.000"	20	13	50	1.063"	0.239"	0.375"	-	Yes	Fig.1	1.4
	MFLN 70100R-4T	●	4	100	113	78	1.250"	45	-	50	1.339"	0.315"	0.500"	-	Yes	Fig.2	2.0
	MFLN 70125R-6T	●	6	125	138	89	1.500"	55	-	63	1.496"	0.394"	0.625"	-	No	Fig.2	3.5
	MFLN 70160R-7T	●	7	160	173	110	2.000"	70	-	63	1.496"	0.433"	0.750"	-	No	Fig.3	5.8
	MFLN 70200R-8T	●	8	200	213	142	-	120	-	80	1.496"	0.551"	1.000"	101.6	No	Fig.3	8.5
	MFLN 70250R-10T	●	10	250	263	222	1.875"	160	-	80	1.496"	0.551"	1.000"	101.6	No	Fig.4	15.1
MFLN 70315R-12T	●	12	315	328	222	2.15"	215	-	80	1.496"	0.551"	1.000"	101.6	No	Fig.4	22.2	
Metric Bore Dia.	MFLN 70080R-4T-M	●	4	80	93	70	27	20	13	50	24	7	12.4	-	Yes	Fig.1	1.4
	MFLN 70100R-4T-M	●	4	100	113	78	32	45	-	50	30	8	14.4	-	Yes	Fig.2	1.9
	MFLN 70125R-6T-M	●	6	125	138	89	40	55	-	63	33	9	16.4	66.7	No	Fig.2	3.4
	MFLN 70160R-7T-M	●	7	160	173	110	40	90	-	63	33	9	16.4	66.7	No	Fig.3	5.3
	MFLN 70200R-8T-M	●	8	200	213	142	60	120	-	80	38	14	25.7	101.6	No	Fig.3	8.2
	MFLN 70250R-10T-M	●	10	250	263	222	60	160	-	80	38	14	25.7	101.6	No	Fig.4	14.8
MFLN 70315R-12T-M	●	12	315	328	222	60	215	-	80	38	14	25.7	101.6	No	Fig.4	21.9	

Spare Parts

Part Number	Spare Parts						
	Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-seize Compound	Arbor Bolt
MFPN ...080R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
MFPN ...100R-4T(-M)	Recommended Torque for Insert Screw 6.0Nm		Recommended Torque for Shim Screw 3.5Nm				
MFPN ...315R-12T(-M)	Recommended Torque for Insert Screw 6.0Nm		Recommended Torque for Shim Screw 3.5Nm				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions **M45**
Applicable Inserts **M44**

INSERT GRADES **A**
TURNING INSERTS **B**
GEM/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**



PR1525 : 1st recommendation for wear resistance. Great for scale removal and cast iron machining

PR1535 : Defect resistant, tough substrate for stable machining

● Applicable Inserts

Usage Classification
 ★ Roughing / 1st Choice
 ☆ Roughing / 2nd Choice

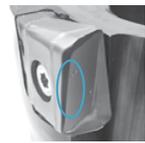
P	Free-Cutting Steel	☆	★
	Carbon/Alloy Steel	☆	★
K	Gray Cast Iron	☆	★
	Nodular Cast Iron	☆	★

Insert (Right-hand Shown)	Part Number	Dimensions (in)					MEGACOAT NANO	
		W1	S	D1	INSL	BS	PR1535	PR1525
<p>Corner-R</p>	LOGU 221616ER-GM	0.492	0.654	0.268	0.898	0.248	●	●

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

◆ How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side.
2. After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
3. Make sure that the identification on the top of the insert is the same in each pocket. (Fig.3)
4. Tighten the wrench (20IP) in while holding parallel to the clamp screw.
5. Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 Nm)
6. After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.



● Applicable Insert Selection

	LOGU221616ER-GM (Corner-R)	LOGU2216PAER-GM (Corner Chamfer)
MFLN45	✓	Not Applicable
MFLN70	✓	Not Applicable
MFLN90	✓	✓

M
MILLING

◆ Recommended Cutting Conditions (MFLN45 / MFLN70)

● MFLN45

★: 1st Recommendation ☆: 2nd Recommendation

Workpiece Material	D.O.C. (in)		Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)	
	Width of Cut (≤0.5xDC)	Width of Cut (>0.5xDC)		MEGACOAT NANO	
				PR1535	PR1525
Carbon Steel	~0.394	~0.315	0.004 ~ 0.012 ~ 0.024	☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Alloy Steel				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Mold Steel				☆ 230 ~ 330 ~ 390	★ 260 ~ 390 ~ 490
Gray Cast Iron				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Nodular Cast Iron				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590

- The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Dry machining is recommended.

● MFLN70

★: 1st Recommendation ☆: 2nd Recommendation

Workpiece Material	D.O.C. (in)		Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)	
	Width of Cut (≤0.5xDC)	Width of Cut (>0.5xDC)		MEGACOAT NANO	
				PR1535	PR1525
Carbon Steel	~0.591	~0.472	0.004 ~ 0.008 ~ 0.016	☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Alloy Steel				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Mold Steel				☆ 230 ~ 330 ~ 390	★ 260 ~ 390 ~ 490
Gray Cast Iron				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Nodular Cast Iron				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590

- The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Dry machining is recommended.

◆ How to Replace the Insert Shim Seat

1. Completely eliminate chips and dust from the shim mounting side.
2. Coat medium strength screw locking adhesive on the screws.
3. Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
4. After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque:3.5 N·m)
5. Please check that there is no gap between the shim and the pocket surfaces of toolholder.



Fig.1

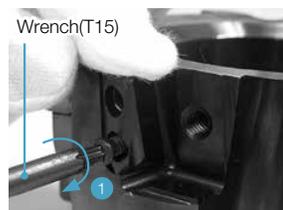


Fig.2



Fig.3



Fig.4

INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFK

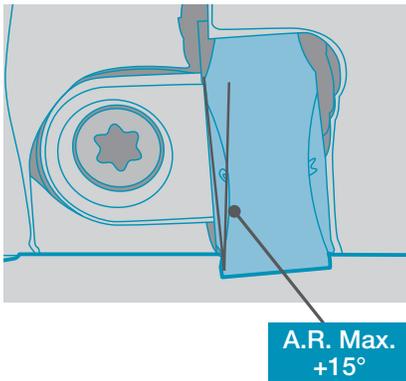
Milling Cutter for Cast Iron

Tough edge with low cutting forces enable stable machining.
Uses 10-edge inserts for economical machining.

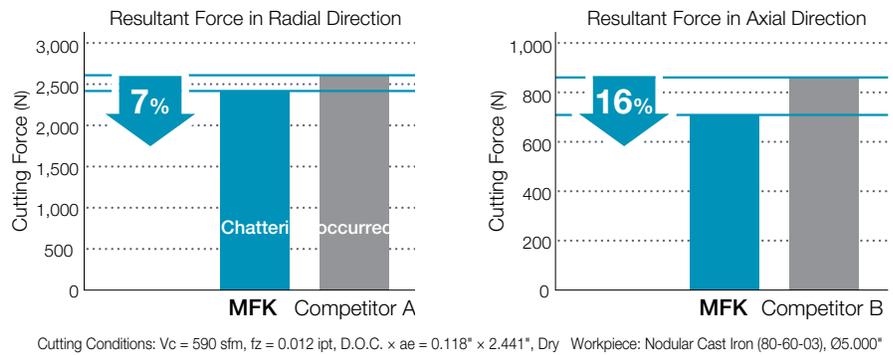


1 Low Cutting Forces Prevent Chattering

Low Cutting Forces with Helical Cutting Edge Design

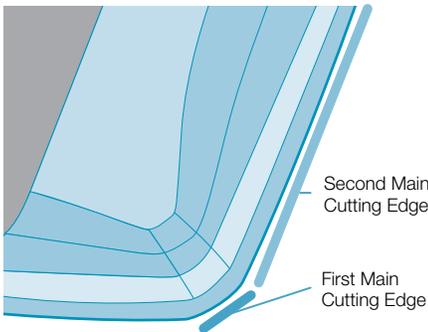


Cutting Force Comparison (Internal Evaluation)

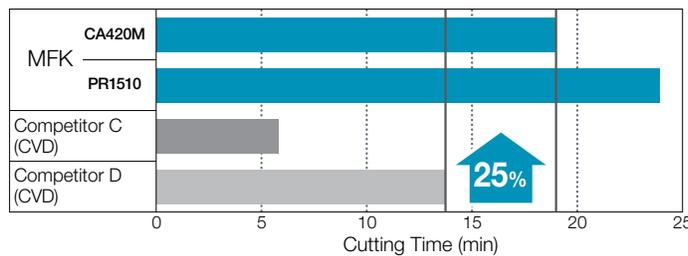


2 Tough and Reliable Insert Construction Prevents Fracturing

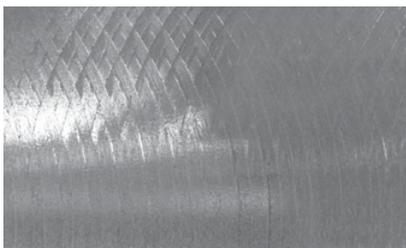
Tough and Reliable Dual Angle Edge Design



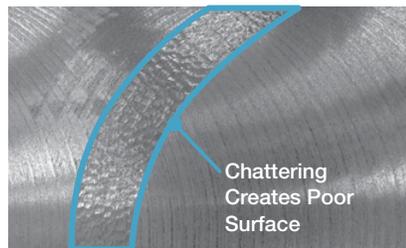
Fracture Resistance Comparison (Internal Evaluation)



Surface Finish Comparison (Internal Evaluation)



MFK

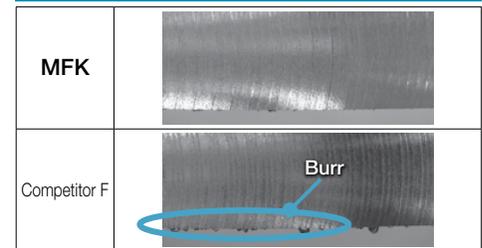


Competitor E

Cutting Conditions: $V_c = 590$ sfm, $f_z = 0.012$ ipt, D.O.C. \times ae = $0.118^\circ \times 3.071^\circ$, Dry Workpiece: Nodular Cast Iron (80-60-03)

Burr Comparison

Sharp Cutting Prevents Burr Formation



← Cutting Direction

3 Large Toolholder and Insert Lineup for Various Applications

Fine and Extra Fine Pitch Types Available.



Fine Pitch
(Example: 5000R-11-12T = 12 Inserts)

- Recommended for Unstable Setups
- General Purpose for Wide Application Ranges



Extra Fine Pitch
(Example: 5000R-11-18T = 18 Inserts)

- Recommended for Rigid Setups
- Finer Pitch for Higher Efficiency

Wide Range of Chipbreakers for Various Machining Applications



General Purpose:
GM Chipbreaker



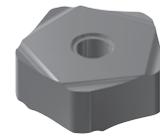
Heavy Duty:
GH Chipbreaker



Finishing:
GL Ground Chipbreaker

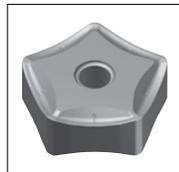


Wiper Edge:
W Ground Wiper Edge



High Speed Machining:
Ceramic with Chipbreaker

Insert Grade Lineup



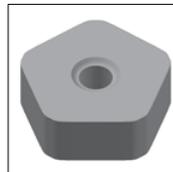
CA420M
Long Tool Life
(CVD)
(1st Recommendation)



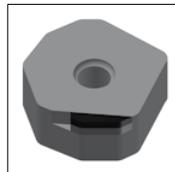
PR1510
Stable Machining
(PVD)



PR1525
Fracture Resistance
(PVD)



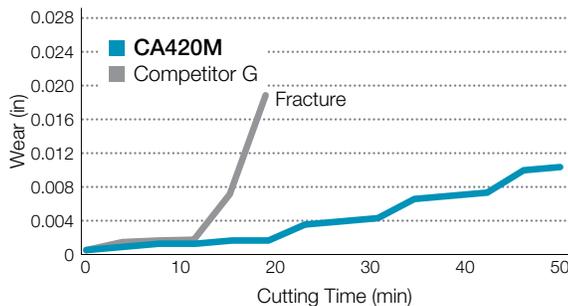
KS6050 / CS7050
High Speed Machining
(Ceramic)



KBN475
High Speed &
Precision Machining
(CBN Wiper Insert)

Use CBN wiper inserts together with ceramic KS6050/CS7050 inserts

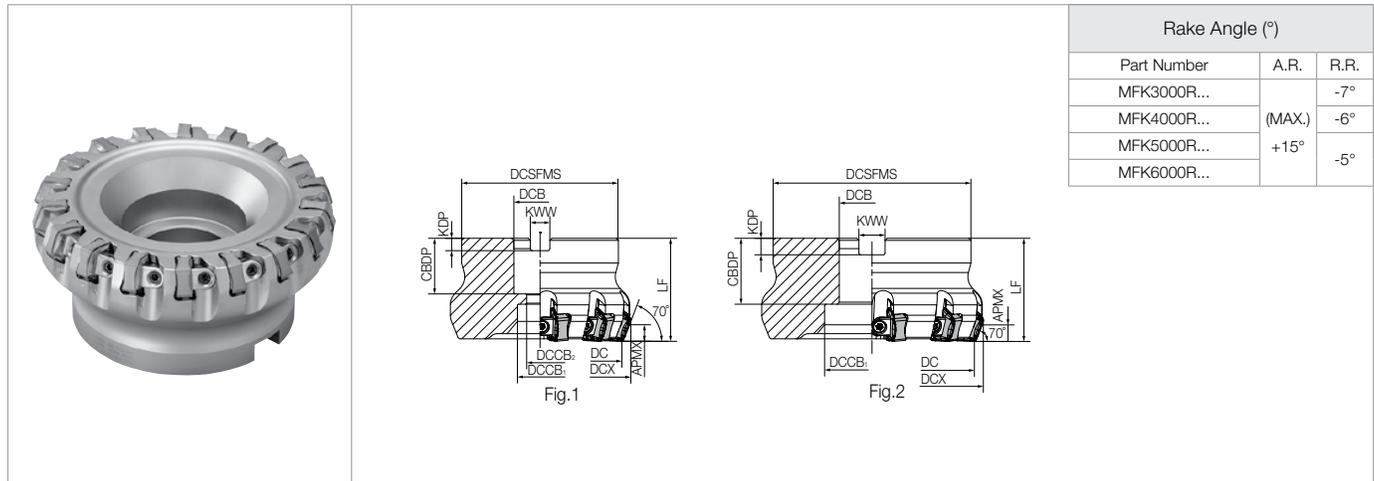
Wear Resistance Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 670$ sfm, $f_z = 0.012$ ipt, D.O.C. \times ae = $0.079'' \times 3.150''$, Dry
Workpiece: Nodular Cast Iron (65-45-12)

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFK Face Mill (Inch Size)



Rake Angle (°)		
Part Number	A.R.	R.R.
MFK3000R...	(MAX.)	-7°
MFK4000R...		-6°
MFK5000R...	+15°	-5°
MFK6000R...		

Toolholder Dimensions

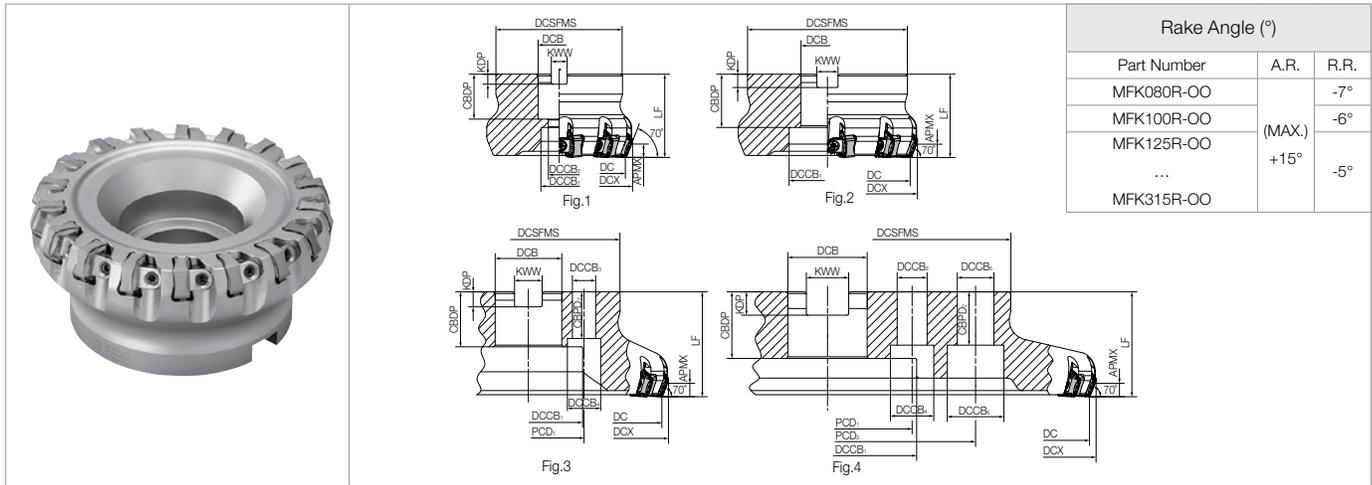
Part Number	Stock	No. of Inserts	Dimensions (in)											Drawing	Weight (kg)
			DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX		
Inch Bore Dia. Fine Pitch	●	8	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236	Fig.1	1.610
	●	10	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625			0.236	Fig.1	2.860
	●	12	5.000	5.340			2.047	-	1.496	0.430	0.750	0.236	Fig.2	3.670	
	●	16	6.000	6.340	4.880	2.000	2.835	-	1.496	0.430	0.750			0.236	Fig.2	4.940
Inch Bore Dia. Extra Fine Pitch	●	10	3.000	3.340	2.750	1.000	0.866	0.551	2.480	1.063	0.240	0.375	0.236			Fig.1	1.550
	●	14	4.000	4.340	3.750	1.500	1.299	0.866		1.181	0.390	0.625		0.236	Fig.1		2.740
	●	18	5.000	5.340			2.047	-	1.496	0.430	0.750	0.236	Fig.2			3.480
	●	22	6.000	6.340	4.880	2.000	2.835	-	1.496	0.430	0.750			0.236	Fig.2	4.760

Spare Parts and Applicable Inserts

Part Number	Spare Parts				Applicable Inserts ● M17
	Wedge	Wedge Screw	Wrench	Arbor Bolt	
MFK 3000R-11-8T					PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-10T	C09N	W6X18N	TT-15	HH1/2-1.25	
5000R-11-12T	C09N	W6X18N	TT-15	HH3/4-2.3	
6000R-11-16T	C09N	W6X18N	TT-15	-	
MFK 3000R-11-10T					PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
4000R-11-14T	C09N	W6X18N	TT-15	HH1/2-1.25	
5000R-11-18T	C09N	W6X18N	TT-15	HH3/4-2.3	
6000R-11-22T	C09N	W6X18N	TT-15	-	

Recommended Cutting Conditions ● **M50-M51**

MFK Face Mill (Metric Size)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)																	Drawing	Weight (kg)				
			DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	PCD ₁	PCD ₂			CBDP ₂			
Inch Bore Dia.	Fine Pitch	MFK 080R-11-8T	●	8	80	89	76	1.250*	26	17	63	1.260*	0.315*	0.500*	6.0	-	-	-	-	-	-	-	-	Fig.1	1.76
		MFK 100R-11-10T	●	10	100	109	96	1.250*	26	17	63	1.260*	0.315*	0.500*	6.0	-	-	-	-	-	-	-	-	Fig.1	2.98
		MFK 125R-11-12T	●	12	125	134	100	1.500*	55	-	63	1.496*	0.394*	0.625*	6.0	-	-	-	-	-	-	-	-	Fig.2	3.65
		MFK 160R-11-16T	●	16	160	169	100	2.000*	70	-	63	1.496*	0.433*	0.750*	6.0	-	-	-	-	-	-	-	-	Fig.2	4.62
		MFK 200R-11-20T	●	20	200	209	142	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	-	-	101.6	-	32	-	Fig.3	7.65
		MFK 250R-11-24T	●	24	250	259	142	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	-	-	101.6	-	32	-	Fig.3	10.73
		MFK 315R-11-28T	●	28	315	324	220	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	22	32	101.6	177.8	32	-	Fig.4	19.71
	Extra fine Pitch	MFK 080R-11-10T	●	10	80	89	76	1.250*	26	17	63	1.260*	0.315*	0.500*	6.0	-	-	-	-	-	-	-	-	Fig.1	1.70
		MFK 100R-11-14T	●	14	100	109	96	1.250*	26	17	63	1.260*	0.315*	0.500*	6.0	-	-	-	-	-	-	-	-	Fig.1	2.85
		MFK 125R-11-18T	●	18	125	134	100	1.500*	55	-	63	1.496*	0.394*	0.625*	6.0	-	-	-	-	-	-	-	-	Fig.2	3.44
		MFK 160R-11-22T	●	22	160	169	100	2.000*	70	-	63	1.496*	0.433*	0.750*	6.0	-	-	-	-	-	-	-	-	Fig.2	4.44
		MFK 200R-11-28T	●	28	200	209	142	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	-	-	101.6	-	32	-	Fig.3	7.40
		MFK 250R-11-36T	●	36	250	259	142	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	-	-	101.6	-	32	-	Fig.3	10.36
		MFK 315R-11-44T	●	44	315	324	220	1.875*	110	-	63	1.575*	0.551*	1.000*	6.0	18	26	22	32	101.6	177.8	32	-	Fig.4	19.21
Metric Bore Dia.	Fine Pitch	MFK 080R-11-8T-M	●	8	80	89	76	27	20	13	63	24	7	12.4	6.0	-	-	-	-	-	-	-	-	Fig.1	1.87
		MFK 100R-11-10T-M	●	10	100	109	96	32	26	17	63	28	8	14.4	6.0	-	-	-	-	-	-	-	-	Fig.1	2.99
		MFK 125R-11-12T-M	●	12	125	134	100	40	55	-	63	33	9	16.4	6.0	-	-	-	-	-	-	-	-	Fig.2	3.56
		MFK 160R-11-16T-M	●	16	160	169	100	40	70	-	63	33	9	16.4	6.0	14	20	-	-	66.7	-	28	-	Fig.3	4.51
		MFK 200R-11-20T-M	●	20	200	209	142	60	110	-	63	40	14	25.7	6.0	18	26	-	-	101.6	-	32	-	Fig.3	7.35
		MFK 250R-11-24T-M	●	24	250	259	142	60	110	-	63	40	14	25.7	6.0	18	26	-	-	101.6	-	32	-	Fig.3	10.43
		MFK 315R-11-28T-M	●	28	315	324	220	60	110	-	63	40	14	25.7	6.0	18	26	22	32	101.6	177.8	32	-	Fig.4	19.41
	Extra fine Pitch	MFK 080R-11-10T-M	●	10	80	89	76	27	20	13	63	24	7	12.4	6.0	-	-	-	-	-	-	-	-	Fig.1	1.81
		MFK 100R-11-14T-M	●	14	100	109	96	32	26	17	63	28	8	14.4	6.0	-	-	-	-	-	-	-	-	Fig.1	2.86
		MFK 125R-11-18T-M	●	18	125	134	100	40	55	-	63	33	9	16.4	6.0	-	-	-	-	-	-	-	-	Fig.2	3.38
		MFK 160R-11-22T-M	●	22	160	169	100	40	70	-	63	33	9	16.4	6.0	14	20	-	-	66.7	-	28	-	Fig.3	4.32
		MFK 200R-11-28T-M	●	28	200	209	142	60	110	-	63	40	14	25.7	6.0	18	26	-	-	101.6	-	32	-	Fig.3	7.10
		MFK 250R-11-36T-M	●	36	250	259	142	60	110	-	63	40	14	25.7	6.0	18	26	-	-	101.6	-	32	-	Fig.3	10.07
		MFK 315R-11-44T-M	●	44	315	324	220	60	110	-	63	40	14	25.7	6.0	18	26	22	32	101.6	177.8	32	-	Fig.4	18.92

Spare Parts and Applicable Inserts

Part Number	Spare Parts				Applicable Inserts M17
	Wedge	Wedge Screw	Wrench	Arbor Bolt	
MFK 080R-11-8T-M	C09N	W6X18N	TT-15	HH12X35	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
MFK 080R-11-8T	C09N	W6X18N	TT-15	HH16X40	
MFK 100R-11-10T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 125R-11-12T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 160R-11-16T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 200R-11-20T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 250R-11-24T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 315R-11-28T(-M)	C09N	W6X18N	TT-15	HH16X40	PNMG1106XNEN-GM PNMG1106XNEN-GH PNEG1106XNEN-GL PNEG1106XNER-W PNEA1106XNTN-T01020 PNEG1106XNTR-T00515 PNEG1106XNTR-T01015W
MFK 080R-11-10T-M	C09N	W6X18N	TT-15	HH12X35	
MFK 080R-11-10	C09N	W6X18N	TT-15	HH16X40	
MFK 100R-11-14T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 125R-11-18T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 160R-11-22T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 200R-11-28T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 250R-11-36T(-M)	C09N	W6X18N	TT-15	HH16X40	
MFK 315R-11-44T(-M)	C09N	W6X18N	TT-15	HH16X40	

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
THREADING
DRILLING
MILLING
QUICK CHANGE TOOLING
SPARE PARTS
TECHNICAL
INDEX

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T

◆ Recommended Cutting Conditions (Ceramic)

• Without Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	★ KS6050 ☆ CS7050	1970-2950-3940	0.004 × 20°		● 0.0039			
Nodular Cast Iron	☆ KS6050 ★ CS7050	1310-1970-2950						

• With Chipbreaker

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	★ KS6050 ☆ CS7050	1970-2950-3940	0.002 × 15°		● 0.0039			
Nodular Cast Iron	☆ KS6050 ★ CS7050	1310-1970-2950						

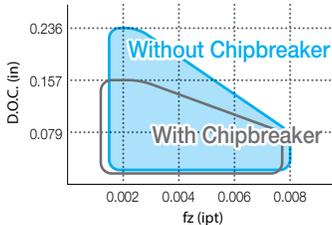
• CBN Wiper Insert

Workpiece Material	Insert Grades	Cutting Speed Vc (sfm)	Edge Prep.	Feed Rate fz (ipt)				
				0.0020	0.0039	0.0079	0.0118	0.0157
Cast Iron	KBN475	1970-2950-3940	0.004 × 15°		● 0.0039			
Nodular Cast Iron		1310-1970-2950						

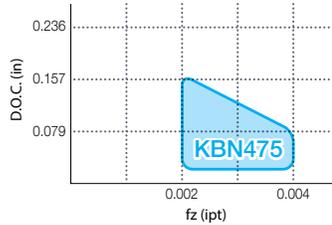
★: 1st Recommendation ☆: 2nd Recommendation

◆ Recommended Application Ranges

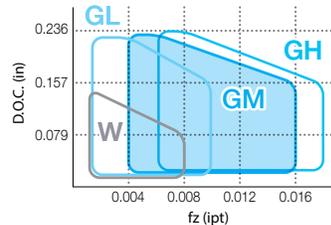
Gray/Nodular Cast Iron
(Insert: Ceramic)



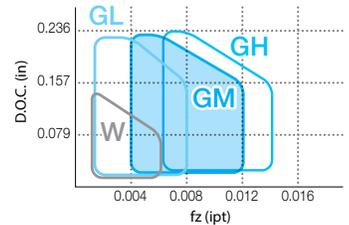
Gray/Nodular Cast Iron
(Inserts: CBN)



Gray Cast Iron
(Inserts: Coated Carbide)



Nodular Cast Iron
(Inserts: Coated Carbide)



• When using W inserts, combine with GM or GH inserts
• If machining over fz = 0.0079", insert corner will be damaged. The main cutting edge of W type insert is receding from that of GM and GH. Therefore, the feed rate for the insert next to W type is double that of the other inserts.

■ How to Adjust Cutting Edge Height

1. Assemble all related parts into the cutter.
2. Make sure the back end of cartridge makes contact with adjustment screw (Fig 1), and pull them lightly inwards (Fig 2). Tighten the cartridge clamp screw temporary.
3. Install the insert (Fig 3), and tighten the wedge screw temporary. Temporarily tighten the screw with a 40 to 45 degree rotation after the wedge contacts the insert.
4. Loosen the cartridge clamp screw (Fig 4).
5. Adjust the extruding amount with adjustment screw (Fig 5).
6. Tighten the wedge screw and firmly fix the insert. (Recommended tightening torque : 6Nm)
7. Tighten the cartridge clamp screw firmly. (Recommended tightening torque : 10Nm)

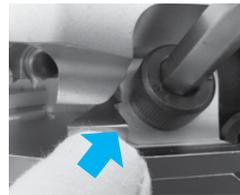
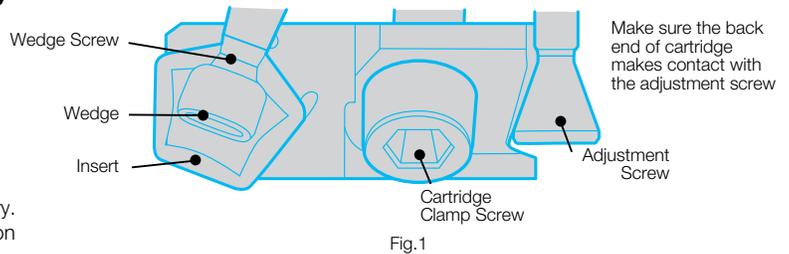


Fig.2



Fig.3

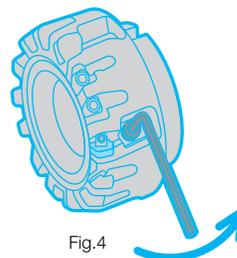


Fig.4

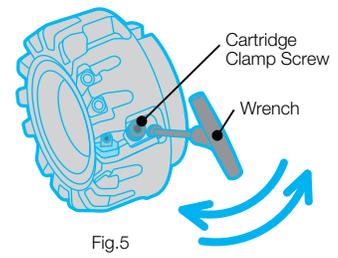
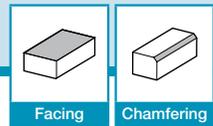


Fig.5

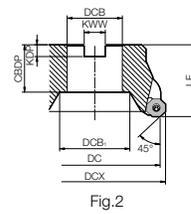
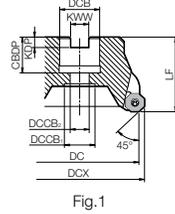
Notes :

1. Follow steps 1-7 above for adjustment.
2. To adjust the edge height adjust the wedge screw and loosen the cartridge clamp screw. Tightening the adjustment screw with the clamp screw fixed firmly may damage the adjustment screw.
3. The adjusted edge height difference must be within 5µm.

A INSERT GRADES
 B TURNING INSERTS
 C GEN/PCD INSERTS
 D TURNING HOLDERS
 E SMALL TOOLS
 F BORING
 G GROOVING
 H CUT-OFF
 J THREADING
 K DRILLING
 M MILLING
 N QUICK CHANGE TOOLING
 P SPARE PARTS
 R TECHNICAL
 T INDEX



MOF45 Face Mill (05 type / 07 type)



Rake Angle (°)	
A.R.	R.R.
+15°	-5°

Toolholder Dimensions

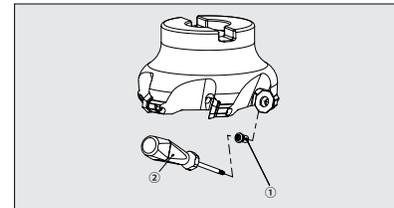
Part Number	Stock	No. of Inserts	Dimensions (mm)										Drawing	Weight (kg)	Applicable Inserts M25
			DC	DCX	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX			
Inch Bore Dia. MOF 45080R-05-6T	△	6	80	89	1.000*	20	13.0	50	1.024"	0.236"	0.375"	-	Fig.1	1.1	OFMT05 Type
	△	7	100	109	1.250*	45	-	50	1.260"	0.315"	0.500"	-	Fig.2	1.8	
Metric Bore Dia. MOF 45040R-05-3T-M	△	3	40	49	16	13.5	8.5	40	19	5.6	8.4	-	Fig.1	0.3	OFMT05 Type
	△	4	50	59	22	17	11.0	40	21	6.3	10.4	-		0.4	
	△	5	63	72	22	17	11.0	40	21	6.3	10.4	-		0.6	
	△	6	80	89	27	20	13.0	50	24	7.0	12.4	-	1.1	OFMT07 Type	
	△	4	63	75	22	17	11.0	40	21	6.3	10.4	-	0.6		
	△	5	80	92	27	20	13.0	50	24	7.0	12.4	-	1.2		
△	6	100	112	32	45	-	50	32	8.0	14.4	-	Fig.2	1.9		

Spare Parts

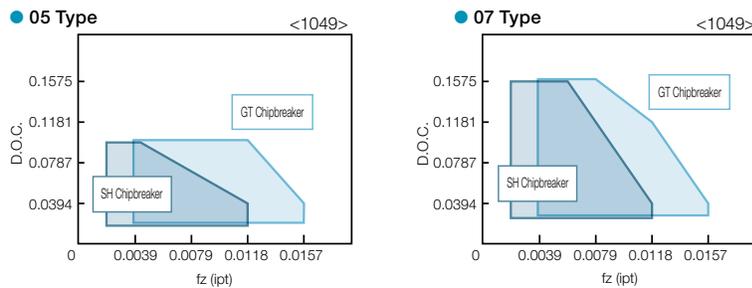
Part Number	Spare Parts		
	① Clamp Screw	② Wrench	Arbor Bolt
MOF 45080R-05-6T	SB-4082TPR	DTP-15	HH12X35M
45100R-05-7T	SB-4082TPR	DTP-15	-
MOF 45040R-05-3T-M	SB-4082TPR	DTP-15	HH8X25
45050R-05-4T-M	SB-4082TPR	DTP-15	HH10X30M
45063R-05-5T-M			
45080R-05-6T-M	SB-4082TPR	DTP-15	HH12X35M
MOF 45063R-07-4T-M	SB-50120TRS	DTP-15	HH10X30S
45080R-07-5T-M	SB-50120TRS	DTP-15	HH12X35M
45100R-07-6T-M	SB-50120TRS	DTP-15	-

Max. D.O.C. and Usable Edges

Usable Edges	Max. D.O.C.	
	OFMT05 Type	OFMT07 Type
4 Edges (using 2 edges at the same time)	0.28"	0.39"
8 Edges (using only 1 edge at a time)	0.10"	0.16"



Applicable Chipbreaker Range



Recommended Cutting Conditions (MOF)

Workpiece Material	fz (ipt)		Recommended Insert Grades (Cutting Speed Vc : sfm)		
	GT Chipbreaker (Tough Edge type)	SH Chipbreaker (General Purpose)	MEGACOAT		PVD Coated Carbide
			PR1225	PR1210	PR830
Carbon Steel	0.0024~0.0047~0.0098	0.0024~0.0047~0.0098	★ 390~590~820	-	☆ 390~490~660
Alloy Steel	0.0024~0.0047~0.0098	0.0024~0.0047~0.0098	★ 330~520~720	-	☆ 330~490~590
Mold Steel	0.0024~0.0039~0.0079	0.0024~0.0039~0.0079	★ 260~460~590	-	☆ 260~390~490
Stainless Steel	0.0024~0.0047~0.0098	0.0024~0.0047~0.0098	★ 390~520~720	-	-
Gray Cast Iron	0.0024~0.0047~0.0098	0.0024~0.0047~0.0098	-	★ 390~590~820	-
Nodular Cast Iron	0.0024~0.0047~0.0098	0.0024~0.0047~0.0098	-	★ 330~490~660	-

★: 1st Recommendation ☆: 2nd Recommendation

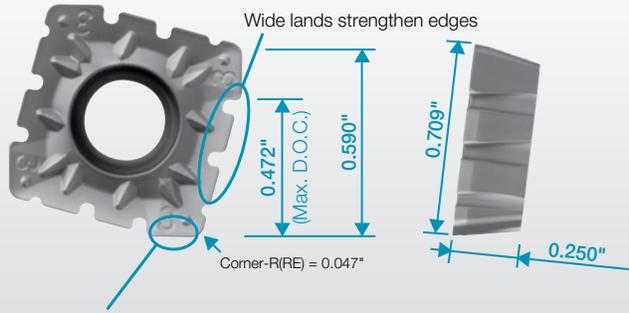


Facing

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

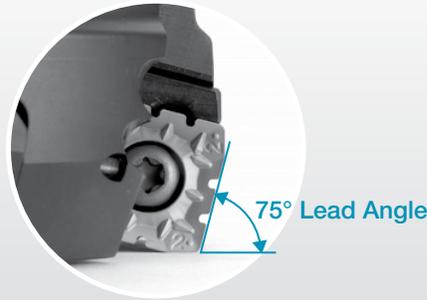
Large depths of cut and high feed rates improve metal removal efficiency

- Recommended D.O.C. : 5mm~10mm (0.200"~0.400")



Large wiper edges enable increased feed rates.

Strong inserts due to 6.35mm (0.250") thickness.



A.R. +9°
R.R. -9° (Ø80mm)
-5° (> Ø100mm)

Chipbreaker Selection

	Low Cutting Force Oriented	General Purpose	Edge Strength Oriented
Insert Type	NB2P (4-Notched) + NB3P (5-Notched)	NB2 (2-Notched) + NB3 (3-Notched)	NB2T (2-Notched) + NB3T (3-Notched)
Applications	Ideal when using extended arbors or for cutting thin plate workpieces	General purpose with good balance of strength and low cutting resistance	Ideal for interrupted cutting Ideal when feed rate is increased or workpiece material is Cast Iron
Edge Preparation	As many as four (or five) Notches help to alleviate the shock when biting into the workpiece 	Strength, cutting resistance, and chip control are all well balanced 	Strength is increased by the edge shape and moderate rake angle of the chamfer edge C0.12x15° (C0.005inx15°) +R0.05 (+R0.002in)

A supplemental chipbreaker may be used when it is necessary to increase strength and bite while focusing on low cutting resistance, as when machining welded areas.



Insert Number - NB2P (4-Notched) and NB3P (5-Notched)

In order to match each insert with the corresponding insert pocket of the milling cutter, "2" is marked for NB2P insert (4-Notched) and "3" is marked on NB3P insert (5-Notched).

Features of Toolholder

Coarse Pitch

Designed with Large Chip Pockets
Good Chip Evacuation

Fine Pitch

Higher Productivity Due to Close Pitch Design

Designed with Cartridges
Prevents Damage to Base Body

Applicable Insert Number
(Notch Number)

Insert Replacement Identification



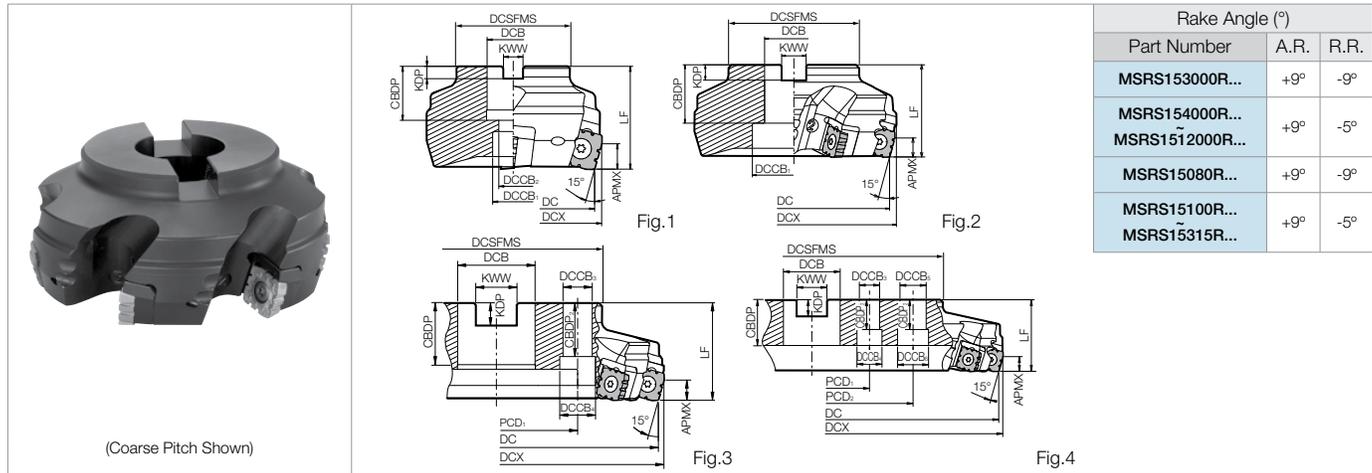
Insert number is transcribed as a result of the cutting tool load.

* Depending on the cutting conditions, marks may not be transcribed.



Facing

MSRS15 Face Mill (Inch Bore Dia.)



Toolholder Dimensions (Bore Dia DC: Inch)

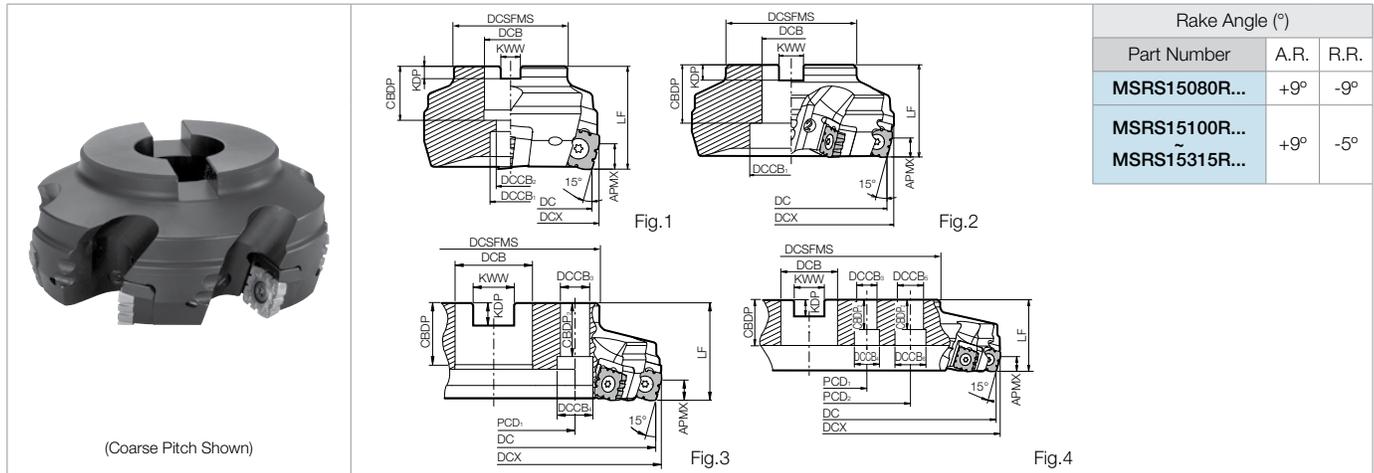
Part Number	Stock	Unit	No. of Inserts	Dimensions																Drawing	Weight (kg)			
				DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	PCD ₁			PCD ₂	CBDP ₂	
Coarse Pitch	MSRS 153000R-4T	●	4	3.00	3.27	2.25	1.000	0.87	0.551	1.97	0.75	0.31	0.375									Fig.1	1.3	
	154000R-4T	●	4	4.00	4.27	3.75	1.250	1.38				0.40	0.500										2.0	
	155000R-6T	●	6	5.00	5.27	3.75	1.500	2.13			1.00	0.40	0.625									Fig.2	3.6	
	156000R-8T	●	8	6.00	6.27	4.88	2.000	2.68				0.47	0.750	0.47									5.0	
	158000R-10T	●	10	8.00	8.27	5.12				2.48													Fig.3	7.7
	1510000R-12T	●	12	10.00	10.27	8.66	2.500	-			1.25	0.53	1.000		0.675	1.045			4		1.25		Fig.3	12.0
	1512000R-14T	□	14	12.00	12.27	8.66											0.795	1.25		2.65			Fig.4	17.0
Fine Pitch	MSRS 153000R-6T	●	6	3.00	3.27	2.25	1.000	0.87	0.551	1.97	0.75	0.31	0.375									Fig.1	1.3	
	154000R-6T	●	6	4.00	4.27	3.75	1.250	1.38				0.40	0.500										1.9	
	155000R-8T	●	8	5.00	5.27	3.75	1.500	2.13			1	0.40	0.625									Fig.2	3.5	
	156000R-10T	●	10	6.00	6.27	4.88	2.000	2.68				0.47	0.750	0.47									4.9	
	158000R-12T	●	12	8.00	8.27	5.12				2.48													Fig.3	7.6
	1510000R-14T	●	14	10.00	10.27	8.66	2.500	-			1.25	0.53	1.000		0.675	1.045			4		1.25		Fig.3	11.9
	1512000R-16T	□	16	12.00	12.27	8.66											0.795	1.25		2.65			Fig.4	17.0
Coarse Pitch	MSRS 15080R-4T	●	4	80	87	70	1.000*	20	13	50	1.024*	0.236*	0.375"									Fig.1	1.3	
	15100R-4T	●	4	100	107	85	1.250*	42			1.260*	0.315*	0.500"										2.0	
	15125R-6T	●	6	125	132	85	1.500*	54				0.394*	0.625"									Fig.2	3.6	
	15160R-8T	●	8	160	167	110	2.000*	68				0.433*	0.750"	12									5.0	
	15200R-10T	●	10	200	207	140				60	1.496*												Fig.3	7.7
	15250R-12T	●	12	250	257	140	1.875*	-				0.551*	1.000"		18	26			101.6		32	Fig.3	12.0	
	15315R-14T	●	14	315	322	230											22	32			177.8	25	Fig.4	17.0
Fine Pitch	MSRS 15080R-6T	●	6	80	87	70	1.000*	20	13	50	1.024*	0.236*	0.375"									Fig.1	1.3	
	15100R-6T	●	6	100	107	85	1.250*	42			1.260*	0.315*	0.500"										1.9	
	15125R-8T	●	8	125	132	85	1.500*	54				0.394*	0.625"									Fig.2	3.5	
	15160R-10T	●	10	160	167	110	2.000*	68				0.433*	0.750"	12									4.9	
	15200R-12T	●	12	200	207	140				60	1.496*												Fig.3	7.6
	15250R-14T	●	14	250	257	140	1.875*	-				0.551*	1.000"		18	26			101.6		32	Fig.3	11.9	
	15315R-16T	□	16	315	322	230											22	32			177.8	25	Fig.4	17.0

- Mounting bolts (HH12X35) are included in MSRS15080R-OT. (HH1/2-1.25) are included with MSRS153000R-OT.
 - Cartridge is included in the coarse pitch cutters, but no Cartridge in the fine pitch.
- Applicable Inserts **M56**



Facing

MSRS15 Face Mill (Metric Bore Dia.)



Toolholder Dimensions (Bore Dia DC: Metric)

Part Number	Stock	Unit	No. of Inserts	Dimensions																Drawing	Weight (kg)						
				DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	PCD ₁			PCD ₂	CBDDP ₂				
Coarse Pitch	MSRS 15080R-4T-M	●	4	80	87	70	27	20	13	50	24	7	12.4	-	-	-	-	-	-	-	-	Fig.1	1.3				
	15100R-4T-M	●	4	100	107	85	32	45	29		8	14.4	Fig.2									2.0					
	15125R-6T-M	●	6	125	132	85	40	55	60	33	9	16.4	12	14	20	-	-	66.7	-	-	-	28	5.0				
	15160R-8T-M	●	8	160	167	110				68	38	15		25.7	18							26	101.6	32	12.0		
	15200R-10T-M	●	10	200	207	140	60	-	60	38	15	25.7	12	14	20	-	-	66.7	-	-	-	-	-	32	7.7		
	15250R-12T-M	●	12	250	257	140																		60	-	60	38
	15315R-14T-M	●	14	315	322	230	60	-	60	38	15	25.7	12	14	20	-	-	66.7	-	-	-	-	-	32	17.0		
15315R-14T-M	●	14	315	322	230	60																		-	60	38	15	25.7	12	14	20	22	32	101.6	177.8	32	17.0
Fine Pitch	MSRS 15080R-6T-M	●	6	80	87	70	27	20	13	50	24	7	12.4	-	-	-	-	-	-	-	-	-	Fig.1	1.3			
	15100R-6T-M	●	6	100	107	85	32	45	29		8	14.4	Fig.2										1.9				
	15125R-8T-M	●	8	125	132	85	40	55	60	33	9	16.4	12	14	20	-	-	66.7	-	-	-	-	-	-	28	3.5	
	15160R-10T-M	●	10	160	167	110				68	38	15		25.7	18										26	101.6	32	7.6
	15200R-12T-M	●	12	200	207	140	60	-	60	38	15	25.7	12	14	20	-	-	66.7	-	-	-	-	-	-	-	32	11.9
	15250R-14T-M	●	14	250	257	140																				60	-
	15315R-16T-M	□	16	315	322	230	60	-	60	38	15	25.7	12	14	20	-	-	66.7	-	-	-	-	-	-	-	32	17.0
15315R-16T-M	□	16	315	322	230	60																				-	60	38	15	25.7	12	14	20	22	32	101.6	177.8	32	17.0

- Mounting bolts (HH12X35) are included in MSRS15080R-OT-M.
- Cartridge is included in the coarse pitch cutters, but no Cartridge in the fine pitch.

Spare Parts

Part Number	Spare Parts						
	Clamp Screw	Wrench	Cartridge	Clamp Screw	Wrench	Anti-seize Compound	Mounting Bolt
Coarse Pitch	MSRS 15300R-4T	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37
	15400R-4T						
	15500R-6T						
	151200R-14T						
Fine Pitch	MSRS 15300R-6T	SB-60120TR	TT-25L	-	-	-	P-37
	15400R-6T						
	15500R-8T						
	151200R-16T						
Coarse Pitch	MSRS 15080R-4T(-M)	SB-60120TR	TT-25L	MAP-1806	SB-40140TR	DT-15	P-37
	15100R-4T(-M)						
	15315R-14T(-M)						
	15315R-14T(-M)						
Fine Pitch	MSRS 15080R-6T(-M)	SB-60120TR	TT-25L	-	-	-	P-37
	15100R-6T(-M)						
	15250R-12T(-M)						
	15315R-16T(-M)						

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Applicable Inserts **M56**



Applicable Inserts

Applicable Inserts (Right-hand Shown)				
Part Number	 2-Notch	 3-Notch	 2-Notch / Tough Edge	 3-Notch / Tough Edge
MSRS... MSRS...M	SPMT 1806EDER-NB2	SPMT 1806EDER-NB3	SPMT 1806EDSR-NB2T	SPMT 1806EDSR-NB3T
For Custom Ordered Left-hand Cutter	-	-	SPMT 1806EDSL-NB2T	SPMT 1806EDSL-NB3T
Applicable Inserts				
Part Number	 4-Notch / Low Cutting Force	 5-Notch / Low Cutting Force	 Without Notch	
MSRS... MSRS...M	SPMT 1806EDER-NB2P	SPMT 1806EDER-NB3P	SPMT 1806EDER-V	Chipbreaker Selection

Recommended Cutting Conditions

Workpiece	Feed Rate fz (ipt)			Recommended Insert Grades (Cutting Speed Vc: sfm)			
	NB2P + NB3P	NB2 + NB3	NB2T + NB3T	MEGACOAT			PVD Coated Carbide
				PR1225	PR1230	PR1210	PR830
Carbon Steel	0.006	0.008	0.012	☆ 400 ~ 600 ~ 820	★ 400 ~ 600 ~ 725	-	☆ 400 ~ 575 ~ 725
Alloy Steel	0.006	0.008	0.012	☆ 400 ~ 600 ~ 820	★ 400 ~ 600 ~ 725	-	☆ 400 ~ 575 ~ 725
Mold Steel	0.004	0.006	0.008	☆ 325 ~ 525 ~ 725	★ 325 ~ 525 ~ 675	-	☆ 325 ~ 500 ~ 675
Gray Cast Iron	0.008	0.010	0.014	-	-	★ 400 ~ 600 ~ 820	-
Nodular Cast Iron	0.006	0.008	0.012	-	-	★ 325 ~ 525 ~ 725	-
Stainless Steel	Not Recommended						
Aluminum / Copper	Not Recommended						

★ : 1st Recommendation ☆ : 2nd Recommendation

Inserts

45°~70°
Lead Angle

75°
Lead Angle

90°/88°
Lead Angle

High Feed
Milling

Finish
Milling

Multi-
Function

Slot Mill

Ball-Nose
Radius

Other
Applications

M
MILLING



Facing

Case Studies

Structural Steel	
<p>Plate</p> <ul style="list-style-type: none"> · Vc=492 sfm (n = 382 RPM) · D.O.C. x ae = 0.39" x 4.92" · fz=0.008 ipt (Vf = 18.03 ipm) · Dry · 6 flutes · MSRS15125R-6T · SPMT1806EDER-NB2 · SPMT1806EDER-NB3 (PR830) 	<p>Productivity improved by 4.4 times!</p>
MSRS15	Metal Removal Rate 34.91in ³ /min.
Competitor's Cutter A	7.87in ³ /min.
<p>[Competitor's Cutter A] Ø125mm, 6 flutes Vc = 492sfm (n=382RPM) D.O.C. x ae = 0.12" x 4.92" fz=0.006 ipt (Vf=13.54 ipm)</p>	<p>[User's Comments] Because conditions can be raised drastically, this cutter was very effective at reducing cycle time. Productivity improved by 4.4 times. (Customer Evaluation)</p>

1050 Steel	
<p>Rail</p> <ul style="list-style-type: none"> · Vc=492 (n = 300 RPM) · D.O.C. x ae = 0.24" x 5.51" · fz=0.008 ipt (Vf = 18.90 ipm) · Dry · 8 flutes · MSRS15160R-8T · SPMT1806EDER-NB2 · SPMT1806EDER-NB3 (PR830) 	<p>Productivity improved by 4.7 times!</p>
MSRS15	Metal Removal Rate 24.59in ³ /min.
Competitor's Cutter B	5.21in ³ /min.
<p>[Competitor's Cutter B] Machining at 0.08" x 3 passes Vc = 492 sfm (n = 300RPM) D.O.C. x ae= 0.08" x 5.51" fz=0.005 ipt (Vf=11.81 ipm)</p>	<p>[User's Comments] MSRS can complete cutting with 1 pass what needed to be cut with 3 passes previously. Cutting sound of MSRS was still quiet. Productivity improved by 4.7 times. (Customer Evaluation)</p>

Cast Steel	
<p>Industrial Machine Components</p> <ul style="list-style-type: none"> · Vc = 325 sfm (n = 200 RPM) · D.O.C. x ae = 0.394" x 4.490" · fz = 0.016 ipt (Vf = 25 ipm) · Dry · 8 flutes · MSRS15160R-8T · SPMT1806EDER-NB2 · SPMT1806EDER-NB3 (PR830) 	<p>Productivity improved by 2.5 times!</p>
MSRS15	Metal Removal Rate 44.18in ³ /min.
Competitor's Cutter C	17.70in ³ /min.
<p>[Competitor's Cutter C] Ø6", 8 flutes Vc = 820 sfm (n = 522min⁻¹) D.O.C. x ae = 0.394" x 4.490" fz=0.010 ipt (Vf=40.00 ipm)</p>	<p>[User's Comments] Before MSRS, D.O.C. could not be increased due to high cutting resistance, but MSRS can increase D.O.C. without increasing load on the main spindle. Productivity improved by 2.5 times (Customer Evaluation)</p>

1045 Steel	
<p>Gear</p> <ul style="list-style-type: none"> · Vc = 675 sfm (n = 255 RPM) · D.O.C. x ae = 0.394" x 7.874" · fz = 0.007 ipt (Vf = 23.62 ipm) · Dry · 14 flutes · MSRS15250R-14T · SPMT1806EDER-NB2 · SPMT1806EDER-NB3 (PR830) 	<p>Productivity improved by 2.6 times!</p>
MSRS15	Metal Removal Rate 73.23in ³ /min.
Competitor's Cutter D	28.00in ³ /min.
<p>[Competitor's Cutter D] Ø250mm, 12 flutes Vc=400 sfm (n=153RPM) D.O.C. x ae = 0.20" x 7.87" fz = 0.010 ipt (Vf = 18.07 ipm)</p>	<p>[User's Comments] Cutting sound is quiet even when cutting width is less than 80% of cutter dia. Productivity improved by 2.6 times. (Customer Evaluation)</p>

Q&A

Q-1 What amount of cutting width (ae) is recommended in a radial direction?

A-1 The estimated amount is 70-80% of the diameter of the cutting tool.

Q-2 Why does the MSRS15 have a 75° lead?

A-2 45° cutting angles can reduce the impact in cutting a workpiece but also increase thrust force. On the other hand, a 90° cutting angle can reduce thrust forces but increases the impact when the insert cuts the workpiece. The 75° cutting angle of the MSRS15 can suppress both thrust force and impact, offering a good balance and enabling smooth machining even in heavy machining applications.

INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

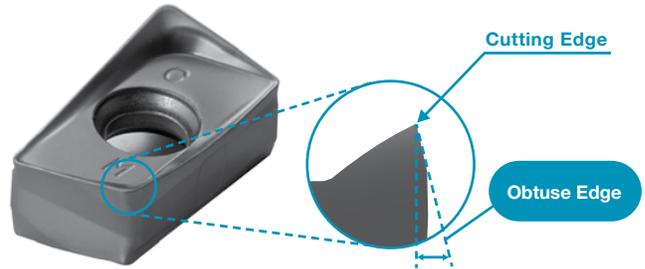
M-FOUR

MEW Milling Cutter

The M-Four double-sided, 4-edge insert with Kyocera's unique mold technology reduces cutting forces for reduced vibrations

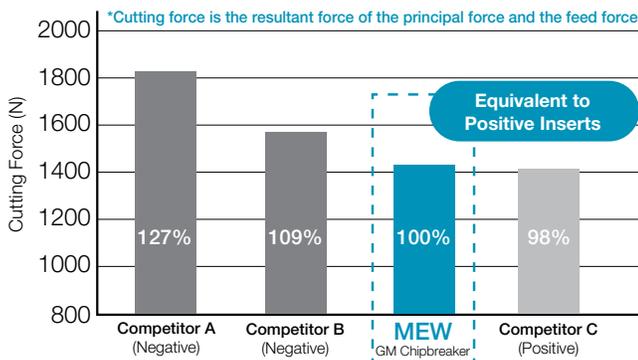


Obtuse Edge for Increased Cutting Edge Toughness



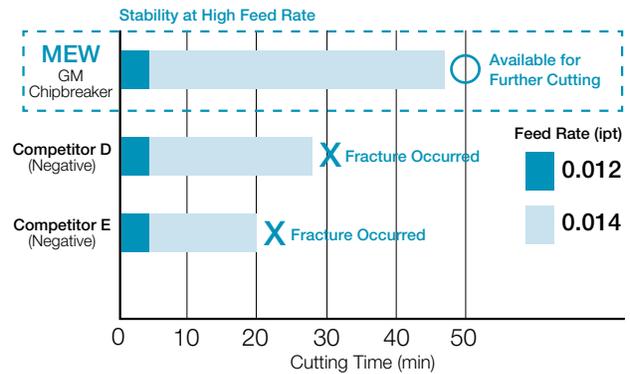
Low Cutting Forces Equivalent to Positive Inserts

• Cutting Force Comparison



1049 Ø20mm Cutter
 $V_c = 500 \text{ sfm D.O.C.} \times a_e = 0.118'' \times 0.591'' \text{ fz} = 0.006 \text{ ipt}$ (Internal Evaluation)

• Fracture Resistance Comparison



4140 (37~39Hz) Ø20mm Cutter
 $V_c = 400 \text{ sfm D.O.C.} \times a_e = 0.118'' \times 0.394'' \text{ fz} = 0.012\text{-}0.014 \text{ ipt}$ (Internal Evaluation)

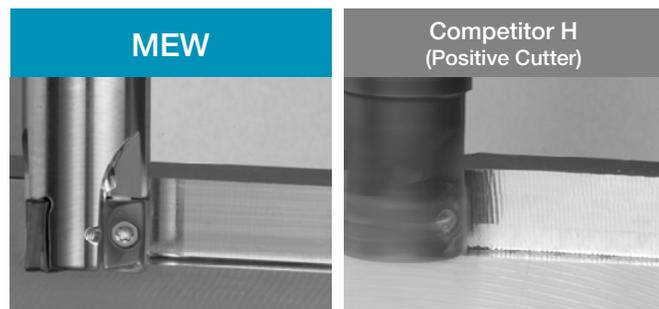
Improved Surface Finish & Minimized Vibration

Sharp cutting and superior resistance to vibration and burrs due to helical cutting edge and optimum axial rake design

Large Rake Angle Reduces Cutting Forces

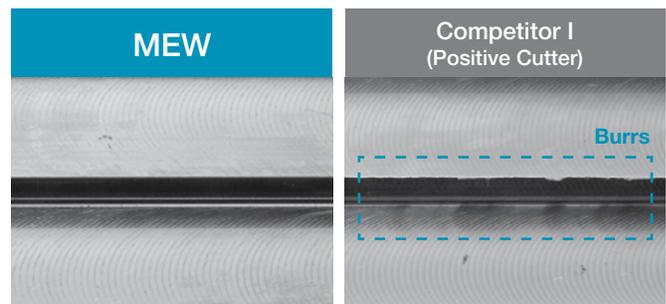
MEW GM Chipbreaker	Competitor F (Negative)	Competitor G (Positive)
+20°	+17°	+17°

Surface of Shoulder Wall

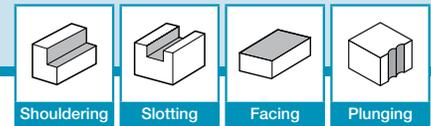


Smooth surface of MEW without chattering

Burr Comparison with Positive Cutters



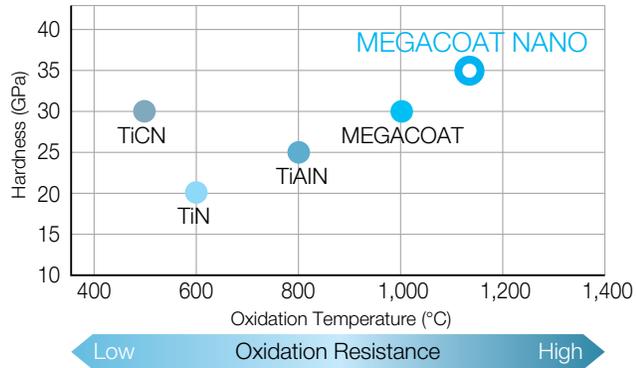
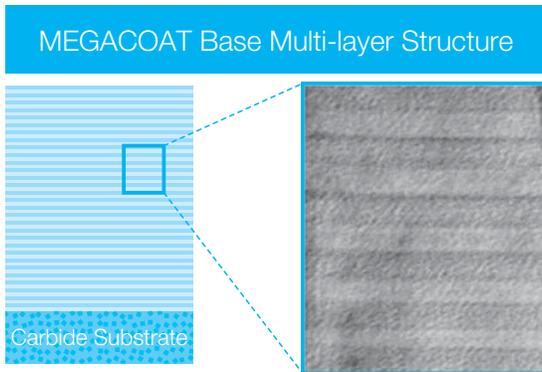
Fewer burrs than positive cutters due to sharp cutting



Extended Tool Life with Innovative MEGACOAT NANO Coating Technology

Special multi-layered coating, "MEGACOAT NANO" enables stable milling and extended tool life

PR1525 for steel and austenitic stainless steel, **PR1510** for cast iron, **PR1535** titanium alloy and precipitation hardened steel **CA1535** (CVD coated carbide) for heat-resistant alloys and martensitic stainless steel

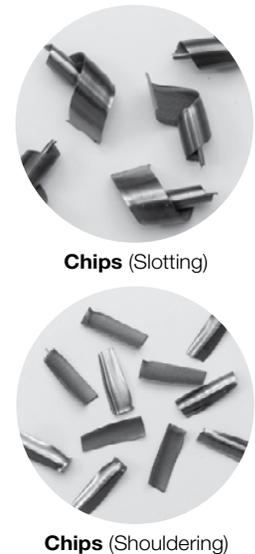
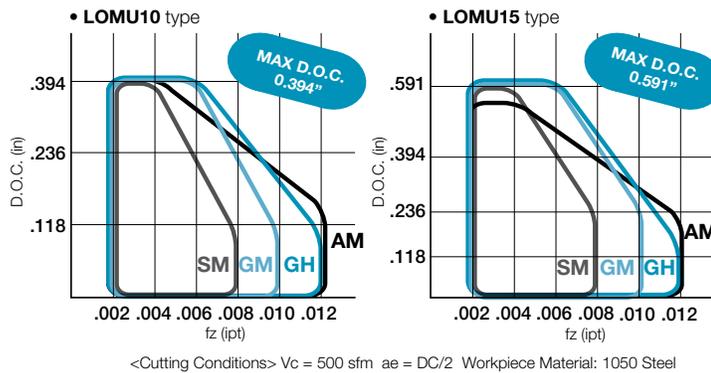


Prevents wear and fracture with high hardness (35GPa) and superior oxidation resistance (oxidation temperature: 1,150°C)

Chipbreaker Lineup

Three innovative chipbreaker designs to cover a wide range of applications

Chipbreaker	Application	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
AM	Aluminum / Non-ferrous Metals	



Insert Corner-R(RE) Lineup Expansion

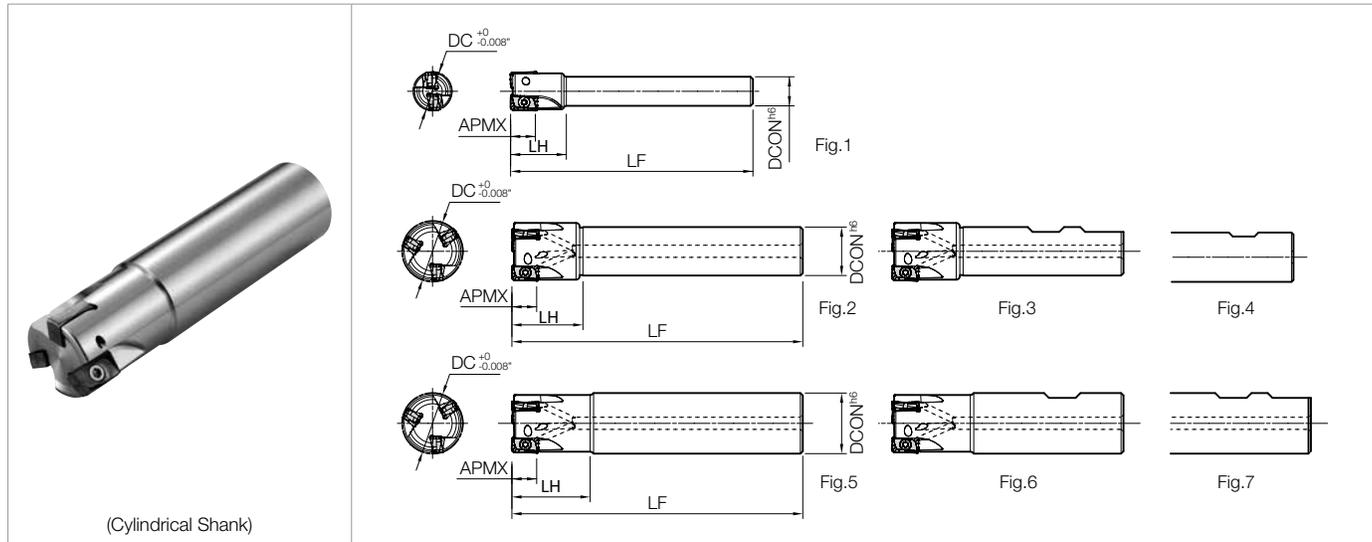
Corner-R(RE) 0.4 ,1.0 ,1.2 ,1.6 and 2.0 added to GM chipbreaker lineup

LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM	LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM	LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

M-FOUR (MEW)

MEW End Mill (Inch)



Toolholder Dimensions (Inch)

Inserts	Shank	Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Coolant Hole	Drawing	Max RPM*
					DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			
45°~70° Lead Angle	Weldon Standard Shank	MEW 0625-W500-10-2T	●	2	0.625	0.500	2.75	0.969	0.393	+7°	-22°	No	Fig.4	43,900
75° Lead Angle		0625-W625-10-2T	●	2	0.625	0.625	3.00	1.046			-22°	Fig.6	43,900	
90°/88° Lead Angle		0750-W625-10-2T	●	2	0.750	0.625	3.25	1.145			-20°	Fig.3	42,000	
High Feed Milling		0750-W750-10-2T	●	2	0.750	0.750	3.25	1.170			-20°	Fig.6	42,000	
Finish Milling		0750-W750-10-3T	●	3	0.750	0.750	3.25	1.170			-20°	Fig.6	42,000	
Multi-Function		0750-W750-4-10-3T	●	3	0.750	0.750	4.00	1.921			-20°	Fig.6	42,000	
Slot Mill		1000-W750-10-3T	●	3	1.000	0.750	3.25	1.219			-20°	Fig.3	37,200	
Ball-Nose Radius		1000-W100-10-2T	●	2	1.000	1.000	3.75	1.413			-20°	Fig.7	37,200	
Other Applications		1000-W100-10-3T	●	3	1.000	1.000	3.75	1.413			-20°	Fig.7	37,200	
		1000-W100-475-10-3T	●	3	1.000	1.000	4.75	1.413			-20°	Fig.7	37,200	
		1250-W100-10-4T	●	4	1.250	1.000	3.75	1.469			-20°	Fig.3	34,000	
		1250-W125-10-3T	●	3	1.250	1.250	4.00	1.663			-20°	Fig.7	34,000	
		1250-W125-10-4T	●	4	1.250	1.250	4.00	1.663			-20°	Fig.7	34,000	
		1500-W125-10-5T	●	5	1.500	1.250	4.125	2.070			-19°	Fig.3	30,700	
	Cylindrical Long Shank	MEW 1000-W100-45-10-3T	●	3	1.000	1.000	4.50	2.163	0.393	+7°	-20°	Yes	Fig.7	37,200
	Cylindrical Long Shank	MEW 0625-S625-6-10-2T	●	2	0.625	0.625	6.00	1.500	0.393	+7°	-22°	Yes	Fig.5	43,900
		0750-S750-7-10-2T	●	2	0.750	0.750	7.00	1.586			-22°		Fig.5	42,000
		1000-S100-7-10-3T	●	3	1.000	1.000	7.00	1.980			-20°		Fig.5	37,200
		1000-S100-8-10-2T	●	2	1.000	1.000	8.00	1.980			-20°		Fig.5	37,200
		1000-S100-8-10-3T	●	3	1.000	1.000	8.00	1.980			-20°		Fig.5	37,200
		1250-S125-8-15-3T	●	3	1.250	1.250	8.00	1.980			-22°		Fig.5	30,100
	Weldon Standard Shank	MEW 1000-W750-15-2T	●	2	1.000	0.750	3.25	1.219	0.590	+10°	-22°	Yes	Fig.3	34,700
		1000-W100-15-2T	●	2	1.000	1.000	3.75	1.413			-22°		Fig.7	34,700
		1000-W100-475-15-2T	●	2	1.000	1.000	4.75	1.413			-22°		Fig.7	34,700
		1250-W100-15-2T	●	2	1.250	1.000	3.75	1.469			-22°		Fig.3	30,100
		1250-W125-15-2T	●	2	1.250	1.250	4.00	1.663			-22°		Fig.7	30,100
		1250-W125-15-3T	●	3	1.250	1.250	4.00	1.663			-22°		Fig.7	30,100
		1500-W125-15-3T	●	3	1.500	1.250	4.125	2.069			-21°		Fig.3	25,600
		1500-W125-15-4T	●	4	1.500	1.250	4.125	2.069			-21°		Fig.3	25,600

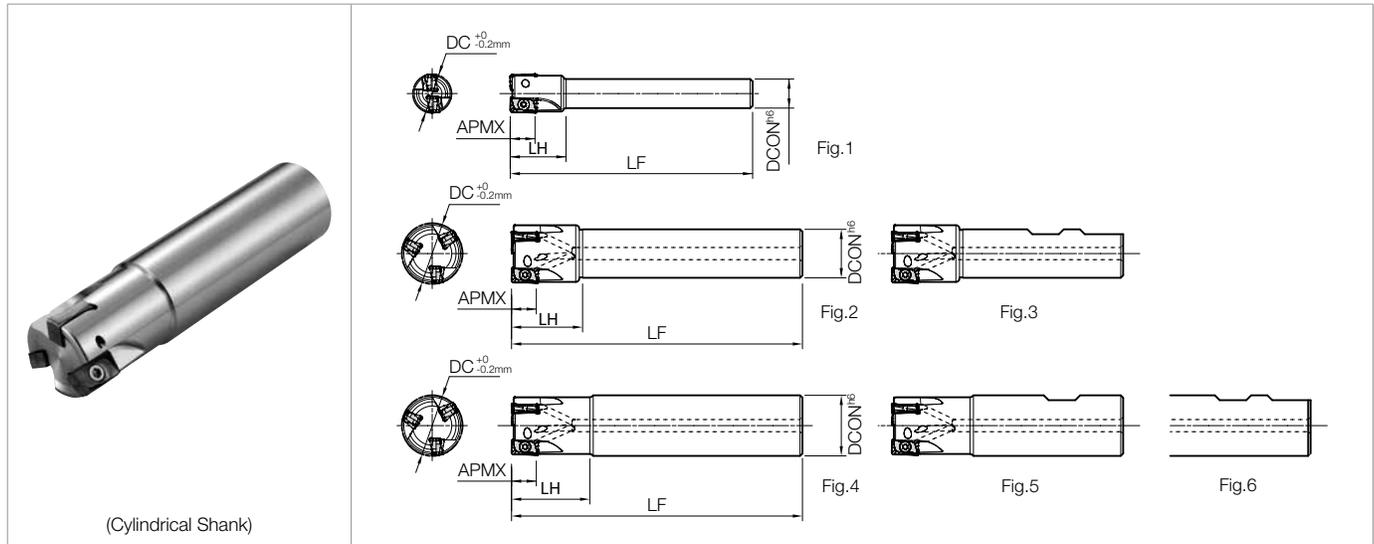
Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts & Applicable Inserts **M62**

M-FOUR (MEW)

MEW End Mill (Metric)



Toolholder Dimensions (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Max RPM*		
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.					
Cylindrical	MEW 16-S12-10-2T 16-S16-10-2T 18-S16-10-2T 20-S16-10-2T 20-S20-10-2T 20-S20-10-3T 22-S20-10-3T 25-S20-10-3T 25-S25-10-2T 25-S25-10-3T 28-S25-10-3T 30-S25-10-4T 32-S25-10-4T 32-S32-10-3T 32-S32-10-4T 40-S32-10-5T 50-S32-10-5T	●	2	16	12	100	23	10	+7°	-22°	No	Fig.1	43,750		
		●		18	16		26					Fig.4	43,750		
		●	20	20	25	110	26					-21°	Fig.2	43,000	
		●	22		29		Fig.4						41,000		
		●	25	3	25	120	32					-20°	Fig.2	39,600	
		●	28				29						Fig.4	37,500	
		●	30	4	30	130	32	-19°	Yes	Fig.2	37,500				
		●	32				32			Fig.4	35,800				
		●	32	3	32	130	40	-19°	Yes	Fig.2	34,800				
		●	40				50				Fig.4	33,900			
		●	50	5	50	150	50	-19°	Yes	Fig.2	33,900				
		●	20				20				150	40	Fig.4	30,000	
		●	25	2	25	170	50	-19°	Yes	Fig.4	22,500				
		●	25				25				170	50	Fig.2	41,000	
		Weldon	MEW 25-S20-15-2T 25-S25-15-2T 32-S25-15-2T 32-S32-15-2T 32-S32-15-3T 40-S32-15-3T 40-S32-15-4T 50-S32-15-4T 16-W16-10-2T 20-W20-10-2T 20-W20-10-3T 25-W25-10-2T 25-W25-10-3T 32-W32-10-4T 40-W32-10-5T MEW 25-W25-15-2T 32-W32-15-3T 40-W32-15-4T	●	2	25	20	120	29	15	+10°	-22°	Yes	Fig.2	35,000
				●		25	25		32					Fig.4	35,000
				●	32	32	130	40	-21°					Fig.2	30,000
				●	32									32	Fig.4	30,000
●	40			3	32	150	50	-21°	Yes					Fig.2	25,000
●	50														120	40	Fig.4	25,000
●	16			2	16	75	25	-22°	Yes	Fig.5	17,000				
□	20										20	77	Fig.6	43,750	
●	20			3	20	90	32	-20°	Yes	Fig.6	41,000				
□	25										25	90	32	Fig.3	37,500
●	32			4	32	102	40	-19°	Yes	Fig.3	37,500				
□	40										32	102	40	Fig.6	33,900
●	40			5	40	111	50	-22°	Yes	Fig.6	30,000				
□	25										25	90	32	Fig.3	35,000
□	32			3	32	102	40	-21°	Yes	Fig.3	30,000				
□	40										32	111	50	Fig.6	25,000

Max. Revolution*

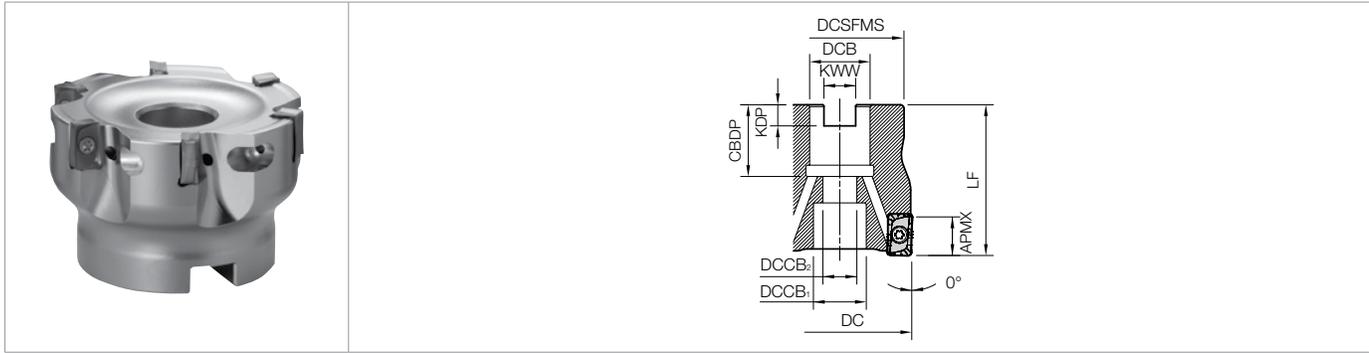
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts & Applicable Inserts M62

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

M-FOUR (MEW)

MEW Face Mill (Inch)



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	Dimensions (in)										Rake Angle (°)		Coolant Hole	Weight (kg)	Max RPM*
			DC	DCSFMS	DCB	DCCB1	DCCB2	LF	CBDP	KDP	KWW	APMX	A.R. (Max)	R.R.			
MEW 1500R-10-5T	●	5	1.50	1.457	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.393	+7°	-19°	Yes	0.2	30,700
2000R-10-5T	●	5	2.00	1.811													
2500R-10-6T	●	6	2.50	1.969													
MEW 2000R-15-4T	●	4	2.00	1.811	0.750	0.669	0.433	1.575	0.826	0.188	0.312	0.590	+10°	-21°	Yes	0.4	16,800
2000R-15-5T	●	5															
2500R-15-5T	●	5																2.50	1.969
3000R-15-6T	●	6	3.00	2.362	1.000	0.866	0.551	1.969	1.063	0.236	0.381	+10°	-20°		1.0	12,250	
4000R-15-8T	●	8	4.00	3.504	1.500	2.047	-		1.181	0.393	0.625						

Max. Revolution*

When running the face mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts & Applicable Inserts (Inch)

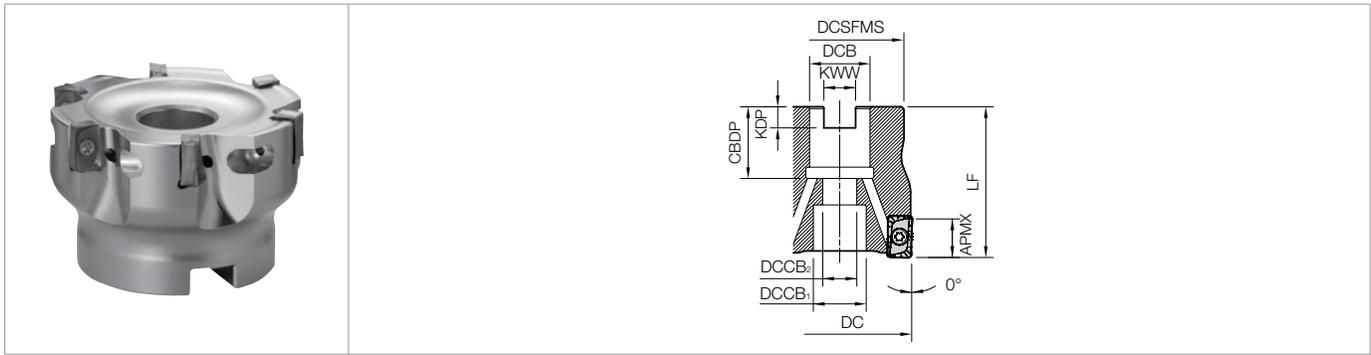
Part Number	Spare Parts				Applicable Inserts M16			
	Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt				
MEW ...-10-_T	SB-3065TRP	DTPM-8	P-37	-	LOMU1004..ER-GM	LOMU100408ER-SM	LOMU100408ER-GH	LOGT100408FR-AM
MEW 1500R-10-5T	Recommended Torque for Insert Screw 1.2N · m			HH3/8-1.25 (HH3/8-1.25H)				
2000R-10-5T 2500R-10-6T								
MEW ...-15-_T	SB-4090TRP	DTPM-15	P-37	-	LOMU1505..ER-GM	LOMU150508ER-SM	LOMU150508ER-GH	LOGT150508FR-AM
MEW 2000R-15-4T	Recommended Torque for Insert Screw 3.5N · m			HH3/8-1.25 (HH3/8-1.25H)				
2500R-15-5T								
3000R-15-6T 4000R-15-8T								

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions **M66**

*If through spindle coolant is required please order arbor bolt in () separately.

MEW Face Mill (Metric)



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)										Rake Angle (°)		Coolant Hole	Weight (kg)	Max RPM*
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDB	KDP	KWW	APMX	A.R. (Max)	R.R.			
MEW 032R-10-4T-M	●	4	32	30	16	14	9	35	19	5.6	8.4	10	+7°	-20°	Yes	0.1	33,900
040R-10-5T-M	●	4	40	34												0.2	30,000
050R-10-5T-M	●	5	50	45	22	18	11	40	21	6.3	10.4	15	+10°	-19°	Yes	0.4	22,500
MEW 063R-10-6T-M	●	6	63	47												0.5	20,500
040R-15-4T-M	●	4	40	34	16	14	9	40	19	5.6	8.4	15	+10°	-21°	Yes	0.2	25,000
050R-15-4T-M	●	4	50	45												0.3	17,000
063R-15-5T-M	●	5	63	47	22	18	11	50	25	7	12.4	15	+10°	-20°	Yes	0.5	14,500
080R-15-6T-M	●	6	80	60												1.0	12,000
080R-15-6T	●	6			25.4	20	13	50	27	6	9.5	15	+10°	-20°	Yes	1.0	12,000

Max. Revolution*

When running the face mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts & Applicable Inserts (Metric)

Part Number	Spare Parts				Applicable Inserts M16			
	Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)	Aluminum / Non-ferrous
MEW ...-10-T								
MEW 032R-10...-M	SB-3065TRP	DTPM-8	P-37	HH8X25 (HH8X25H)	LOMU1004..ER-GM	LOMU100408ER-SM	LOMU100408ER-GH	LOGT100408FR-AM
040R-10...-M	Recommended Torque for Insert Screw 1.2N · m			HH10X30 (HH10X30H)				
050R-10...-M								
063R-10...-M								
MEW ...-15-T								
MEW 040R-15...-M	SB-4090TRP	DTPM-15	P-37	HH8X25 (HH8X25H)	LOMU1505..ER-GM	LOMU150508ER-SM	LOMU150508ER-GH	LOGT150508FR-AM
050R-15...-M	Recommended Torque for Insert Screw 3.5N · m			HH10X30 (HH10X30H)				
063R-15...-M								
080R-15...(-M)								
4000R-15-8T				HH12X35 (HH12X35H)				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions M66

*If through spindle coolant is required please order arbor bolt () separately.

Wrench Specifications

Wrenches and clamp screws are "Torx Plus".

- 1) Ref. to Fig. 2 for "Torx Plus" Wrench. (Purple grip)
- 2) Ref. to Fig. 3 for "Torx" Wrench. (Black grip)

A "Torx Plus" Wrench and a "Torx" Wrench have different top shapes. Please use a "Torx Plus" Wrench.

* If a "Torx" Wrench is used to tighten, the screw head might become damaged and then the screw cannot be removed.

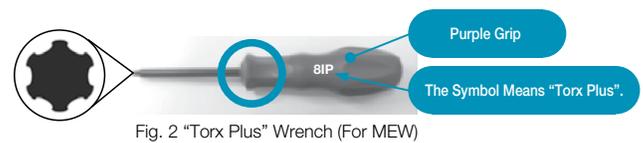


Fig. 2 "Torx Plus" Wrench (For MEW)

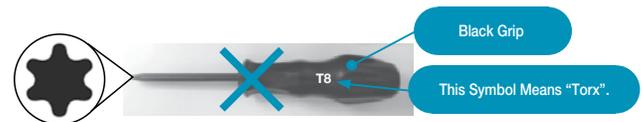
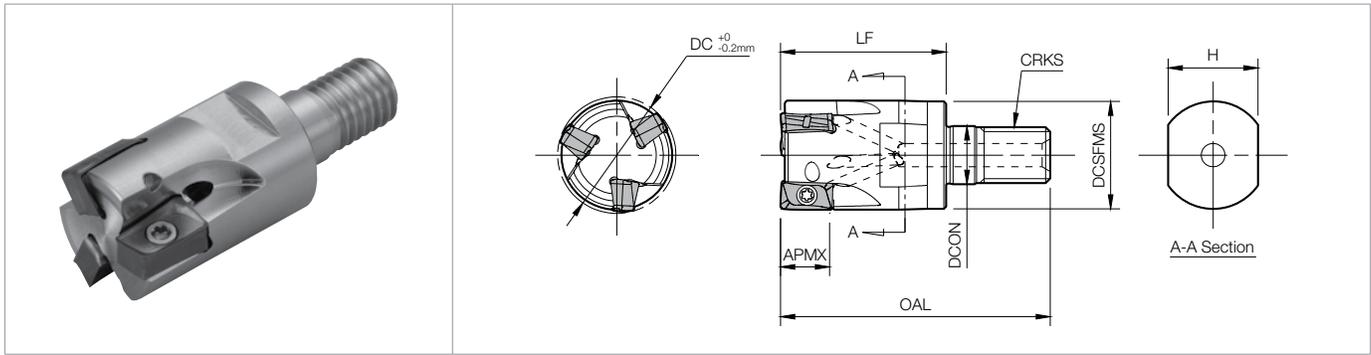


Fig. 3 "Torx" Wrench (Do NOT use it for MEW)

MEW Modular End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)								Rake Angle (°)		Coolant Hole	Applicable Inserts M16	Max RPM*
			DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX	A.R. (Max)	R.R.			
MEW 16-M08-10-2T	●	2	16	14.7	8.5	43	25	M8xP1.25	12	10	+7°	-22°	Yes	LOMU1004... LOGT1004...	43,750
20-M10-10-2T	●		20	18.7	10.5	49	30	M10xP1.5	15						41,000
20-M10-10-3T	●	3	25	23	12.5	57	35	M12xP1.75	19	15	+10°	-22°	Yes	LOMU1505... LOGT1505...	41,000
25-M12-10-3T	●														37,500
32-M16-10-4T	●	4	32	30	17	63	40	M16xP2.0	24	15	+10°	-22°	Yes	LOMU1505... LOGT1505...	33,900
MEW 25-M12-15-2T	●	2	25	23	12.5	57	35	M12xP1.75	19	15	+10°	-22°	Yes	LOMU1505... LOGT1505...	35,000
32-M16-15-3T	●	3	32	30	17	63	40	M16xP2.0	24						30,000

Max. Revolution*

When running the face mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare Parts & Applicable Inserts

Part Number	Spare Parts			Applicable Inserts M13			
	Insert Screw	Wrench	Anti-seize Compound	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)	Aluminum / Non-ferrous
MEW 16-M08-10-2T	SB-3065TRP Recommended Torque for Insert Screw 1.2N · m	DTPM-8	P-37	LOMU1004..ER-GM	LOMU100408ER-SM	LOMU100408ER-GH	LOGT100408FR-AM
20-M10-10-2T							
20-M10-10-3T							
25-M12-10-3T							
32-M16-10-4T							
MEW 25-M12-15-2T	SB-4090TRP Recommended Torque for Insert Screw 3.5N · m	DTPM-15	P-37	LOMU1505..ER-GM	LOMU150508ER-SM	LOMU150508ER-GH	LOGT150508FR-AM
32-M16-15-3T							

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions M66

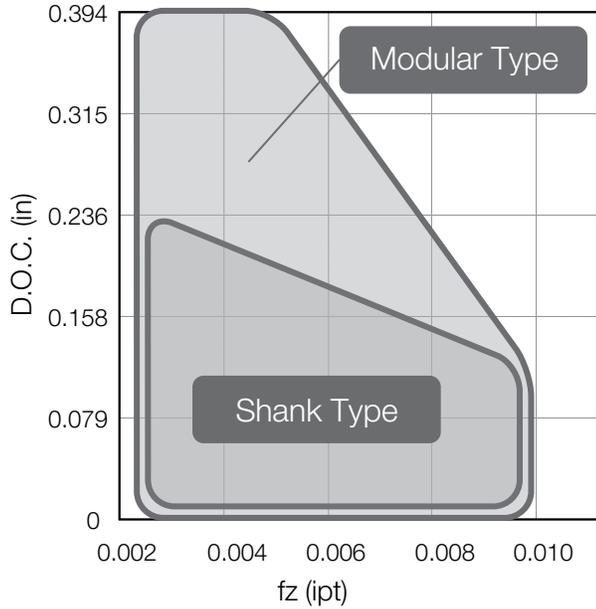
*If through spindle coolant is required please order arbor bolt in () separately.

Modular End Mill Identification System

MEW 16 - M08 - 10 - 2T

Series	Cutting Dia.	Thread Dia. Tolerance	Insert Size	No. of Inserts
--------	--------------	-----------------------	-------------	----------------

Modular End Mill Features



<Cutting Conditions>

- Cutting Speed : $V_c = 490 \text{ sfm}$ ($n = 2,390 \text{ min}^{-1}$)
- Width of Cut : $a_e = 0.394''$ (Shouldering)
- Workpiece Material : 1055 Dry
- Machine : BT30 M/C

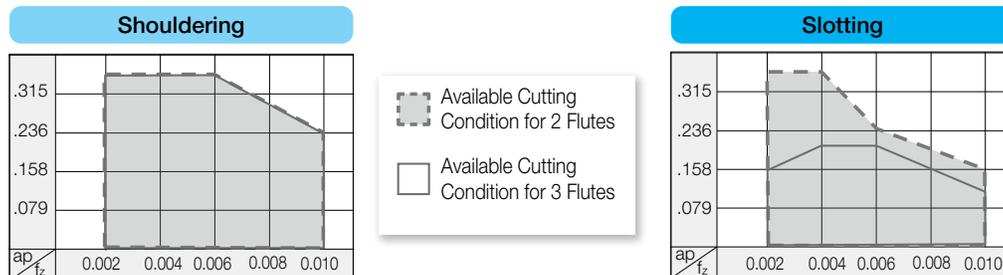
<Cutting Tool>

- Modular type
 - Head : MEW20-M10-10-3T
 - Arbor : BT30K-M10-45
 - Insert : LOMU100408ER-GM (PR1525)
- Shank type
 - Toolholder : MEW20-S20-10-3T
 - Arbor : BT30 Milling Chuck (Two-face clamping)
 - Insert : LOMU100408ER-GM (PR1525)

Flute Recommendation for Shouldering and Slotting

Shouldering ($a_e = 0.394''$)	Slotting
Multi-Flute is Possible	2 Flute Max. is Recommended

Modular End Mill Cutting Conditions by Application



For high efficiency shouldering with higher feed rates, 3 or more flutes is possible. For slotting applications, use 2 flutes maximum to lower cutting forces.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

How to Mount Insert

- Be sure to remove dust and chips from the insert mounting pocket.
- Apply anti-seize compound on portion of taper and thread of clamp screw.
 - Attach the screw (magnetic head) to the front end of the wrench.
 - While lightly pressing the insert against the pocket walls, put the screw into the hole of the insert and tighten. (Ref. to Fig. 1.) Tighten M3 screws (SB-3065TRP) slightly inclined from the insert. (Ref. to Fig. 2.) surface of the insert.
- When tightening the screw, make sure that the wrench is parallel to the screw. For recommended torque, Ref. to [M62-M63](#)
- After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket floor of the holder or between the insert side surfaces and the pocket walls of the holder. If there is any clearance, remove the insert and mount it again according to the above steps.

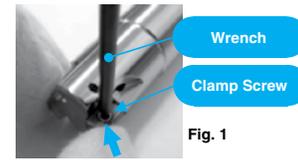


Fig. 1

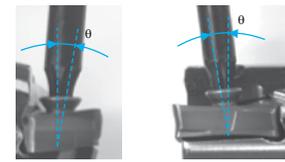


Fig.2

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipr)		Recommended Insert Grade Vc (sfm)						Applicable Chipbreaker Range (Shouldering)	
		Toolholder Description		MEGACOAT NANO		MEGACOAT HARD	CVD Coated Carbide	DLC Coated Carbide	Carbide		
		MEW0625-MEW0750 MEW16-MEW18	MEW1000-MEW1500 MEW1500R-MEW3000R MEW20-MEW50 MEW032R-MEW080R	PR1535	PR1525	PR1510	PR015S	CA6535	PDL025		GW25
GM	Carbon Steel	0.002- 0.004 -0.008	0.003- 0.006 -0.010	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	<p>● LOMU10</p>
	Alloy Steel	0.002- 0.004 -0.006	0.003- 0.006 -0.008	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.008	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.006	☆ 330- 520 -660	★ 330- 520 -660	-	-	-	-	-	
	Martensitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.008	☆ 490- 660 -820	-	-	-	★ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.008	☆ 300- 390 -490	-	-	-	-	-	-	
	Gray Cast Iron	0.002- 0.004 -0.007	0.003- 0.007 -0.010	-	-	★ 390- 590 -820	-	-	-	-	
	Nodular Cast Iron	0.002- 0.003 -0.005	0.003- 0.006 -0.008	-	-	★ 330- 490 -660	-	-	-	-	
	Ni-base Heat Resistant Alloy	0.002- 0.003 -0.005	0.003- 0.005 -0.006	☆ 70- 100 -160	-	-	-	★ 70- 100 -160	-	-	
	Titanium Alloys	0.002- 0.003 -0.005	0.003- 0.006 -0.008	☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-	-	
SM	Carbon Steel	0.002- 0.004 -0.007	0.003- 0.006 -0.008	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	<p>● LOMU15</p>
	Alloy Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.007	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002- 0.003 -0.005	0.003- 0.004 -0.006	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.004 -0.006	☆ 330- 520 -660	★ 330- 520 -660	-	-	-	-	-	
	Martensitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.004 -0.006	☆ 490- 660 -820	-	-	-	★ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.005	0.003- 0.004 -0.006	☆ 300- 390 -490	-	-	-	-	-	-	
	Gray Cast Iron	0.002- 0.004 -0.007	0.003- 0.008 -0.012	☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-	-	
	Alloy Steel	0.002- 0.004 -0.006	0.003- 0.008 -0.010	☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-	-	
	Mold Steel	0.002- 0.003 -0.005	0.003- 0.006 -0.009	☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-	-	
	Austenitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.006	☆ 330- 520 -660	★ 330- 520 -660	-	-	-	-	-	
GH	Martensitic Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.008	☆ 490- 660 -820	-	-	-	☆ 590- 790 -980	-	-	
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.005	0.003- 0.005 -0.008	☆ 300- 390 -490	-	-	-	-	-		
	Gray Cast Iron	0.002- 0.004 -0.008	0.003- 0.009 -0.012	-	-	☆ 390- 590 -820	-	-	-		
	Nodular Cast Iron	0.002- 0.003 -0.006	0.003- 0.007 -0.010	-	-	☆ 330- 490 -660	-	-	-		
	Ni-base Heat Resistant Alloy	0.002- 0.003 -0.005	0.003- 0.005 -0.006	☆ 70- 100 -160	-	-	-	☆ 70- 100 -160	-		
	Titanium Alloys	0.002- 0.003 -0.005	0.003- 0.006 -0.008	☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-		
	Hard Materials	0.002- 0.003 -0.005	0.003- 0.006 -0.009	-	-	-	★ 260- 390 -520	-	-		
	Aluminum Alloy	0.002- 0.004 -0.008	0.003- 0.006 -0.010	-	-	-	-	★ 660- 1,970 -2,950	☆ 660- 1,640 -2,620		

※ Bold numbers in the graph indicate the most recommended value of feed (f) Adjust cutting speed and feed rate according to the actual machining conditions

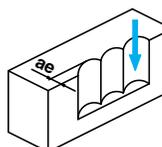
★ : 1st Recommendation
☆ : 2nd Recommendation

※ Coolant is recommended for Ni-base heat resistant alloy and titanium alloy with MEW

Ramping, Helical Milling and Plunging

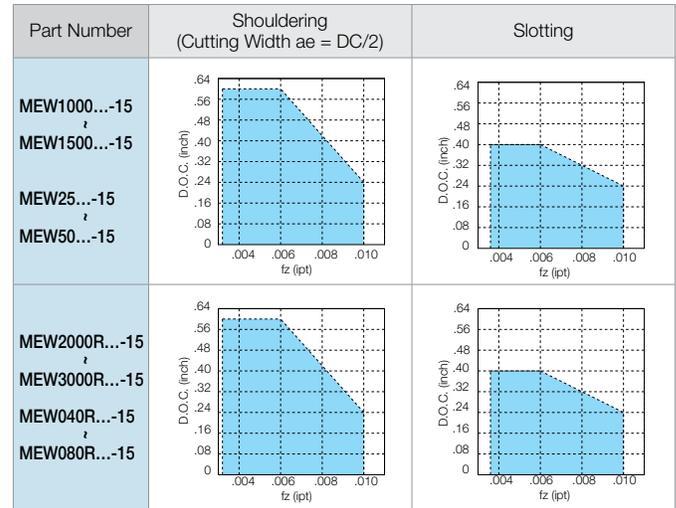
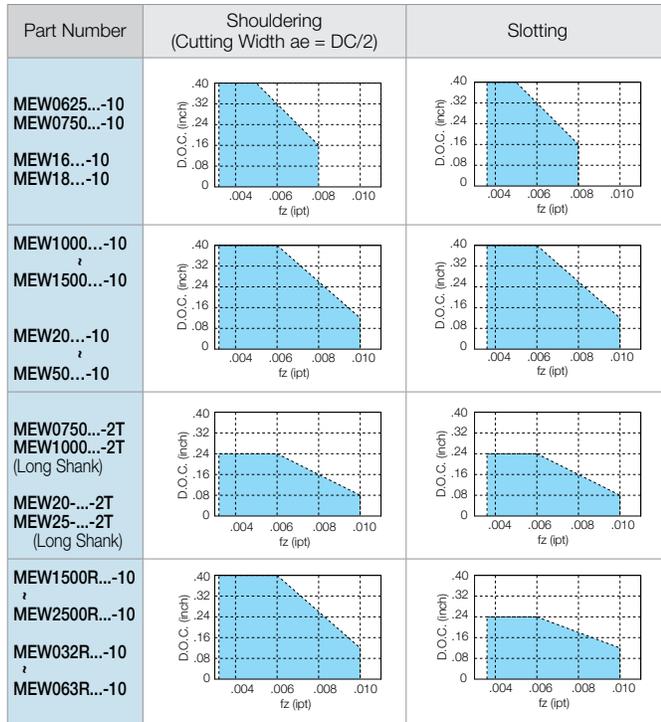
- Available for vertical milling.
- NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

Plunging



Insert Description	Max. Width of Cut (ae)
LOMU10	0.197" (5mm)
LOMU15	0.276" (7mm)

Cutting Performance



<Cutting Conditions>

- Vc = 600 sfm
- GM Chipbreaker
- Workpiece Material: 1049
- Overhang Length

1. End Mill: Same length as LH of the dimension
2. Face Mill: LF of the dimension + minimum overhang length of the arbor

Case Studies

1018

- Construction Equipment Part
- Vc = 820 sfm
- D.O.C. × ae = 0.158" × 0.787"
- fz = 0.006 ipt (Vf = 53 ipm)
- Wet
- MEW32-S32-10-4T (4 Inserts)
- LOMU100408ER-GM (PR1525)

PR1525	Chip Removal Rate = 6.591in ³ /min
Competitor A (Positive Cutter)	Chip Removal Rate = 4.394in ³ /min

MEW showed stable milling without chattering at higher feed, improving the cutting efficiency by 150%. Burrs are prevented and excellent surface finish is achieved.

Customer Evaluation

1018

- Machine Part
- Vc = 820 sfm
- D.O.C. × ae = 0.128" × 0.787" (Grooving)
- fz = 0.008 ipt (Vf = 94 ipm)
- Dry
- MEW20-S20-10-3T (3 Inserts)
- LOMU100408ER-GM (PR1525)

PR1525	Chip Removal Rate = 8.787in ³ /min (Stable Milling)
Competitor B (Positive Cutter)	Chip Removal Rate = 6.957in ³ /min (Unstable)

No chattering with MEW, while Competitor B chattered at the same cutting conditions. No burrs with MEW and excellent surface finish is gained.

Customer Evaluation

15-5PH (42HRC)

- Aircraft Part
- Vc = 590 sfm
- D.O.C. × ae = 0.079" × 0.984"
- fz = 0.004 ipt (Vf = 28 ipm)
- Wet
- MEW32-S32-10-4T (4 Inserts)
- LOMU150508ER-GM (PR1525)

PR1525	Chip Removal Rate = 2.185in ³ /min (Further Milling Possible)
Competitor C (Positive Cutter)	Chip Removal Rate = 1.635in ³ /min (Unable to Continue Cutting)

No chattering and more stable milling is possible with MEW. Despite the milling difficulty because of the properties of the material, PR1525 kept good cutting edge form, minimizing wear and adhesion.

Customer Evaluation

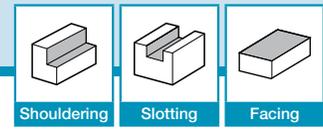
H13

- Mold Part
- Vc = 330 sfm
- D.O.C. × ae = 0.138" × 1.181"
- fz = 0.004 ipt (Vf = 15 ipm)
- Dry
- MEW32-S32-10-4T (4 Inserts)
- LOMU100408ER-GH (PR1525)

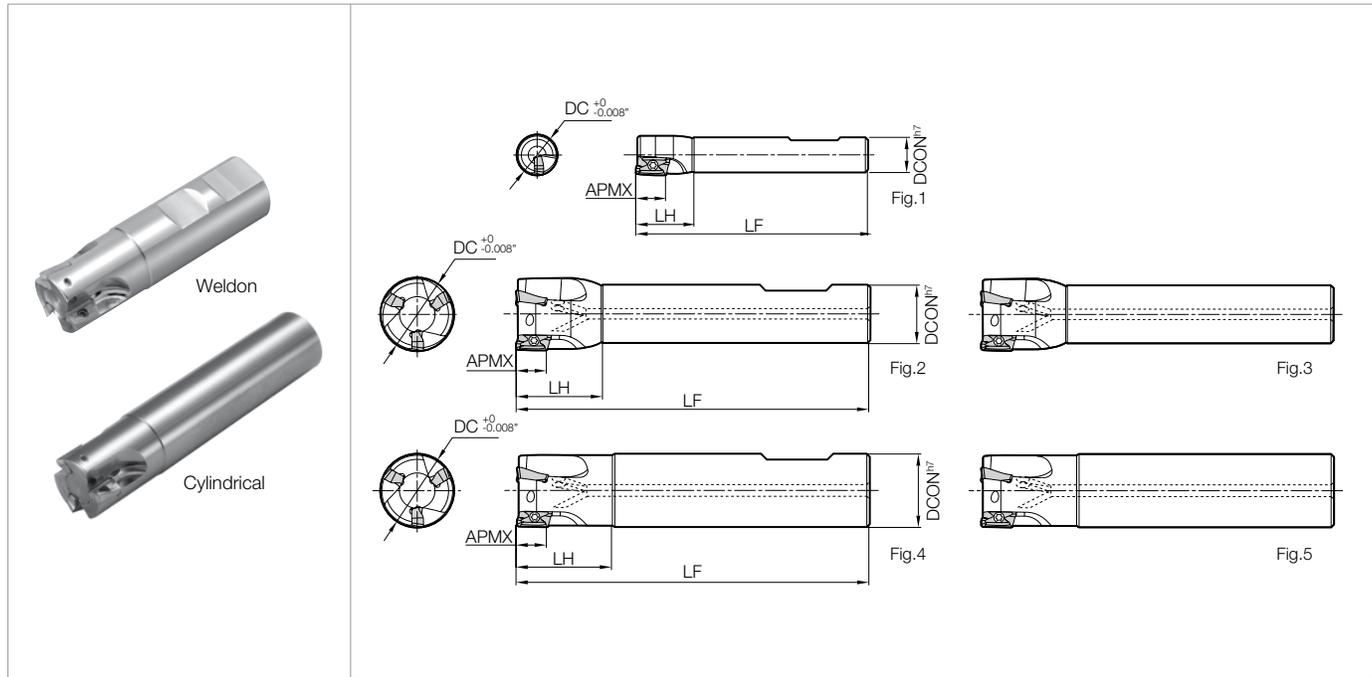
PR1525	Chip Removal Rate = 2.563in ³ /min (Further Milling Possible)
Competitor D (Positive Cutter)	Chip Removal Rate = 1.282in ³ /min (Unable to Continue Cutting)

MEW doubled cutting efficiency. Furthermore, MEW inserts have double number of edges (4-edge), which enables a drastic cost reduction.

Customer Evaluation



MEC End Mill (Inch)



● Toolholder Dimensions (Inch)

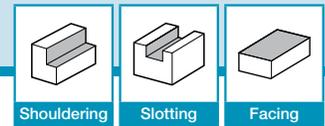
Shank	Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM*									
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench										
Weldon Standard Shank	MEC 0500-S500-11	●	1	0.500	0.500	2.650	0.787	0.400	12°	-21°	No	Fig.1	SB-2545TR	DTM-8	50,800									
	MEC 0625-S500-11T	●	2	0.625	0.500	2.750	0.906	0.400	18°	-14°	Yes	Fig.1	SB-2555TRG	DTM-8	43,750									
	0625-S625-11T	●			0.625	3.000	1.024		20°	-10°		Fig.4			43,750									
	0750-S625-11T	●	3	0.750	0.625	3.050	1.142	0.400	21°	-10°		Fig.2			41,000									
	0750-S750-11T	●			0.750	3.250						Fig.4			41,000									
	1000-S750-11T	●			1.000	3.750						Fig.2			37,500									
	1000-S100-11T	●	4	1.250	1.000	4.000	1.575	0.618	23°	-9°		Fig.4			37,500									
	1250-S100-11T	●			1.250	4.350	1.969					Fig.2			33,900									
	1250-S125-11T	●			1.500	4.350	1.969					Fig.4			33,900									
	1500-S125-11T	●			1.500	4.350	1.969					Fig.2			30,000									
	Cylindrical Long Shank	MEC 1000-S750-17	●	2	1.000	0.750	3.500	1.417	0.618	16°		-11°			Yes	Fig.2	SB-4070TRN	DTM-15	35,000					
		1000-S100-17	●			1.000	3.750									Fig.4			35,000					
		1250-S100-17	●	3	1.250	1.000	4.000	1.575		17°		-7°				Fig.2			30,000					
		1250-S125-17	●			1.250	4.000	1.575		Fig.4						30,000								
1500-S125-17		●	1.500			4.350	1.969	Fig.2		25,000														
Cylindrical Long Shank		MEC 0750-S750-5.2-11T	●	2	0.750	0.750	5.200	2.362		0.400	20°	-10°	Yes	Fig.5		SB-2555TRG			DTM-8	41,000				
		1000-S100-6.3-11T	●			1.000	6.300													37,500				
		1250-S125-7.9-11T	●			1.250	7.870													2.559	23°	-9°	Fig.3	33,900
		1500-S125-9.5-11T	●			1.500	9.450													2.559	0.400	23°	-8°	Fig.3	30,000
		MEC 1000-S100-6.3-17	●	2	1.250	1.000	6.300	2.362		0.618	17°	-7°		Fig.5		35,000								
	1250-S125-7.9-17	●	1.250			7.870	2.559	0.618	17°					-7°	Fig.5	30,000								
	1500-S125-9.5-17	●	1.500			9.450	2.559	0.618	17°					-7°	Fig.3	25,000								

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

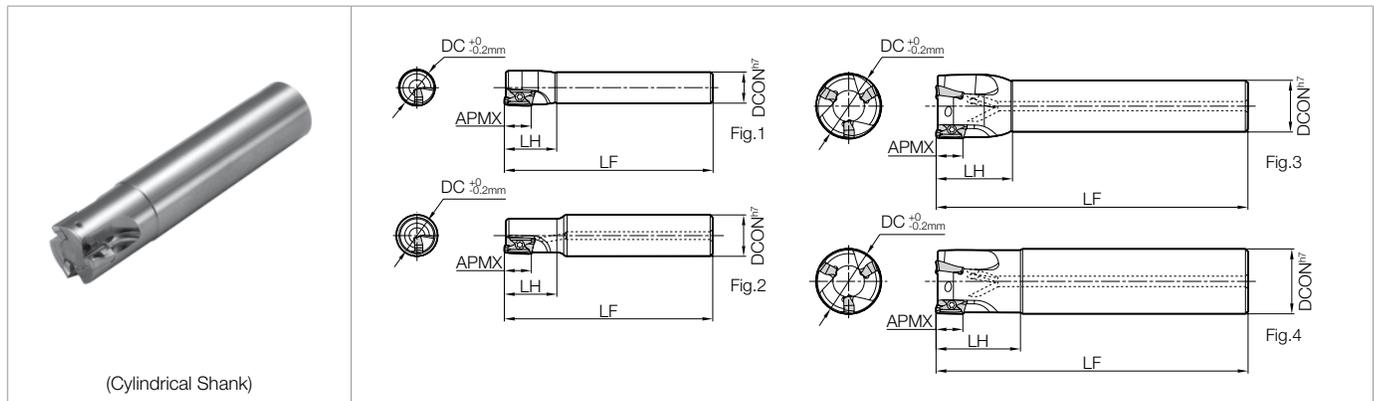
Applicable Inserts M70

Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.



MEC End Mill (Metric)



Toolholder Dimensions for 11mm Inserts (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM*		
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench			
																Fig.	Fig.
Cylindrical	Standard Shank	MEC 10-S10-11	1	10	10	80	17	10	+10°	-24°	No	Fig.1	SB-2545TR	DTM-8	54,800		
		10-S16-11		16	16						Yes	Fig.2					
		12-S10-11		10	10						No	Fig.1					
		12-S12-11		12	12						Yes	Fig.1					
		12-S16-11		16	16						No	Fig.2					
		13-S12-11		13	12						Yes	Fig.1					
		14-S12-11	14	12	No	Fig.1											
		14-S16-11	14	16	Yes	Fig.2											
		MEC 16-S12-11T	2	16	12	100	23	10	+18°	-14°	No	Fig.1	SB-2555TRG	DTM-8	43,750		
		16-S16-11T		16	16						Yes	Fig.4					
		17-S16-11T		17	16						Yes	Fig.3					
		18-S16-11T		18	16						Yes	Fig.3					
		19-S16-11T		19	16						Yes	Fig.3					
		20-S16-11T		20	16						Yes	Fig.3					
		MEC 20-S20-11T	3	20	16	110	26	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	41,000		
		20-S20-11T		20	20						Yes	Fig.4					
	21-S20-11T	21		20	Yes						Fig.3						
	22-S20-11T	22		20	Yes						Fig.3						
	24-S20-11T	24		20	Yes						Fig.3						
	25-S20-11T	25		20	Yes						Fig.3						
	MEC 25-S20-11T-4	4	25	16	120	29	10	+21°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	37,500			
	25-S25-11T		25	16						Yes	Fig.4						
	25-S25-11T-4		25	16						Yes	Fig.4						
	28-S25-11T		28	25						Yes	Fig.3						
	30-S25-11T		30	25						Yes	Fig.3						
	32-S25-11T		32	25						Yes	Fig.3						
	MEC 32-S25-11T-5	5	32	16	130	32	10	+23°	-9°	Yes	Fig.3	SB-2555TRG	DTM-8	33,900			
	32-S32-11T		32	16						Yes	Fig.4						
	32-S32-11T-5		32	16						Yes	Fig.4						
	40-S32-11T		40	32						Yes	Fig.3						
	50-S32-11T		50	32						Yes	Fig.3						
	MEC 20-S18-170-11T		Long Shank	●						2	20				18	170	30	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	41,000
20-S20-140-11T	20	140		60	Fig.4												
20-S20-170-11T	20	170		30	Fig.4												
22-S20-170-11T	22	170		30	Fig.3												
25-S23-210-11T	25	23		210	32	Fig.3											
25-S25-160-11T	25	25		160	60	Fig.4											
25-S25-210-11T	25	25		210	60	Fig.4											
28-S25-210-11T	28	28		210	32	Fig.3											
32-S30-250-11T	□	30		250	40	Fig.3											
32-S32-200-11T	●	32		200	65	Fig.4											
32-S32-250-11T	●	32		250	65	Fig.4											
35-S32-250-11T	●	35		250	40	Fig.3											
40-S32-240-11T	●	40		240	65	Fig.3											
MEC 20-S20-150-11T-3	3	20		20	150	60	10	+20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	41,000			
25-S25-170-11T-3		25		25											170	Fig.4	
25-S25-170-11T-4		25		25											170	Fig.4	
30-S25-180-11T-3		30	25	180											32	Fig.3	
32-S32-200-11T-3		32	32	200											65	Fig.4	
32-S32-200-11T-4		32	32	200											65	Fig.4	
MEC 32-S32-200-11T-5	5	32	32	200	65	10	+23°	-9°	Yes	Fig.4	SB-2555TRG	DTM-8	33,900				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

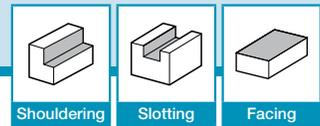
Applicable Inserts M70

Max. Revolution*
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

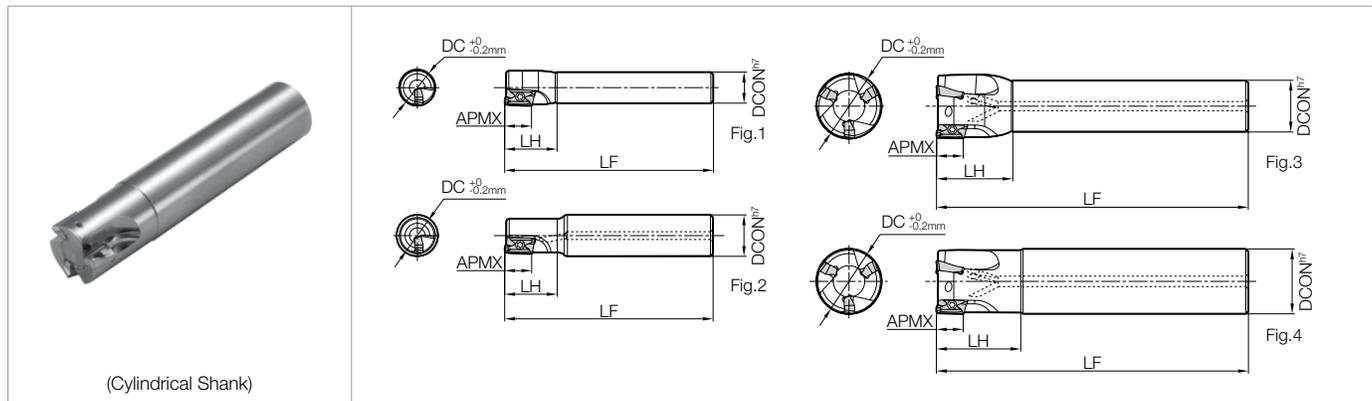
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INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T



MEC End Mill (Metric)



Toolholder Dimensions for 17mm Inserts (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM*							
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench								
Standard Shank	MEC 25-S20-17	●	2	25	20	120	36	15.7	+16°	-11°	Yes	Fig.3	SB-4070TRN	DTM-15	35,000							
	25-S25-17	●			25							35,000										
	32-S25-17	●	3	32	130	40	+17°	-7°	Fig.3	30,000												
	32-S32-17	●							Fig.4	30,000												
	40-S32-17	●	4	40	150	50	+19°	-7°	Fig.3	25,000												
	50-S32-17	●		50						17,000												
Cylindrical	MEC 25-S25-160-17	●	2	25	160	200	65	15.7	+16°	-11°	Yes	Fig.4	SB-4070TRN	DTM-15	35,000							
		25-S25-210-17			●							25			210	36	Fig.3	32,500				
		28-S25-210-17			●							28			250	40	+17°	-7°	Fig.4	30,000		
		32-S32-200-17			●							32									240	65	Fig.3	27,700
		32-S32-250-17			●							35			40	65	+19°	-6°	Fig.3	25,000		
		35-S32-250-17			●							40									240	65	Fig.4	30,000
	Long Shank	MEC 32-S32-250-17-3	●	3	32	250	65	15.7	+17°	-7°	Yes	Fig.4	SB-4070TRN	DTM-15	30,000							
			40-S32-250-17-3												●	40	250	65	+19°	-6°	Fig.3	25,000
			40-S32-250-17-4												●							
		40-S32-250-17-4	●	4	50	42	64	+19°	-6°	Fig.3		17,000										
		50-S42-250-17-4	●												4	50	42	64	+19°	-6°	Fig.3	17,000
		50-S42-250-17-4	●	4	50	42	64	+19°	-6°	Fig.3		17,000										

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

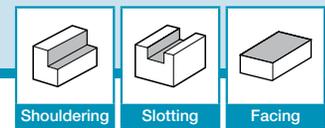
Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

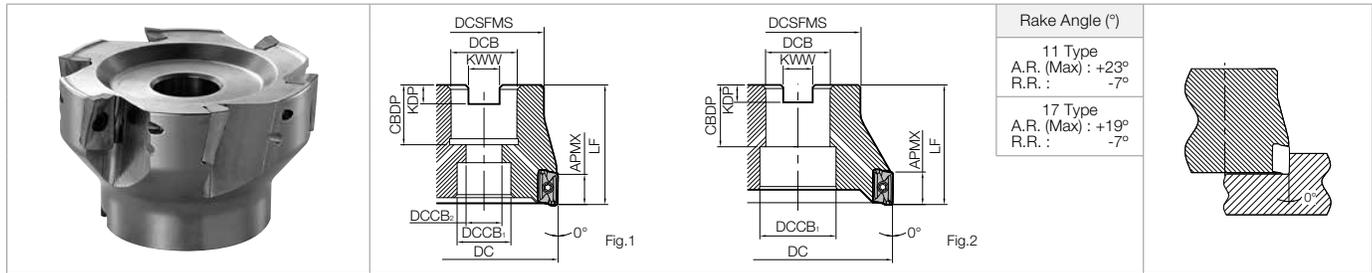
Applicable Inserts

Part Number	Applicable Inserts M22, M23			Applicable PCD Inserts M30	
MEC...-11	BDMT 1103OER-JT	BDMT 1103OER-JS	-	-	-
MEC...-11T	BDMT 11T3OER-JT	BDMT 11T3OER-JS	BDGT 11T3OFR-JA	BDGT 11T3OFR(-LE)	BDMT 11T3OFR
MEC...-17	BDMT 1704OER-JT	BDMT 1704OER-JS	BDGT 1704OFR-JA	-	BDMT 1704OFR

Recommended Cutting Conditions M74-M75



MEC Face Mill (Inch)



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	Dimensions (in)										Coolant Hole	Drawing	Weight (kg)	Spare Parts		Max RPM*
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW	APMX				Insert Screw	Wrench	
MEC 1500R-11T-5T	●	5	1.500	1.263		0.63			0.807						0.2	SB-2555TRG	DTM-8	30,700
2000R-11T-5T	●	5	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312			0.3	22,300			
2500R-11T-6T	●	6	2.500	1.594		0.63			0.819			0.400	Yes	Fig.1	0.7			20,400
3000R-11T-7T	●	7	3.000	1.917	1.000	0.827	0.555	1.969	0.878	0.223	0.375			1.0	18,500			
4000R-11T-9TN	●	9	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625			1.6	16,800			
MEC 2000R-17-4T	●	4	2.000	1.606	0.750	0.646	0.417	1.575	0.819	0.188	0.312	0.618	Yes	Fig.1	0.4	SB-4070TRN	DTM-15	16,800
NEW 2000R-17-5T	●	5	2.000												0.4			16,800
2500R-17-5T	●	5	2.500	1.634	0.646	0.819	0.8	14,400										
3000R-17-6T	●	6	3.000	1.969	1.000	0.827	0.555	1.969	0.878	0.223	0.375				1.0			12,250
4000R-17-7TN	●	7	4.000	2.622	1.500	1.969	-	2.48	1.654	0.375	0.625				Fig.2			1.8	10,400

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Max. Revolution*

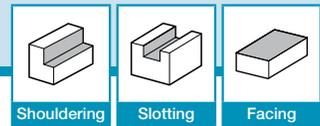
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Applicable Inserts

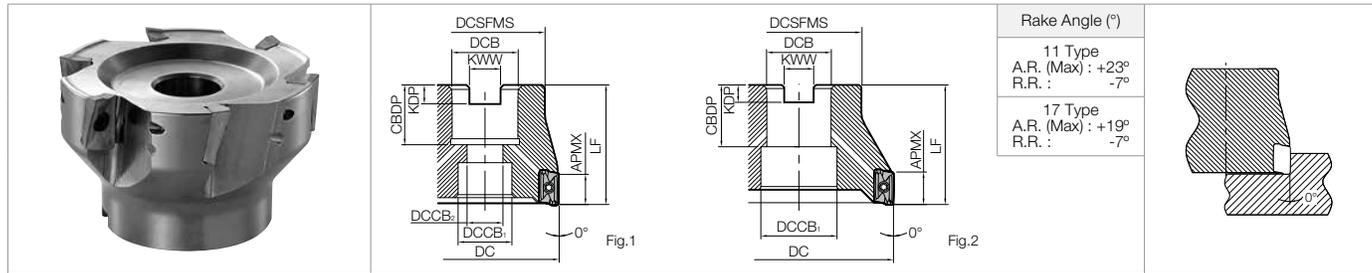
Part Number	Applicable Inserts M22, M23			Applicable PCD Inserts M30	
MEC...R-11	BDMT 1103○○ER-JT	BDMT 1103○○ER-JS	-	-	-
MEC...R-11T	BDMT 11T3○○ER-JT	BDMT 11T3○○ER-JS	BDGT 11T3○○FR-JA	BDGT 11T3○○FR(-LE)	BDMT 11T3○○FR
MEC...R-17	BDMT 1704○○ER-JT	BDMT 1704○○ER-JS	BDGT 1704○○FR-JA	-	BDMT 1704○○FR

Recommended Cutting Conditions M74-M75

INSERT GRADES A
TURNING INSERTS B
GEM/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T



MEC Face Mill (Metric)



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)										Coolant Hole	Drawing	Weight (kg)	Spare Parts		Max RPM*		
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX				Insert Screw	Wrench			
Inch Bore Dia.	Coarse Pitch	MEC 063R-11-6T	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1	0.8	SB-2555TRG	DTM-8	20,500		
		080R-11-7T	7	80	52.5									1.0	18,500					
		100R-11-9TN	9	100	65	1.250"	26	17.6		1.260"	0.315"	0.500"		1.8	17,000					
		125R-11-11T	11	125	80	1.500"	45	32	63	1.496"	0.394"	0.625"	10	Yes	Fig.1			3.4	15,000	
		160R-11-14T	14	160	100	2.000"	70	-		1.850"	0.394"	0.750"		4.4	13,900					
Inch Bore Dia.	Fine Pitch	MEC 063R-11-8T	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	10	Yes	Fig.1	0.8	SB-2555TRG	DTM-8	20,500		
		080R-11-10T	10	80	52.5									1.0	18,500					
		MEC 063R-17-5T	5	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	Yes	Fig.1			0.8	14,500	
		080R-17-6T	6	80	52.5									1.0	12,000					
		100R-17-7TN	7	100	65	1.250"	26	17.6		1.260"	0.315"	0.500"	15.7	Yes	Fig.1			1.8	10,500	
Inch Bore Dia.	Coarse Pitch	MEC 063R-17-9T	9	125	80	1.500"	45	32	63	1.496"	0.394"	0.625"	15.7	Yes	Fig.1	3.4	SB-4070TRN	DTM-15	8,900	
		MEC 063R-17-6T	6	63	40	1.000"	20	14	50	1.024"	0.236"	0.375"	15.7	Yes	Fig.1	0.8			14,500	
		080R-17-8T	8	80	52.5									1.0	12,000					
		100R-17-9TN	9	100	65	1.250"	26	17.6	63	1.260"	0.315"	0.500"	15.7	Yes	Fig.1	1.8			10,500	
		MEC 040R-11-5T-M	5	40	34	16	14	8.5		20	5.5	8.5	10	Yes	Fig.1	0.2			SB-2555TRG	DTM-8	30,000
050R-11-5T-M	5	50	40				40						0.3	22,500						
063R-11-6T-M	6	63	40	22	18	12		22	6.3	10.4			0.7	20,500						
080R-11-7T-M	7	80	52.5	27	20	14	50		7	12.4	10	Yes	Fig.1	1.0	18,500					
100R-11-9T-MN	9	100	65	32	26	17.6	55	26	8	14.4			1.6	17,000						
Metric Bore Dia.	Standard Pitch	MEC 040R-11-5T-M	5	32	30	16	11.5	35						0.1	SB-2555TRG	DTM-8	33,900			
		040R-11-6T-M	6	40	34		14	8.5	40	20	5.6	8.4	10	Yes			Fig.1	0.2	30,000	
		050R-11-7T-M	7	50		40	22	18	12	40	22	6.3	10.4	10			Yes	Fig.1	0.4	22,500
		063R-11-8T-M	8	63		40	22	18	12	40	22	6.3	10.4	10			Yes	Fig.1	0.6	20,500
		080R-11-10T-M	10	80	52.5	27	20	14	50	26.5	7	12.4					0.9	18,500		
Metric Bore Dia.	Fine Pitch	MEC 100R-11-11T-M	11	100	65	32	26	17.6	55	34	8	14.4			1.7	SB-2555TRG	DTM-8	17,000		
		MEC 040R-17-4T-M	4	40	34	16	14	8.5		20	5.5	8.5	15.7	Yes	Fig.1			0.3	25,000	
		050R-17-4T-M	5	50		40	22	18	12	40	22	6.3	10.4					0.4	17,000	
		063R-17-5T-M	5	63		40	22	18	12	40	22	6.3	10.4	15.7	Yes			Fig.1	0.6	14,500
		080R-17-6T-M	6	80	52.5	27	20	14	50	26	7	12.4			1.0			12,000		
Metric Bore Dia.	Standard Pitch	MEC 100R-17-7T-MN	7	100	65	32	26	17.6	55	26	8	14.4			1.8	SB-4070TRN	DTM-15	10,500		
		125R-17-9T-M	9	125	80	40	45	32	63	33	9.5	16.4	15.7	Yes	Fig.1			3.1	8,900	
		160R-17-12T-M	12	160	100	40	68	-		33	9.5	16.4	15.7	No	Fig.2			4.5	7,400	
		MEC 050R-17-5T-M	5	50		40	22	18	12	40	22	6.3	10.4	15.7	Yes			Fig.1	0.4	17,000
		MEC 063R-17-6T-M	6	63		40	22	18	12	40	22	6.3	10.4	15.7	Yes			Fig.1	0.6	14,500

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Max. Revolution*
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

(Table 1)

When using Center-through Air / Coolant / Mist

If Center Through air (Coolant, Mist) is used, please use appropriate arbor and clamp with arbor bolt. (Table 1)

MEC's surface finish when shouldering with multiple passes

In order to obtain smoothly finished shoulder wall with multiple passes of MEC Milling Cutter, please keep D.O.C. less than 0.217" (5.5mm) for 11T3 type insert and also keep D.O.C. less than 0.354" (9mm) for 1704 type insert.

Applicable Inserts

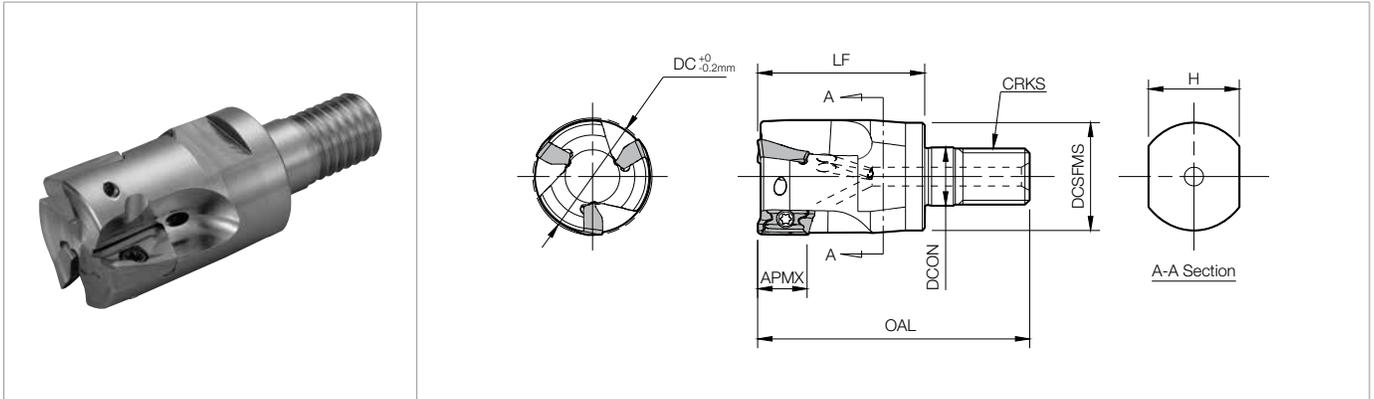
Toolholder	Arbor Bolt	Wrench	Toolholder	Arbor Bolt	Wrench
MEC040R.....M	HH8×25H	LW-5 (Double width 5mm)	MEC160R...	HF24×60H	LW-17 (Double width 17mm)
MEC050R.....M	HH10×30H	LW-6 (Double width 6mm)	MEC1500...	HH3/8-1.25H	
MEC063R.....M	HH12×35H	LW-8 (Double width 8mm)	MEC2500...		
MEC083R...	HH12×35H	LW-8 (Double width 8mm)	MEC3000...	HH1/2-1.25H	
MEC080R....	HH16×52H	LW-12 (Double width 12mm)	MEC4000...	HH3/4-2.30H	
MEC100R.....(M) N	HH16×52H	LW-12 (Double width 12mm)			
MEC125R.....(M)	HF20×53H	LW-14 (Double width 14mm)			
MEC160R.....M					

Wrench is not included. Please purchase separately.

Part Number	Applicable Inserts M22, M23			Applicable PCD Inserts M30	
MEC...R-11	BDMT 11T300ER-JT	BDMT 11T300ER-JS	BDGT 11T300FR-JA	BDGT 11T300FR(-LE)	BDMT 11T300FR
MEC...R-17	BDMT 170400ER-JT	BDMT 170400ER-JS	BDGT 170400FR-JA	-	BDMT 170400FR

Recommended Cutting Conditions M74-M75

MEC Modular



● Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)								Rake Angle (°)		Coolant Hole	Applicable Inserts ● M22, M23 ● M30	Max RPM*
			DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX	A.R. (Max)	R.R.			
MEC 16-M08-11T-2T	●	2	16	14.7	8.5	43	25	M8xP1.25	12	10	+18°	-14°	Yes	BDMT11T3 BDGT11T3	43,750
20-M10-11T-2T	●	2	20	18.7	10.5	49	30	M10xP1.5	15		+20°	-10°			41,000
20-M10-11T-3T	●	3	20	18.7	10.5	49	30	M10xP1.5	15		+20°	-10°			41,000
25-M12-11T-3T	●	3	25	23	12.5	57	35	M12xP1.75	19		+21°	-10°			37,500
32-M16-11T-4T	●	4	32	30	17	63	40	M16xP2.0	24		+23°	-9°			33,900
MEC 25-M12-17-2T	●	2	25	23	12.5	57	35	M12xP1.75	19	15.7	+16°	-11°	Yes	BDMT1704 BDGT1704	35,000
32-M16-17-3T	●	3	32	30	17	63	40	M16xP2.0	24		+17°	-7°			30,000

Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Recommended Cutting Conditions ● M74-M75

● Spare Parts

Part Number	Spare Parts		
	Insert Screw	Wrench	Anti-seize Compound
MEC 16-M08-11T-2T	 SB-2555TRG Recommended Torque for Insert Screw 1.2N · m	 DTM-8	 P-37
20-M10-11T-2T			
20-M10-11T-3T			
25-M12-11T-3T			
32-M16-11T-4T			
MEC 25-M12-17-2T	 SB-4070TRN Recommended Torque for Insert Screw 3.5N · m	 DTM-15	 P-37
32-M16-17-3T			

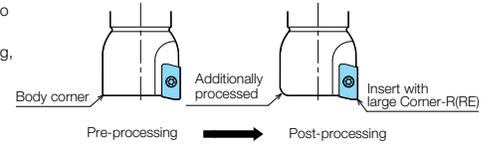
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

■ When using inserts with corner-R (RE)1.6 or larger, additional modifications of the cutter body will be necessary. Ref. to the chart below for the recommended modifications.

Insert Corner-R(RE)	Additional Modifications of the Cutter Body Corner
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* R shape is recommended for additional processing to the body corner.
When applying chamfer shaped additional processing, do not cut away too much.



◆ Recommended Cutting Conditions

• JT Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)					
	Toolholder Description		Cermet	MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
	MEC0500~MEC0750 MEC10~MEC19	MEC1000~MEC1500 MEC20~MEC40 MEC1500R~MEC4000R MEC040R~MEC160R	TN100M	PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.002~ 0.004 ~0.006	0.003~ 0.006 ~0.010	☆ 390~ 520 ~660	☆ 390~ 590 ~820	★ 390~ 590 ~820	-	☆ 390~ 520 ~660	-
Alloy Steel	0.002~ 0.004 ~0.005	0.003~ 0.006 ~0.008	☆ 330~ 460 ~590	☆ 330~ 520 ~720	★ 330~ 520 ~720	-	☆ 330~ 460 ~590	-
Mold Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	☆ 260~ 390 ~490	☆ 260~ 460 ~590	★ 260~ 460 ~590	-	☆ 260~ 390 ~490	-
Austenitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	☆ 330~ 520 ~660	☆ 330~ 520 ~660	-	☆ 330~ 460 ~590	-
Martensitic Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	☆ 490~ 660 ~820	-	-	-	★ 590~ 790 ~980
Precipitation Hardened Stainless Steel	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.008	-	★ 300~ 390 ~490	-	-	-	-
Gray Cast Iron	0.002~ 0.004 ~0.006	0.003~ 0.007 ~0.010	-	-	-	★ 390~ 590 ~820	-	-
Nodular Cast Iron	0.002~ 0.003 ~0.004	0.003~ 0.006 ~0.008	-	-	-	★ 330~ 490 ~660	-	-
Ni-base Heat Resistant Alloy	0.002~ 0.003 ~0.004	0.003~ 0.005 ~0.006	-	☆ 70~ 100 ~160	-	-	-	★ 70~ 100 ~160
Titanium Alloys	0.002~ 0.003 ~0.004	0.003~ 0.006 ~0.008	-	☆ 130~ 200 ~260	-	☆ 100~ 160 ~230	-	-

※ Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
※ Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★ : 1st Recommendation
☆ : 2nd Recommendation

• JS Chipbreaker

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	Toolholder Description		MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
	MEC0500-MEC0750 MEC10-MEC19	MEC1000-MEC1500 MEC20-MEC40 MEC1500R-MEC4000R MEC040R-MEC160R	PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.002- 0.004 -0.005	0.003- 0.006 -0.007	☆ 390- 590 -820	★ 390- 590 -820	-	☆ 390- 520 -660	-
Alloy Steel	0.002- 0.003 -0.004	0.003- 0.005 -0.006	☆ 330- 520 -720	★ 330- 520 -720	-	☆ 330- 460 -590	-
Mold Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	☆ 260- 460 -590	★ 260- 460 -590	-	☆ 260- 390 -490	-
Austenitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	★ 330- 520 -660	☆ 330- 520 -660	-	☆ 330- 460 -590	-
Martensitic Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	☆ 490- 660 -820	-	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004	0.003- 0.004 -0.005	☆ 300- 390 -490	-	-	-	-
Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004	0.003- 0.004 -0.005	☆ 70- 100 -160	-	-	-	★ 70- 100 -160
Titanium Alloys	0.002- 0.003 -0.004	0.003- 0.004 -0.005	★ 130- 200 -260	-	-	-	-

※ Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
 ※ Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★ : 1st Recommendation
 ☆ : 2nd Recommendation

• JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		DLC Coated Carbide	Carbide
		PDL025	GW25
Aluminum Alloy (Si 13% or Less)	0.002-0.012	660-3280	660-2620
Aluminum Alloy (Si 13% and Over)	0.002-0.008	660-980	660-980

• PCD

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		PCD	
		KPD230 (KPD001)	
Aluminum Alloy (Si 13% or Less)	0.002-0.008	1640-4,920	
Aluminum Alloy (Si 13% and Over)	0.002-0.006	980-3,280	



Warning

Please observe below precautions fully.
 Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

- When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
- For actual practical revolution, please set within recommended cutting condition.
- When using at a higher revolution (over 10,000min⁻¹), refer to the table to adjust the balance of MEC and suitable arbor.

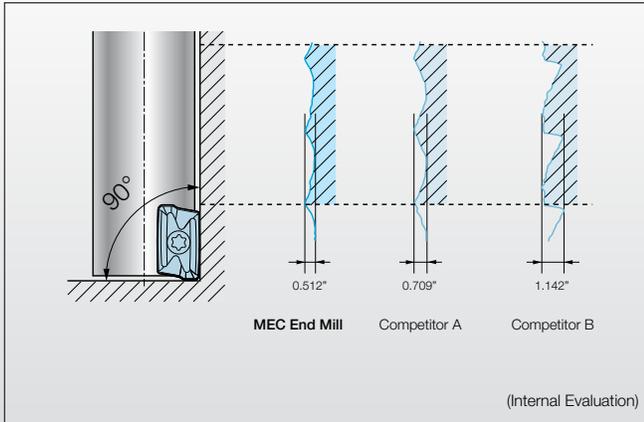
Max RPM*	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
-20,000	G16
-30,000	G6.3
30,000~	G2.5

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● Features of MEC

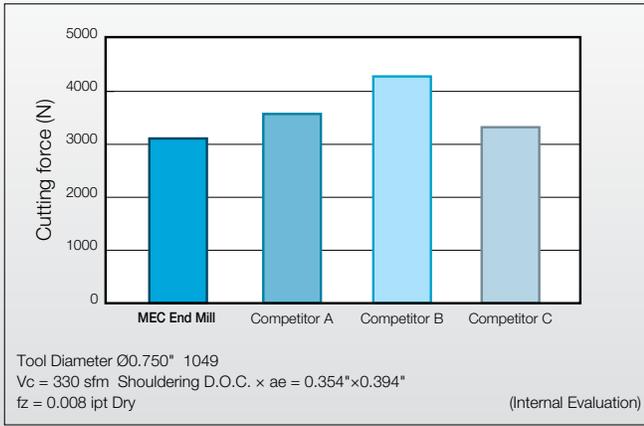
● Perfect 90° Shoulders

<Cutting Surface Comparison>



● Low cutting force

<Cutting Force Comparison>

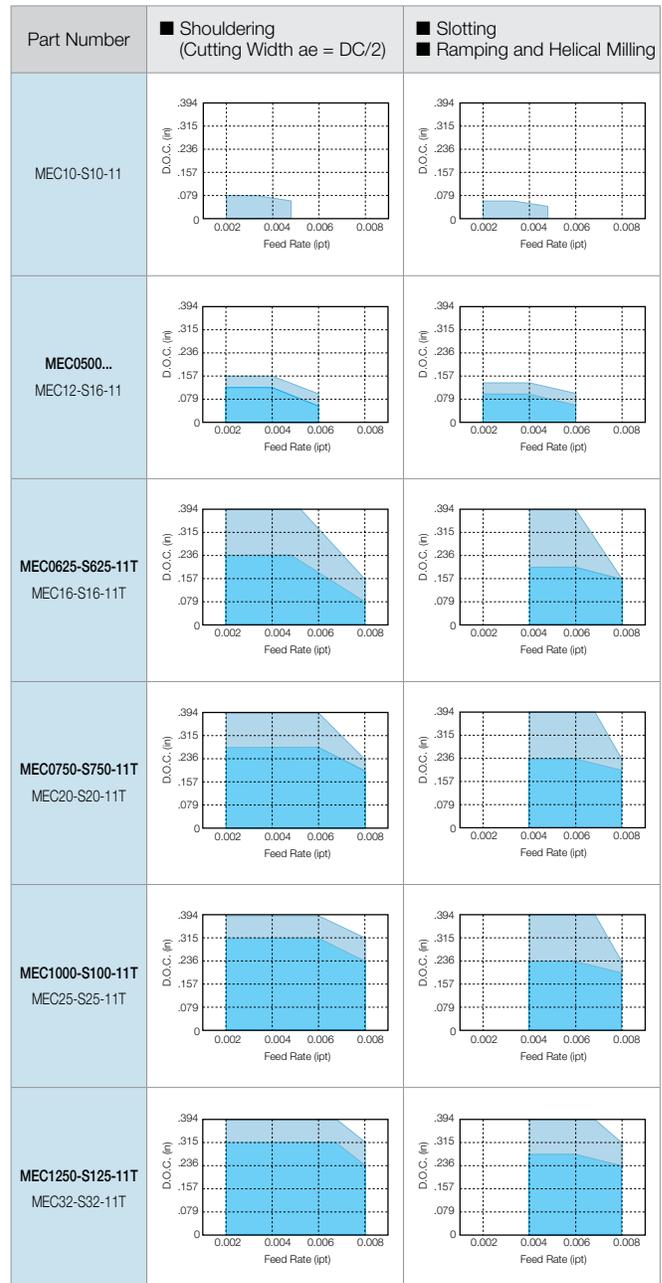


■ Cutting Performance of MEC End Mill

(1) Overhang Length When Using BDMT 11mm-type Insert (Standard / Straight Shank)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
		Standard	Long	
Ø10mm	MEC10-S10-11	0.670	-	
Ø0.500" Ø12mm	MEC0500... MEC12-S16-11	0.787	1.180	
Ø0.625" Ø16mm	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790	
Ø0.750" Ø20mm	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790	
Ø1.000" Ø25mm	MEC1000-S100-11T MEC25-S25-11T	1.260	1.890	
Ø1.250" Ø32mm	MEC1250-S125-11T MEC32-S32-11T	1.580	2.360	

(JT Chipbreaker $V_c = 400 \text{ sfm}$ Workpiece : 1049)

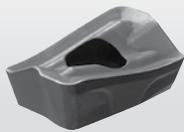


- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

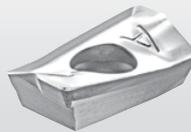
M MILLING

■ Chipbreaker

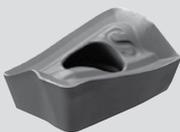
● JT Chipbreaker (General Purpose)



● JA Chipbreaker (for Aluminum)

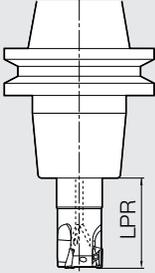


● JS chipbreaker (Low Cutting Force)

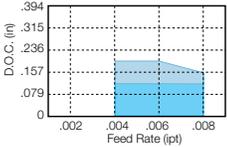
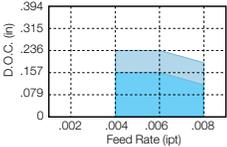
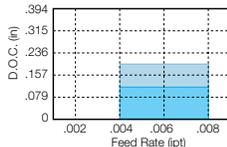
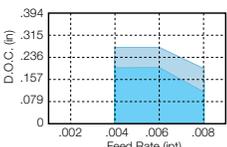
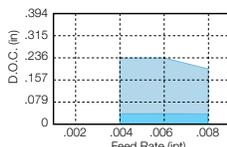
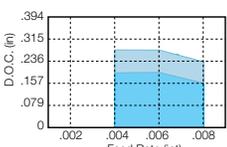
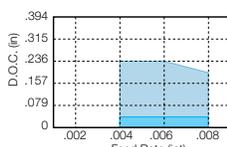


Cutting Force 20% Lower

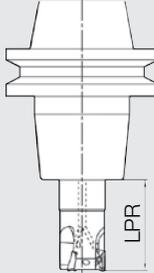
(2) Overhang Length When Using BDMT 11mm-type Insert
(Long Shank)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
Ø0.750" Ø20mm Long Shank	MEC0750-S750-5.2-11T MEC20-S20-140-11T	2.362	3.543	
Ø1.000" Ø25mm Long Shank	MEC1000-S100-6.3-11T MEC25-S25-160-11T	2.362	3.957	
Ø1.250" Ø32mm Long Shank	MEC1250-S125-7.9-11T MEC32-S32-200-11T	3.957	5.118	
Ø1.500" Ø40mm Long Shank	MEC1500-S125-9.5-11T MEC40-S32-240-11T	3.957	5.119	

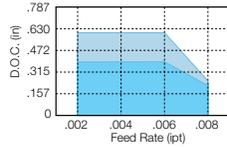
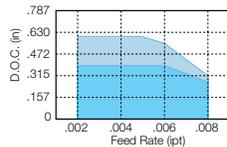
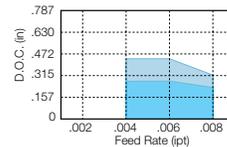
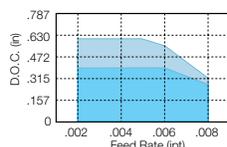
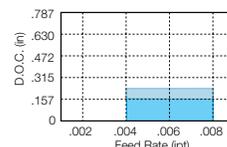
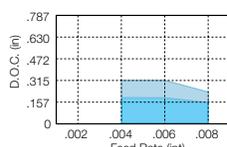
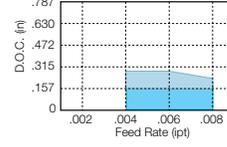
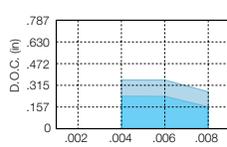
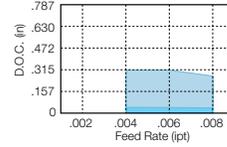
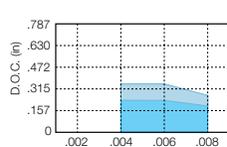
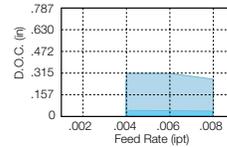
(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting Ramping and Helical Milling
	MEC0750-S750-5.2-11T MEC20-S20-140-11T Long Shank	
MEC1000-S100-6.3-11T MEC25-S25-160-11T Long Shank		
MEC1250-S125-7.9-11T MEC32-S32-200-11T Long Shank		
MEC1500-S125-9.5-11T MEC40-S32-240-11T Long Shank		

(3) Overhang Length When Using BDMT 17mm-type Insert

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)		Shape
Ø1.000" Ø25mm	MEC1000-S100-17 MEC25-S25-17	1.417	2.126	
Ø1.250" Ø32mm	MEC1250-S125-17 MEC32-S32-17	1.575	2.362	
Ø1.500" Ø40mm	MEC1500-S125-17 MEC40-S32-17	1.969	2.953	
Ø1.000" Ø25mm Long Shank	MEC1000-S100-6.3-17 MEC25-S25-160-17	2.362	3.937	
Ø1.250" Ø32mm Long Shank	MEC1250-S125-7.9-17 MEC32-S32-200-17	3.937	5.118	
Ø1.500" Ø40mm Long Shank	MEC1500-S125-9.5-17 MEC40-S32-240-17	3.937	5.118	

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting Ramping and Helical Milling
	MEC1000-S100-17 MEC25S25-17	
MEC1250-S125-17 MEC32-S32-17		
MEC1500-S125-17 MEC40-S32-17		
MEC1000-S100-6.3-17 MEC25-S25-160-17		
MEC1250-S125-7.9-17 MEC32-S32-200-17		
MEC1500-S125-9.5-17 MEC40-S32-240-17		

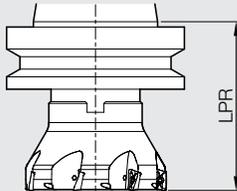
Cutting Performance of MEC Face Mill

(1) Overhang Length When Using BDMT 11mm-type Insert

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.500" Ø40mm	MEC1500R-11T-5T MEC040R-11-5T-M	4.528
Ø2.000" Ø50mm	MEC2000R-11T-5T MEC050R-11-OT-M	3.937
Ø2.500" Ø63mm	MEC2500R-11T-6T MEC063R-11-OT	3.740
	MEC063R-11-OT-M	
Ø3.000" Ø80mm	MEC3000R-11T-7T MEC080R-11-OT	3.740
Ø4.000" Ø100mm	MEC4000R-11T-9TN MEC100R-11-9TN	4.252
Ø125mm	MEC125R-11-11T	
Ø160mm	MEC160R-11-14T	

Shape



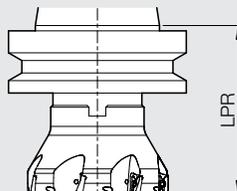
Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting
MEC1500R-11T-5T MEC040R-11-5T-M		
MEC2000R-OT-OT MEC4000R-OT-OT MEC050R-11-OT-M MEC100R-11T-9TN MEC100R-11-9T-MN		
MEC125R-11-11T(-M) MEC160R-11-14T(-M)		

(2) Overhang Length When Using BDMT 17mm-type Insert

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø40mm	MEC040R-17-4T-M	4.528
Ø2.000" Ø50mm	MEC2000R-17-OT MEC050R-17-OT-M	3.937
Ø2.500" Ø63mm	MEC2500R-17-4T MEC063R-17-OT	3.740
	MEC063R-17-OT-M	
Ø3.000" Ø80mm	MEC3000R-17-6T MEC080R-17-OT	4.252
Ø4.000" Ø100mm	MEC4000R-17-7T MEC100R-17-OTN	
Ø125mm	MEC125R-17-9T(-M)	
Ø160mm	MEC160R-17-12T(-M)	

Shape

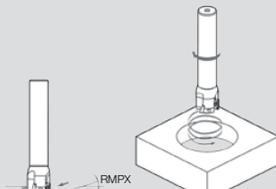


Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting
MEC040R-17-4T-M		
MEC2000R-17-OT MEC050R-17-OT-M		
MEC2500R-17-OT MEC4000R-17-OTN MEC063R-17-OT(-M) MEC100R-17-OTN MEC100R-17-7T-MN		
MEC125R-17-9T(-M) MEC160R-17-12T(-M)		

Ramping / Helical Milling / Plunging

Ramping / Helical Milling

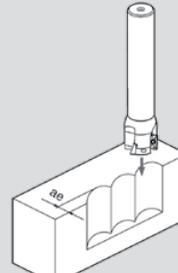
- Ramping angle should be under RMPX.
- For plunge depth per revolution when helical milling, see the cutting performance data of each tool. Use compressed air during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
Ø0.625", Ø16-Ø18mm	BDMT 11T3 BDGT 11T3	3°
Ø0.750", Ø19-Ø21mm		5°
Ø1.000", Ø22-Ø25mm		2.5°
Ø1.250", Ø28-Ø32mm		1.5°
Ø1.500", Ø40mm	BDMT 1704	0.7°
Ø50mm~		Not Recommended
Ø1.000", Ø25mm		8°
Ø1.250", Ø32mm		5°
Ø1.500", Ø40mm	BDMT 1704	2.5°
Ø50mm~		Not Recommended

BDMT/BDGT1103.. insert not recommended for ramping or helical milling.

Plunging



Cutting Dia.	Applicable Inserts	Max. Width of Cut (ae)
Ø0.625" Ø16-Ø19mm	BDMT 11T3 BDGT 11T3	0.060" 1.5mm
Ø0.750"~Ø4.000" Ø20-Ø160mm	BDMT 11T3 BDGT 11T3	0.197" 5mm
Ø1.000"~Ø4.000" Ø25-Ø160mm	BDMT 1704 BDGT 1704	0.315" 8mm

BDMT1103.. insert not recommended for plunging.

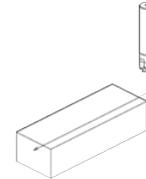
Minimum Cutting Dia. for Helical Milling

MEC	Cutting Dia.	Ø0.625"	Ø0.750"	Ø1.000"	Ø1.250"	Ø1.500"	Ø16mm	Ø18mm	Ø20mm	Ø22mm	Ø25mm	Ø28mm	Ø30mm	Ø32mm	Ø40mm	Ø50mm
BD_T11T3 Type	Min. Cutting Dia.	Ø0.827"	Ø1.102"	Ø1.575"	Ø2.087"	Ø2.598"	Ø21mm	Ø25mm	Ø29mm	Ø33mm	Ø39mm	Ø45mm	Ø49mm	Ø53mm	Ø69mm	Not recommended for helical milling.
	Min. Cutting Dia. for Flat Bottom	Ø1.102"	Ø1.339"	Ø1.850"	Ø2.362"	Ø2.835"	Ø28mm	Ø32mm	Ø36mm	Ø40mm	Ø46mm	Ø52mm	Ø56mm	Ø60mm	Ø76mm	
BD_T1704 Type	Min. Cutting Dia.	Ø1.339"	Ø1.850"	Ø2.362"	Ø34mm	Ø48mm	Ø64mm	Not recommended for helical milling.								
	Min. Cutting Dia. for Flat Bottom	Ø1.850"	Ø2.323"	Ø2.835"	Ø46mm	Ø60mm	Ø76mm									

Case Studies

Pre-Hardened Tool Steel

- Test Piece (54-56HRC)
- Vc = 160 sfm (n = 800min⁻¹)
- D.O.C. x ae = 0.079" x 0.551"
- fz = 0.005 ipt (Vf = 2.28 ipm)
- Dry
- MEC20-S20-11T (3 Flute)
- BDMT11T308ER-JT (PR830)

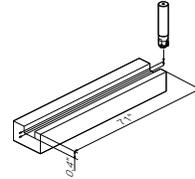


MEC	Chip Removal Amount = 28.1in³
Competitor's End Mill A	Chip Removal Amount = 1.1in ³ (Chipping Occurred)

Competitor's End Mill A [Ø25 (2 inserts) Vc = 130 sfm fz = 0.003 ipt D.O.C. x ae = 0.079"x0.118"] had chipping occur in 10 minutes and it was noisy. MEC withstood increased feed rates, and the cutting edge remained in extremely good condition and is still available for further machining. (User Evaluation)

Structural Steel

- Plate
- Vc = 290 sfm (n = 1,400min⁻¹)
- D.O.C. x ae = 0.197" x 2 Passes
- fz = 0.005 ipt (Vf = 19.7 ipm)
- Dry
- MEC20-S20-11T (3 Flute)
- BDMT11T308ER-JT (PR830)

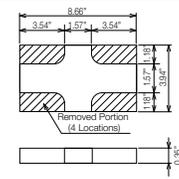


MEC	23 pcs/edge
Competitor's End Mill B	10-11 pcs/edge

MEC doubled Competitor B's tool life under the same conditions. (User Evaluation)

304

- Plate
- Vc = 410 sfm (n = 1,600min⁻¹)
- D.O.C. x ae = 0.354"
- fz = 0.004 ipt (Vf = 12.6 ipm)
- Dry
- MEC25-S25-17 (2 Flute)
- BDMT170408ER-JT (PR830)

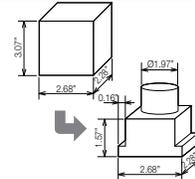


MEC	4 pcs/edge or More
Competitor's End Mill C	1 pcs/edge or Less

Competitor's End Mill C (indexable roughing end mill) had high cutting force and insert breakage occurred, but MEC had no breakage and was still usable for further machining, after machining 4 pieces (16 points). (User Evaluation)

Die Steel

- Mold
- Vc = 430 sfm (n = 1,040min⁻¹)
- D.O.C. x ae = ~0.118" x ~0.197"
- fz = 0.007 ipt (Vf = 36.8 ipm)
- Dry (Air Blow)
- MEC40-S32-11T (5 Flute)
- BDMT11T308ER-JT (PR830)

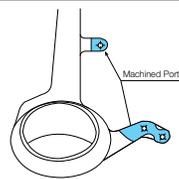


MEC	2 Hours (Small Wear : Extendible)
Competitor's End Mill D	2 Hours (Halted due to Insert Breakage)

MEC had better cutting performance / insert life compared to Competitor's End Mill D, and the insert maintained small wear and was usable for further machining after the same duration as Competitor's End Mill D. Competitor's End Mill D (6 flute) was used with Vf = 3070 sfm (fz = 0.006 ipt). (User Evaluation)

4118

- Knuckle Steering
- Vc = 490 sfm (n = 1,200min⁻¹)
- D.O.C. x ae = 0.020"~0.197" (Shouldering)
- fz = 0.004 ipt (Vf = 18.8 ipm)
- Dry
- MEC40-S32-17 (4 Flute)
- BDMT170408ER-JT (PR830)

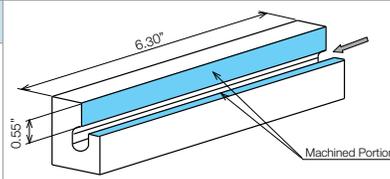


MEC	150 pcs/edge
Competitor's End Mill E	40 pcs/edge

MEC had a better surface finish compared to Competitor's End Mill E and also tripled the tool life. (User Evaluation)

Ni-Base HRSA

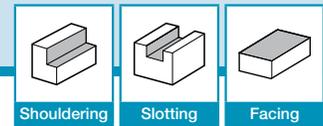
- Turbine Parts
- Vc = 50 sfm (n = 120min⁻¹)
- D.O.C. = 0.020"
- fz = 0.003 ipt (Vf = 1.5 ipm)
- Wet
- MEC040R-17-4T-M (4 Flute)
- BDMT170408ER-JS (PR1025)



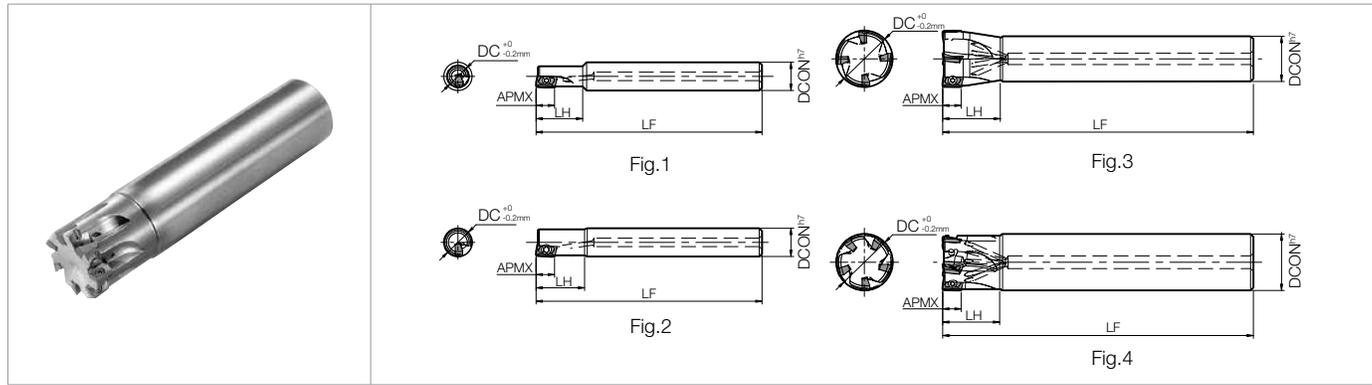
MEC	9 pcs/edge
Competitor's End Mill F	1 pcs/edge or Less

Competitor's End Mill F (Coated Carbide Insert) could not finish machining of 1 workpiece, but MEC could cut 9 pcs/edge and the finished surface was good. (User Evaluation)

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**



MECX End Mill



Toolholder Dimensions

Shank	Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Max RPM*																	
					DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench																		
																	Insert Screw	Wrench															
Standard Shank	MECX 0375-S375-07-1T	●	inch	1	0.375	0.375	3.00	0.669	0.236	12.8°	-19.7°	Yes	Fig.1	SB-2035TRG	DTM-6	47,150																	
	0500-S500-07-2T	●		2	0.500	0.500	3.27	0.709		14.3°	-12.9°		Fig.2			45,800																	
	0625-S625-07-3T	●		3	0.625	0.625	3.50	0.787		16.3°	-11.3°		Fig.3			43,300																	
	0750-S625-07-4T	●		4	0.750	0.750	4.00	0.984	Fig.2				SB-2042TRG	40,900																			
	0750-S750-07-4T	●		4	0.750	0.750	4.00	0.787						40,900																			
	0750-S750-07-5T	●		5	0.750	0.750	4.00	0.787	0.236	16.3°	-9.5°		Yes	Fig.2	SB-2042TRG	DTM-6	40,900																
	1000-S100-07-5T	●		5	1.000	1.000	4.50	0.984									36,900																
	1000-S100-07-7T	●		7	1.000	0.750	4.50	0.984									36,900																
	1000-S750-07-5T	●		5	1.000	0.750	4.50	0.984	0.236	16.3°	-9.5°		Yes	Fig.3	SB-2042TRG	DTM-6	36,900																
	1000-S750-07-7T	●		7	1.250	1.250	5.00	1.181									Fig.2	SB-2035TRG	36,900														
	1250-S125-07-6T	●		6	1.250	1.250	5.00	1.181											33,700														
	1250-S125-07-8T	●		8	1.250	1.250	5.00	1.181	0.236	16.3°	-8.9°		Yes	Fig.4	SB-2035TRG	DTM-6	33,700																
Long Shank	MECXL 0625-S625-07-3T	●	inch	3	0.625	0.625	5.10	2.175				0.236					16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	43,300										
	0750-S750-07-4T	●		4	0.750	0.750	5.50	2.362															-10.9°	40,900									
	1000-S100-07-5T	●		5	1.000	1.000	6.30	2.559	-9.5°	36,900																							
	1250-S125-07-6T	●		6	1.250	1.250	7.90	2.559	-8.9°	33,700																							
	Standard Shank	MECX 08-S10-07-1T		●	mm	1	8	10	80	16	6		16.3°	-11.3°	Yes	Fig.1							SB-2035TRG	DTM-6	48,100								
10-S10-07-1T			10				17			12.8°		-18.7°					Fig.2	47,100															
12-S12-07-2T			2			12	12	18	6	16.3°		-13.7°					Fig.4	SB-2035TRG	DTM-6	46,200													
14-S12-07-2T						14														18	-12.1°	Fig.3			44,800								
16-S16-07-3T			3			16	16	100	6	16.3°		-11.3°					Yes	Fig.4	SB-2042TRG	DTM-6	43,200												
17-S16-07-3T						17															20	110			6	16.3°	-11.0°	Yes	Fig.3	SB-2042TRG	DTM-6	42,400	
18-S16-07-3T						18																										20	110
20-S16-07-4T			20			4	20	110	6	16.3°		-10.4°					Yes	Fig.4	SB-2042TRG	DTM-6	40,200												
20-S20-07-4T			21																		20	120			25	6	16.3°	-10.1°	Yes	Fig.3	SB-2042TRG	DTM-6	39,500
21-S20-07-4T			21																														20
25-S20-07-5T			5			25	25	120	25	6		16.3°					-9.5°	Yes	Fig.4	SB-2042TRG	DTM-6	37,000											
25-S25-07-5T						26																32			130	30	6	16.3°	-8.9°	Yes	Fig.3	SB-2042TRG	DTM-6	36,500
26-S25-07-5T		26	32	130	30	6	16.3°	-8.8°	Yes	Fig.4	SB-2042TRG	DTM-6	33,600																				
32-S32-07-6T		6											32	32	130	30	6	16.3°	-8.8°	Yes	Fig.3	SB-2042TRG	DTM-6	33,100									
33-S32-07-6T			33	32	130	30	6	16.3°	-8.9°	Yes	Fig.4	SB-2042TRG	DTM-6											33,600									
Fine Pitch		MECX 16-S16-07-4T	●											mm	4	16	16	110	20	6	16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	43,200						
				20-S16-07-5T	20	110	25	6	16.3°	-10.4°	Yes	Fig.3	SB-2042TRG			DTM-6											40,200						
				20-S20-07-5T	5										20		120	25	6								16.3°	-9.7°	Yes	Fig.4	SB-2042TRG	DTM-6	37,000
				25-S20-07-7T		25	25	120	25	6	16.3°	-9.5°	Yes		Fig.3	SB-2042TRG																	DTM-6	37,000
				25-S25-07-7T	7	25											25	120	25								6	16.3°	-8.9°	Yes	Fig.4	SB-2042TRG		DTM-6	33,600
				32-S32-07-8T		32	32	130	30	6	16.3°	-8.9°	Yes		Fig.4	SB-2042TRG																	DTM-6		33,600
				Long Shank	MECX 17-S16-130-07-3T	●											mm	3	17								16	130	20	6	16.3°	-11.0°		Yes	Fig.3	SB-2042TRG	DTM-6	42,400
							21-S20-140-07-4T	4	21	20	140	20	6		16.3°	-10.1°		Yes	Fig.3								SB-2042TRG	DTM-6					39,500
26-S25-160-07-5T		5	26				25	160	25	6	16.3°	-9.5°	Yes	Fig.3	SB-2042TRG	DTM-6		36,500															

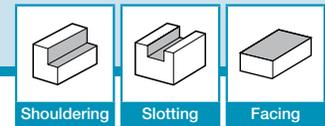
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Max. Revolution*

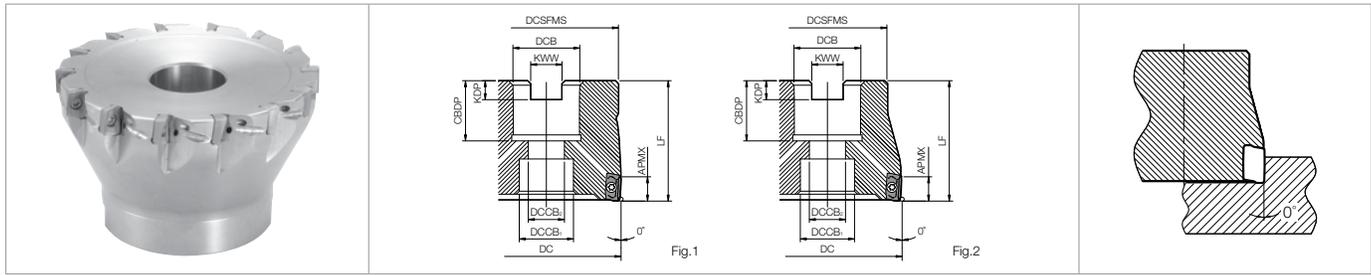
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Applicable Inserts ● M81

Recommended Cutting Conditions ● M82



MECX Face Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions										Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Spare Parts			Max RPM*
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	A.R. (Max)	R.R.				Insert Screw	Wrench	Arbor Bolt	
MECX 1250R-07-8T	●	inch	8	1.250	1.181													0.15	SB-2042TRG	DTM-6	HH3/8-1.25H	33,600
1500R-07-10T	●		10	1.500	1.496		0.630	0.417	1.575	0.807								0.25				30,500
2000R-07-12T	●		12	2.000			0.75				0.187	0.313	0.236	+7°	-8.3°	Yes	Fig.2	0.125				27,700
2500R-07-14T	●		14	2.500											-7.9°			0.50				24,900
						1.575			0.417	1.575	0.819											
MECX 032R-07-8T-M	●	mm	8	32	30	16	14	8.5		20	5.5	8.5						0.15	SB-2042TRG	DTM-6	HH8x25H	33,600
040R-07-10T-M	●		10	40	38	22	18	12		40	22	6.3	10.4					0.25				HH10x30H	30,500

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions **M82**

Max. Revolution*

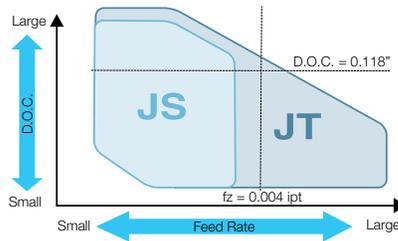
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

- To obtain a smooth shoulder wall finish using step milling, set D.O.C. within 0.197" for each cut.

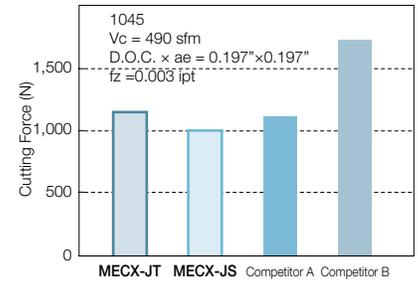
Applicable Inserts

Part Number	Applicable Inserts M22	
MECX...-07...		
	BDMT 070300ER-JT	BDMT 070300ER-JS

Selecting Chipbreaker



Cutting Force Comparison



Warning

Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

- When running the end mill and the face mill at revolutions exceeding the maximum revolution limit, the inserts or toolholder may be damaged due to the centrifugal force.
- For actual practical revolution, please set within recommended cutting condition.
- When using at a higher revolution (over 10,000min⁻¹), refer to the table to adjust the balance of MECX and suitable arbor.

Max RPM*	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16
~30,000	G6.3
30,000~	G2.5

◆ Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO	MEGACOAT		PVD Coated Carbide	CVD Coated Carbide
			PR1535	PR1225	PR1210	PR830	CA6535
Carbon Steel	0.0016- 0.0031 -0.0039	0.0024- 0.0039 -0.0047	☆ 390- 590 -820	★ 390- 590 -820	-	☆ 390- 490 -590	-
Alloy Steel	0.0016- 0.0024 -0.0031	0.0024- 0.0031 -0.0039	☆ 330- 520 -720	★ 330- 520 -720	-	☆ 330- 460 -590	-
Mold Steel	0.0016- 0.0024 -0.0031	0.0024- 0.0031 -0.0039	☆ 260- 460 -590	★ 260- 460 -590	-	☆ 260- 390 -490	-
Austenitic Stainless Steel	0.0012- 0.0016 -0.0020	0.0020- 0.0024 -0.0028	★ 330- 520 -660	☆ 330- 520 -660	-	-	-
Martensitic Stainless Steel	0.0012- 0.0016 -0.0020	0.0020- 0.0024 -0.0039	☆ 490- 660 -820	-	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	0.0012- 0.0016 -0.0020	0.0020- 0.0024 -0.0039	★ 300- 390 -490	-	-	-	-
Gray Cast Iron	0.0016- 0.0031 -0.0039	0.0031- 0.0039 -0.0059	-	-	★ 390- 590 -820	-	-
Nodular Cast Iron	0.0016- 0.0024 -0.0031	0.0031- 0.0039 -0.0047	-	-	★ 330- 490 -660	-	-
Ni-base Heat Resistant Alloy	0.0012- 0.0016 -0.0020	0.0020- 0.0024 -0.0028	☆ 70- 100 -160	-	-	-	★ 70- 100 -160
Titanium Alloys	0.0016- 0.0024 -0.0031	0.0031- 0.0039 -0.0047	★ 130- 200 -260	-	☆ 100- 160 -230	-	-

※ Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
 ※ Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys
 ★ : 1st Recommendation
 ☆ : 2nd Recommendation

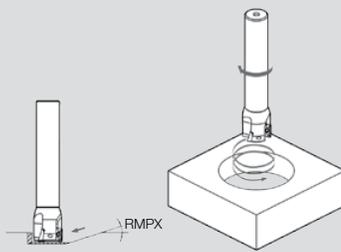
- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

■ Ramping / Helical Milling

Ramping / Helical Milling

- Ramping angle should be under RMPX.
- For plunge depth per revolution when helical milling, see the cutting performance data of each tool. Use compressed air during machining.



Cutting Dia.	Applicable Inserts	Max. Ramping Angle (RMPX)
Ø0.375", Ø8mm	BDMT 0703	Not Recommended
Ø10mm		1.5°
Ø0.500" Ø12mm, Ø14mm		2°
Ø0.625", Ø16mm		3°
Ø17mm, Ø18mm		1.5°
Ø0.750", Ø20mm		2°
Ø21mm		1.8°
Ø1.000", Ø25mm		1.3°
Ø26mm		1.2°
Ø1.250", Ø32mm		0.8°
Ø33mm		0.5°

■ Minimum Cutting Dia. for Helical Milling

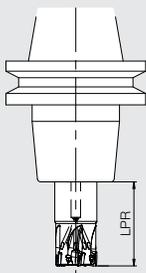
MECX	Cutting Dia.	Ø0.375*	Ø0.500*	Ø0.625*	Ø0.750*	Ø8mm	Ø10mm	Ø12mm	Ø14mm	Ø16mm	Ø17mm	Ø18mm	Ø20mm
BDMT0703 Type	Min. Cutting Dia.	Ø0.512*	Ø0.748*	Ø0.984*	Ø1.260*	Not recommended for helical milling.	Ø14mm	Ø18mm	Ø22mm	Ø26mm	Ø28mm	Ø30mm	Ø34mm
	Min. Cutting Dia. for Flat Bottom	Ø0.630*	Ø0.866*	Ø1.142*	Ø1.378*		Ø17mm	Ø21mm	Ø25mm	Ø29mm	Ø31mm	Ø33mm	Ø37mm
MECX	Cutting Dia.	Ø1.000*	Ø1.250*	Ø21mm	Ø25mm	Ø26mm	Ø32mm	Ø33mm					
BDMT0703 Type	Min. Cutting Dia.	Ø1.732*	Ø2.244*	Ø36mm	Ø44mm	Ø46mm	Ø58mm	Ø60mm					
	Min. Cutting Dia. for Flat Bottom	Ø1.890*	Ø2.362*	Ø39mm	Ø47mm	Ø49mm	Ø61mm	Ø63mm					

MECX End Mill Cutting Performance

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)	
Ø8mm	MECX08-S10-07-1T	0.630	-
Ø0.375" Ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
Ø0.500" Ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.180
Ø0.625" Ø16mm	MECX0625-S625-07-3T MECX16-S16-07-3T	0.787	1.570
Ø0.750" Ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.570
Ø1.000" Ø25mm	MECX1000-S100-07-5T MECX25-S25-07-5T	1.000	1.970
Ø1.250" Ø32mm	MECX1250-S125-07-6T MECX32-S32-07-6T	1.180	1.970

Shape



- Machining with extended overhang length is not recommended for Ø0.315" and Ø0.394".
- The cutting performance list shows applicable range of JT Chipbreaker (PR830) with Standard flute-number type.
For Multi-Edge type, use with 70% or less of D.O.C..
- Cutting conditions of JS Chipbreaker
 - For MECX0375~MECX0500 / MECX08~MECX12
Decrease the feed rate by 25% according to cutting capability list.
 - For MECX 0625 / MECX16 and over
Decrease the feed rate and D.O.C. by 30% according to cutting capability list.

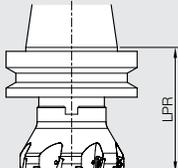
Part Number	Shouldering (Cutting Width ae = DC/2)	Slotting Ramping and Helical Milling
	MECX08-S10-07-1T	
MECX0375-S375-07-1T MECX10-S10-07-1T		
MECX0500-S500-07-2T MECX12-S12-07-2T		
MECX0625-S625-07-3T MECX16-S16-07-3T		
MECX0750-S750-07-4T MECX20-S20-07-4T		
MECX1000-S100-07-5T MECX25-S25-07-5T		
MECX1250-S125-07-6T MECX32-S32-07-6T		

MECX Face Mill Cutting Performance

(JT Chipbreaker Vc = 400 sfm Workpiece :1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.500" Ø40mm	MECX1500R-07-10T MECX040R-07-10T-M	
Ø2.000" Ø50mm	MECX2000R-07-12T MECX050R-07-12T-M	
Ø2.500" Ø63mm	MECX2500R-07-14T MECX063R-07-14T-M	

Shape



Part Number	Shouldering (Cutting Width ae = DC/2)
MECX1250R-07-8T MECX032R-07-8T-M	
MECX1500R-07-10T MECX040R-07-10T-M	
MECX2000R-07-12T MECX050R-07-12T-M	
MECX2500R-07-14T MECX063R-07-14T-M	

- Not recommended for slotting

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

M-THREE (MEV)

High Performance Milling Series

Newly Developed Triangular Inserts Provide Low Cutting Forces and Increased Rigidity
High Performance, Economical, and Multi-functional Milling Solutions

1 High Performance: Low Cutting Force and High Rigidity

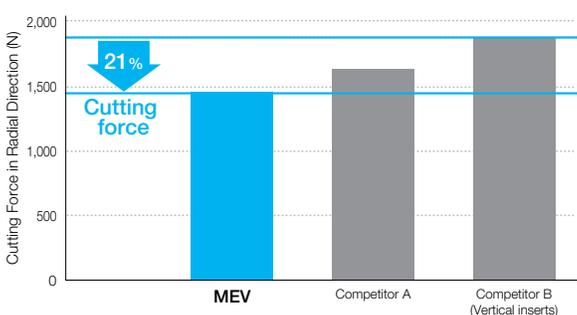
Newly developed vertical triangle inserts with 3 cutting edges for stable machining and reduced chattering
MEV vs Competitor

- Inserts
 - 45°~70° Lead Angle
 - 75° Lead Angle
 - 90°/88° Lead Angle
 - High Feed Milling
 - Finish Milling
 - Multi-Function
 - Slot Mill
 - Ball-Nose Radius
 - Other Applications
- M** MILLING

	MEV (New vertical triangle inserts)	Conventional End Mill (Positive inserts)	Conventional End Mill (Vertical inserts)
Cutting Force	A.R. : Large A.R. Max.17° Low Cutting Force	A.R. : Large Low Cutting Force	A.R. : Small Low Cutting Force
Toolholder's Rigidity	Optimal Web Thickness : Large about 120% Optimal Web Thickness High Rigidity	Optimal Web Thickness : Small High Rigidity	Optimal Web Thickness : Large High Rigidity
	Cutting Force : Low Toolholder's Rigidity : High	Cutting Force : Low Toolholder's Rigidity : Low	Cutting Force : High Toolholder's Rigidity : High

Keeping the max rake angle at 17°, provides lower cutting forces than the positive insert types of competitors

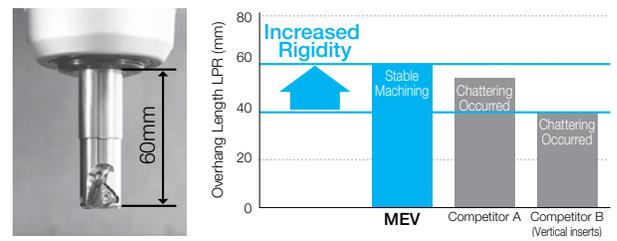
Cutting Force Comparison (Internal Evaluation)



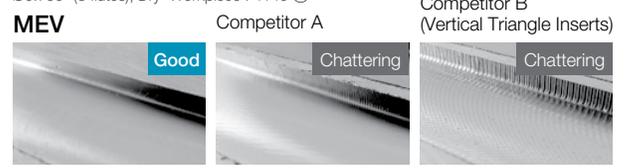
Cutting Conditions: $V_c = 655$ sfm, D.O.C. \times ae = $0.118^\circ \times 0.709^\circ$, fz = 0.004 ipt, $\varnothing 0.750^\circ$ (3 flutes), Dry Workpiece : 4140

Low cutting force and large optimal web thickness provides excellent chattering resistance

Chatter Resistance Comparison (Internal Evaluation)



Cutting Conditions: $V_c = 655$ sfm, D.O.C. \times ae = $0.118^\circ \times 0.71^\circ$, fz = 0.004 ipt, $\varnothing 0.750^\circ$ (3 flutes), Dry Workpiece : 4140 (H)



Cutting Conditions: $V_c = 655$ SFM, D.O.C. = 0.118° (Slotting), fz = 0.004 ipt, $\varnothing 0.750^\circ$ (3 flutes), Dry Workpiece : 4140 (H)

Shouldering

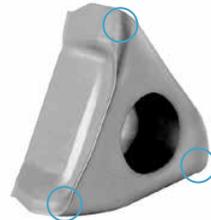
Slotting

2 The Economical Choice: Improved Insert Life with 3 Cutting Edges

Insert

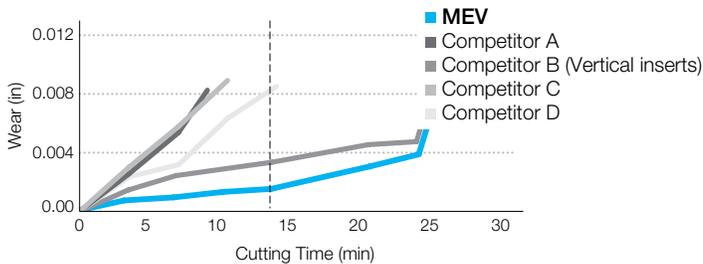
Unique triangle inserts with 3 cutting edges

PR15-series utilizes excellent MEGACOAT NANO coating technology with wear and adhesion resistance



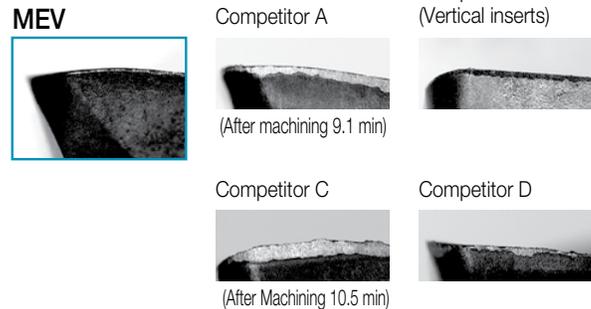
Long Tool Life with Excellent Wear Resistance

Wear Resistance Comparison (Internal Evaluation)

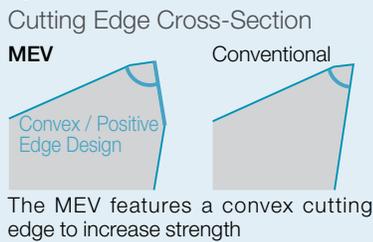


Cutting conditions : Vc = 590 sfm, D.O.C. x ae = 0.118" x 0.394", fz = 0.004 ipt, Ø0.750", Dry
Workpiece : D2 (30-35HS)

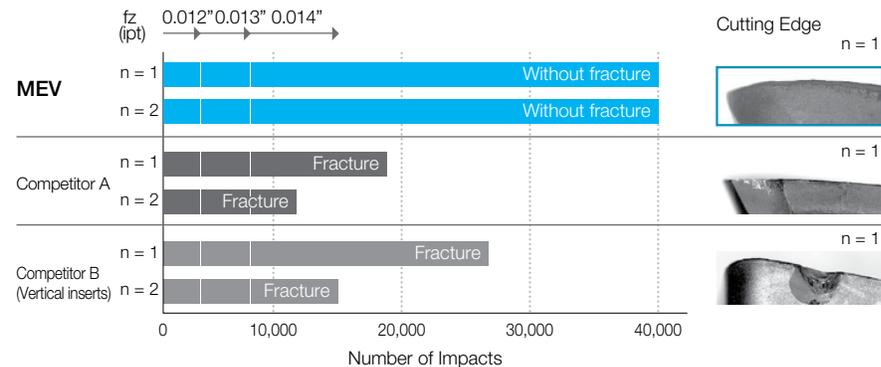
Cutting Edge (After Machining 14 min)



Improved Stability with Superior Fracture Resistance



Fracture Resistance Comparison (Internal Evaluation)



Cutting conditions : Vc = 394 sfm, D.O.C. x ae = 0.079" x 0.393", fz = 0.012" - 0.014" ipt, Ø0.750" (1 Flute), Dry
Workpiece : 4140 Ⓟ

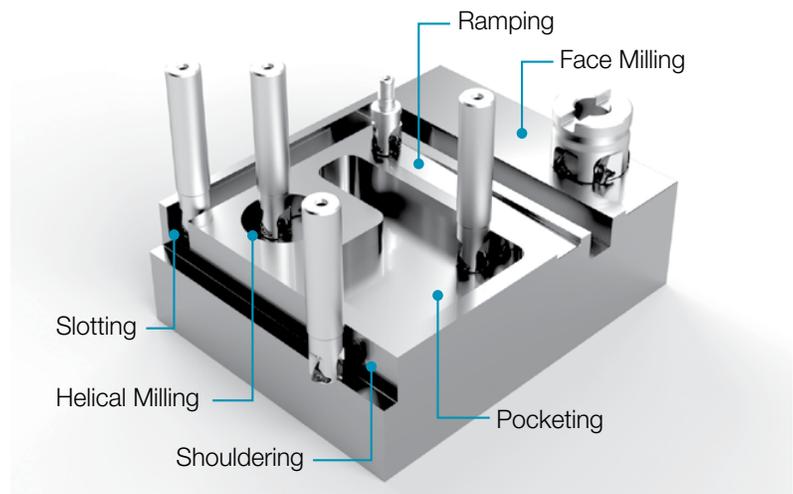
3 Multi-functional: The MEV Can Perform a Wide Variety of Machining Processes

Great performance in shouldering, slotting, and ramping applications (D.O.C. 0.236" or less)

Chip Example (Slotting)

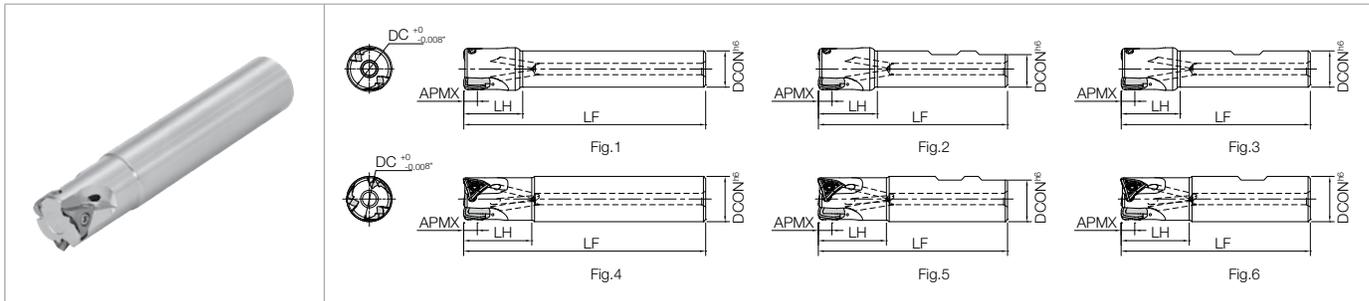


Cutting conditions : Vc = 490 sfm, D.O.C. = 0.236" (Slotting)
fz = 0.008 ipt, Ø0.750" (3 insert), Dry Workpiece : SS400



- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

MEV End Mill



Toolholder Dimensions

Shank	Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM*
					DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.				
Weld-on Standard Shank	MEV 0750-W625-06-2T	●	inch	2	0.750	0.625	3.056	1.150	0.236	+17°	-38°	Yes	Fig.3	0.1	32,000
	0750-W750-06-2T	●		2	0.750	0.750	3.229	1.150					Fig.6	0.2	32,000
	1000-W750-06-3T	●		3	1.000	0.750	3.231	1.200					Fig.3	0.2	25,000
	1000-W100-06-3T	●		3	1.000	1.000	3.737	1.400					Fig.5	0.3	25,000
	1250-W100-06-4T	●		4	1.250	1.000	3.731	1.450					Fig.2	0.4	20,000
	1250-W125-06-4T	●		4	1.250	1.250	3.987	1.650					Fig.5	0.5	20,000
	1500-W125-06-5T	●		5	1.500	1.250	4.331	2.050					Fig.2	0.7	16,000
Cylindrical Long Shank	MEV 0750-S750-6-06-2T	●	inch	2	0.750	0.750	6.000	1.600	0.236	+17°	-38°	Yes	Fig.5	0.3	32,000
	1000-S100-7-06-2T	●		2	1.000	1.000	7.000	2.000					Fig.5	0.6	25,000
	1000-S100-7-06-3T	●		3	1.000	1.000	7.000	2.000					Fig.5	0.6	25,000
	1250-S125-8-06-4T	●		4	1.250	1.250	8.000	2.600					Fig.5	1.1	20,000
Cylindrical Standard Shank	MEV 20-S16-06-2T	●	mm	2	20	16	110	26	6	+17°	-38°	Yes	Fig.1	0.2	32,000
	20-S20-06-2T	●		2	20	20	110	30					Fig.4	0.2	32,000
	20-S20-06-3T	●		3	20	20	110	30					Fig.4	0.2	32,000
	22-S20-06-3T	●		3	22	20	110	26					Fig.1	0.2	29,000
	25-S20-06-3T	●		3	25	20	120	29					Fig.1	0.3	25,000
	25-S25-06-2T	●		2	25	25	120	32					Fig.4	0.4	25,000
	25-S25-06-3T	●		3	25	25	120	32					Fig.4	0.4	25,000
	28-S25-06-3T	●		3	28	25	120	29					Fig.1	0.4	23,000
	30-S25-06-4T	●		4	30	25	130	32					Fig.1	0.5	21,500
	32-S25-06-4T	●		4	32	25	130	32					Fig.1	0.5	20,000
	32-S32-06-3T	●		3	32	32	130	40					Fig.4	0.7	20,000
	32-S32-06-4T	●		4	32	32	130	40					Fig.4	0.7	20,000
	40-S32-06-5T	●		5	40	32	150	50					Fig.1	1.0	16,000
	50-S32-06-5T	●		5	50	32	120	40					Fig.1	0.9	13,000
	Cylindrical Long Shank	MEV 20-S18-06-150-2T		●	mm	2	20	18					150	30	6	+17°	-38°	Yes	Fig.1	0.3	32,000
20-S20-06-150-2T		●	2	20		20	150	40	Fig.4	0.3	32,000				
25-S25-06-170-2T		●	2	25		25	170	50	Fig.4	0.6	25,000				
32-S32-06-200-2T		●	2	32		32	200	65	Fig.4	1.1	20,000				

Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Recommended Cutting Conditions **M90**

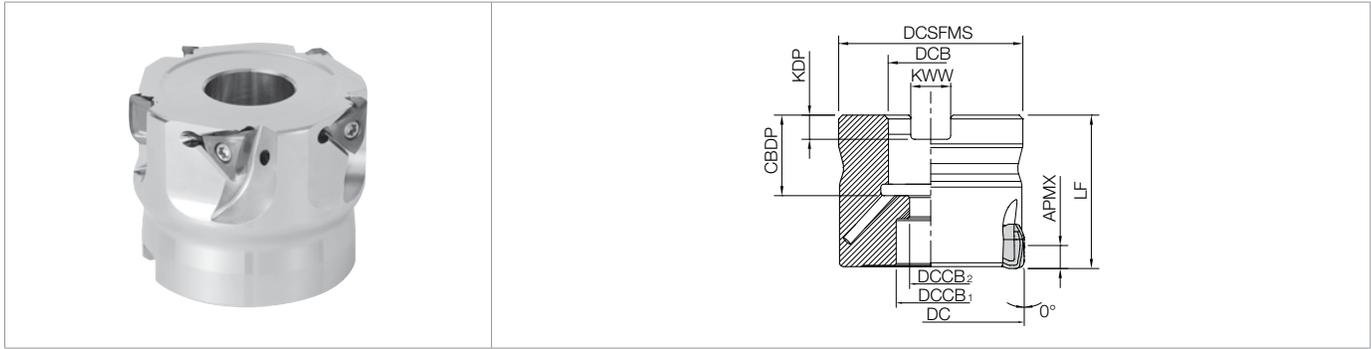
Spare Parts & Applicable Inserts (End Mills & Face Mills)

Part Number	Spare Parts				Applicable Inserts M20	
	Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt		
End Mills	MEV ...-06-...T			-	TOMT06...-GM	TOMT06...-SM
Face Mills	MEV 1500R-06-5T	SB-3076TRP	DTPM-10	P-37		
	2000R-06-6T					
	2500R-06-6T					
	MEV 032R-06-4T-M					
	040R-06-5T-M					
050R-06-5T-M	Recommended Torque for Insert Screw 2.0 Nm					
Modular End Mills	MEV 20-M10-06-2T					
	20-M10-06-3T					
	25-M12-06-3T					
	32-M16-06-4T					

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread prior to installation
 (Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

MEV Face Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions											Rake Angle (°)		Coolant Hole	Weight (kg)	Max RPM*
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDBP	KDP	KWW	APMX	A.R. (Max)	R.R.				
MEV 1500R-06-5T	●	inch	5	1.500	1.457	0.750	0.669	0.433	1.575	0.750	0.187	0.312	0.236	+17°	-35°	Yes	0.2	16,000	
2000R-06-6T	●		6	2.000	1.811	0.750	0.669	0.433	1.575	0.750	0.187	0.312		+16°			0.4	12,500	
2500R-06-6T	●		6	2.500	1.969	0.750	0.669	0.433	1.575	0.750	0.187	0.312		+16°			0.6	10,000	
MEV 032R-06-4T-M	●	mm	4	32	30	16	13.5	9	35	19	5.6	8.4	6	+17°	-36°	Yes	0.1	20,000	
040R-06-5T-M	●		5	40	38	16	15	9	40	19	5.6	8.4		+17°			0.2	16,000	
050R-06-5T-M	●		5	50	48	22	18	11	40	21	6.3	10.4		+16°			0.4	13,000	

Max. Revolution*

When running the face mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Recommended Cutting Conditions **M90**

Applicable Inserts

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

Insert	Material	☆	★	■	□
P	Free-Cutting Steel	☆	★		
	Carbon/Alloy Steel	☆	★		
M	Austenitic Stainless Steel	★	☆		
	Martensitic Stainless Steel	☆			★
	Precipitation Hardened Stainless Steel	★			
K	Gray Cast Iron		☆	★	
	Nodular Cast Iron		☆	★	
N	Non-ferrous Metals				
S	Heat-Resistant Alloys	☆			★
	Titanium Alloy	★		☆	
H	Hard Materials			■	

Insert (Right-hand Shown)	Part Number	Dimensions (in)					MEGACOAT NANO			CVD*
		IC	S	D1	BS	RE	PR1535	PR1525	PR1510		CA6535
<p>General Purpose</p>	TOMT 060504ER-GM	0.283	0.224	0.134	0.075	1/64	●	●	●	●
	060508ER-GM				0.059	1/32	●	●	●	●
<p>Low Cutting Force</p>	TOMT 060508ER-SM	0.283	0.224	0.134	0.059	1/32	●	●		●

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

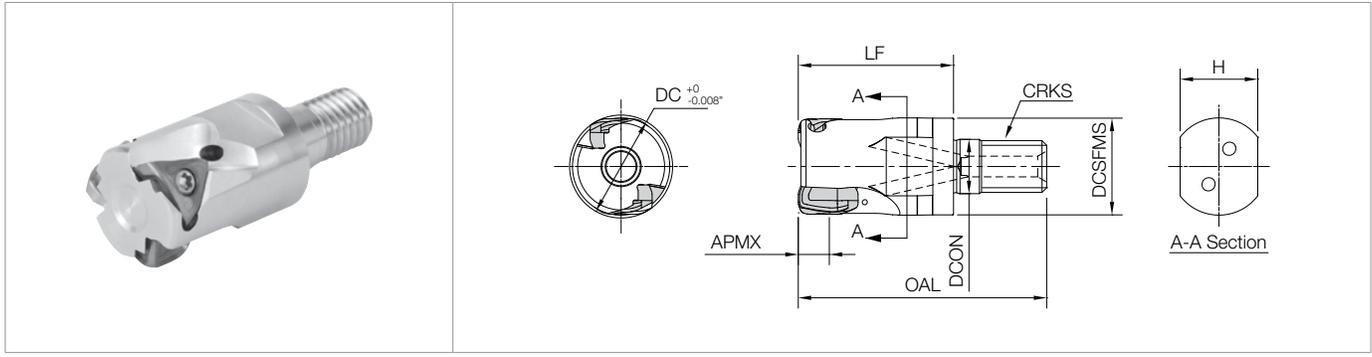
QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

MEV Modular End Mill



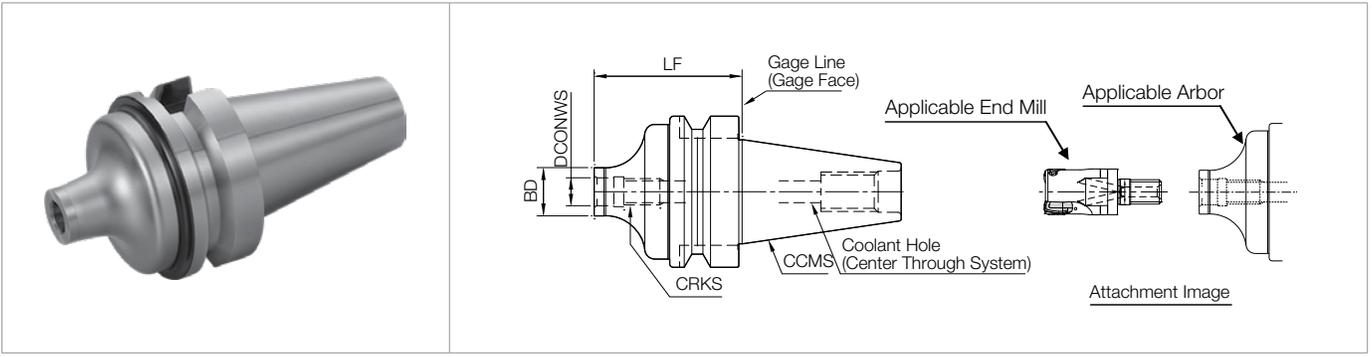
Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)							Rake Angle (°)		Coolant Hole	Max RPM*		
			DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX	A.R. (Max)			R.R.	
MEV 20-M10-06-2T	●	2	20	18.7	10.5	48	30	M10xP1.5	15	6	+17°	-38°	Yes	32,000	
20-M10-06-3T	●	3	20	18.7	10.5	48	30	M10xP1.5	15					-38°	32,000
25-M12-06-3T	●	3	25	23	12.5	56	35	M12xP1.75	19					-37°	25,000
32-M16-06-4T	●	4	32	30	17	62	40	M16xP2.0	24					-36°	20,000

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Max. Revolution*
When running the face mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force. Recommended Cutting Conditions **M90**

BT Arbor for MEV Modular End Mills



Toolholder Dimensions

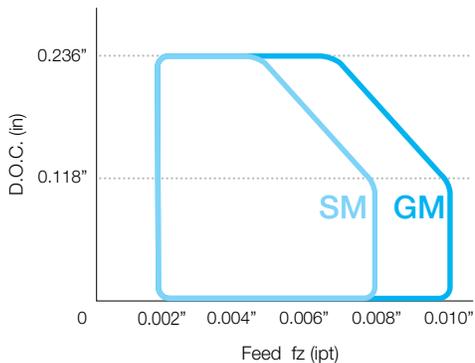
Part Number	Stock	Dimensions (mm)				Coolant Hole	Arbor (Double-face Clamping Spindle)		Applicable End Mills
		LF	BD	DCONWS	CRKS		CCMS		
BT30K- M10-45	●	45	18.7	10.5	M10xP1.5	Yes	BT30	MEV20-M10..	
M12-45	●	45	23	12.5	M12xP1.75			MEV25-M12..	
BT40K- M10-60	●	60	18.7	10.5	M10xP1.5	Yes	BT40	MEV20-M10..	
M12-55	●	55	23	12.5	M12xP1.75			MEV25-M12..	
M16-65	●	65	30	17	M16xP2.0			MEV32-M16..	

Actual End Mill Depth

Arbor Part Number	Applicable End Mill			Actual End Mill Depth (mm)	
	Part Number	Cutting Dia.	Dimensions	LUX	
		DC (mm)	LF (mm)		
BT30K- M10-45	M10-45	MEV20-M10..	20	30	36.8
	M12-45	MEV25-M12..	25	35	42.8
BT40K- M10-60	M10-60	MEV20-M10..	20	30	38.7
	M12-55	MEV25-M12..	25	35	44.6
	M16-65	MEV32-M16..	32	40	51.2

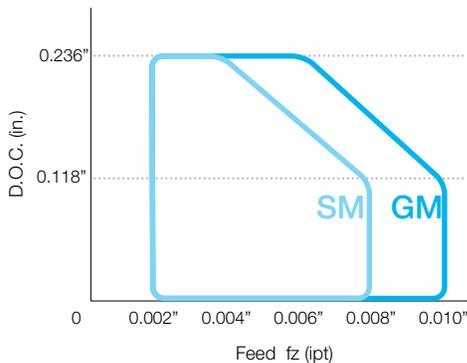
● Recommended Chipbreaker Range

Shouldering



Cutting Conditions : Vc = 490 sfm, ae = DC/2, Workpiece : 1049

Slotting

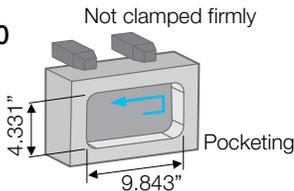


Cutting Conditions : Vc = 490 sfm, ae = DC, Workpiece : 1049

Case Studies

Parts for machinery: 420

Vc = 590 sfm
 D.O.C. x ae = 0.040" x ~1.97"
 fz = 0.004 ipt Dry
 MEV50-S32-06-5T (5 Flutes)
 TOMT060508ER-GM PR1535



Cutting time

MEV

v_f = 22.50 ipm

Machining Efficiency
x1.6

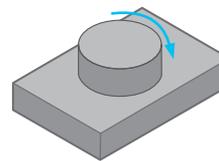
Competitor E

v_f = 13.75 ipm

Quiet machining even when cutting speed increased
 The MEV shows 1.6 times machining efficiency and good bottom surface finish
 (User Evaluation)

Plate: SS400

Vc = 590 sfm
 D.O.C. = 0.118"
 fz = 0.005 ipt Dry
 MEV22-S20-06-3T (Ø22 - 3 Flutes)
 TOMT060508ER-GM PR1525



Number of parts produced

MEV

160 pcs/corner

Tool life
x2.4

Competitor F

65 pcs/corner

The MEV achieved 2.4 times longer tool life than competitor F.
 Quieter machining with excellent surface finish
 (User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)			
			MEGACOAT NANO			CVD Coated Carbide
			PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.003- 0.006 -0.010	☆ 390- 590 -820	★ 390- 590 -820	-	-
	Alloy Steel	0.003- 0.006 -0.008	☆ 330- 520 -720	★ 330- 520 -720	-	-
	Mold Steel	0.003- 0.005 -0.008	☆ 260- 460 -590	★ 260- 460 -590	-	-
	Austenitic Stainless Steel	0.003- 0.005 -0.006	☆ 330- 520 -660	☆ 330- 520 -660	-	-
	Martensitic Stainless Steel	0.003- 0.005 -0.008	☆ 490- 660 -820	-	-	★ 590- 790 -980
	Precipitation Hardened Stainless Steel	0.003- 0.005 -0.008	★ 300- 390 -490	-	-	-
	Gray Cast Iron	0.003- 0.007 -0.010	-	☆ 390- 590 -820	★ 390- 590 -820	-
	Nodular Cast Iron	0.003- 0.006 -0.008	-	☆ 330- 490 -660	★ 330- 490 -660	-
	Ni-base Heat-Resistant Alloy	0.003- 0.005 -0.006	☆ 70- 100 -160	-	-	★ 70- 100 -160
	Titanium Alloy	0.003- 0.006 -0.008	☆ 130- 200 -260	-	☆ 100- 160 -230	-
SM	Carbon Steel	0.003- 0.006 -0.008	☆ 390- 590 -820	★ 390- 590 -820	-	-
	Alloy Steel	0.003- 0.005 -0.007	☆ 330- 520 -720	★ 330- 520 -720	-	-
	Mold Steel	0.003- 0.004 -0.006	☆ 260- 460 -590	★ 260- 460 -590	-	-
	Austenitic Stainless Steel	0.003- 0.004 -0.006	★ 330- 520 -660	☆ 330- 520 -660	-	-
	Martensitic Stainless Steel	0.003- 0.004 -0.006	☆ 490- 660 -820	-	-	★ 590- 790 -980
	Precipitation Hardened Stainless Steel	0.003- 0.004 -0.006	☆ 300- 390 -490	-	-	-
	Ni-base Heat-Resistant Alloy	0.003- 0.004 -0.005	☆ 70- 100 -160	-	-	★ 70- 100 -160
	Titanium Alloy	0.003- 0.005 -0.006	★ 130- 200 -260	-	-	-

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
 Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.
 Machining with coolant is recommended for finishing. ★ : 1st Recommendation ☆ : 2nd Recommendation

M
MILLING



Great for a Variety of Machining Applications

Ramping Reference Data

Cutting Dia. DC	0.750"	1.000"	1.250"	1.500"	2.000"	2.500"	20mm	22mm	25mm	28mm	30mm	32mm	40mm	50mm
Max. Ramping Angle RMPX	1.00°	0.65°	0.50°	0.40°	0.30°	0.20°	1.00°	0.80°	0.65°	0.60°	0.55°	0.50°	0.40°	0.30°
tan RMPX	0.017	0.011	0.009	0.007	0.005	0.003	0.017	0.014	0.011	0.010	0.010	0.009	0.007	0.005

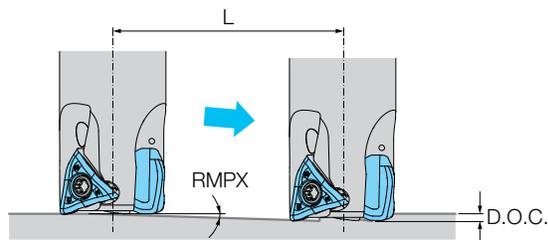
• Reduce ramping angle if chips are too long

Ramping Tips

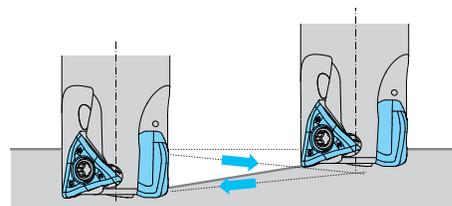
- Ramping angle should not exceed maximum ramping angle RMPX in above conditions
- Reduce recommended feed rate by 70%

Formula for Max. Cutting max Length (L) at Max. Ramping Angle

$$L = \frac{D.O.C.}{\tan RMPX}$$



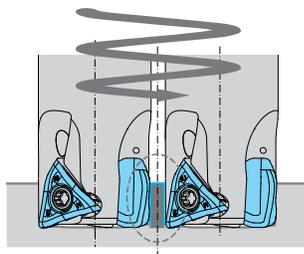
- When multi-directional ramping, set the maximum inclination angle to 50% of RPMX



Helical Milling Tips

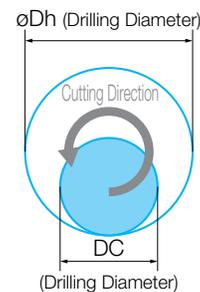
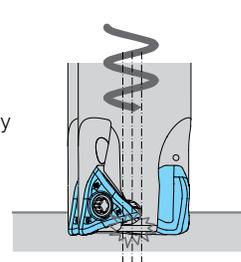
Exceeding Max. Machining Dia.

Center Core Remains After Machining



Under Min. Machining Dia.

Center Core Hits Holder Body



Unit: inch

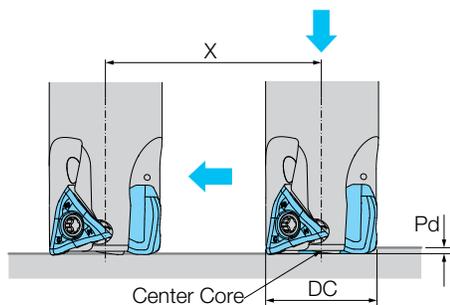
Part Number	Min. Drilling Dia.	Max. Drilling Dia.
MEV...-06-...	2 × DC - 0.197"	2 × DC - 0.079"

For helical milling, stay within the recommended min. and max. drilling dia.

Keep machine depth (h) per rotation less than max. D.O.C. (APMX) in the cutter dimensions chart

Use caution to eliminate incidences caused by producing long chips

Drilling Tips



Unit: inch

Part Number	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MEV...-06-...	0.010"	DC - 0.118"

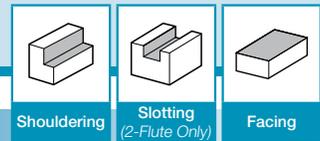
Drilling Depth

Please refer to the figure on the left (Pd: Max. Drilling depth)

Traversing after Drilling

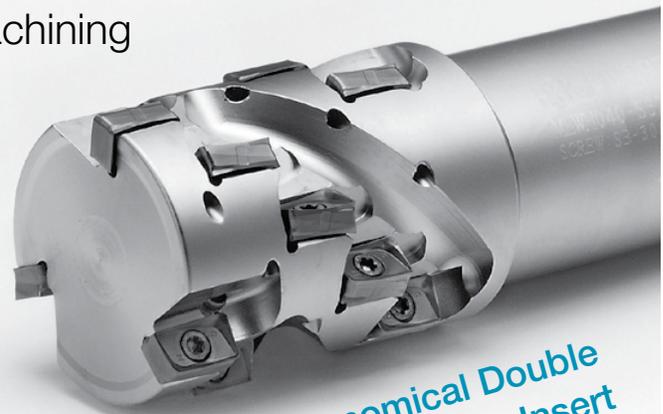
1. It is recommended to reduce feed by 25% until the center core is removed
2. Axial feed rate recommendation per revolution is $f = 0.004$ ipr or less

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**



MEWH Helical End Mill

Excellent Surface Finish and Stable Machining due to Innovative Toolholder Design



Economical Double Sided 4-edge Insert

Chip Evacuation

	Chipbreaker	Workpiece Material	fz = 0.006 ipt	fz = 0.008 ipt
Inserts				
45°~70° Lead Angle	GM	4137		
75° Lead Angle	GM	SS400		
90°/88° Lead Angle				
High Feed Milling	SM			
Finish Milling				
Multi-Function				

Vc = 390 sfm
D.O.C. x ae = 0.787" x 0.591"
Dry

Chips are constantly evacuated in the opposite direction of the cutter feed without clogging

Surface Finish Comparison

	MEWH	Competitor A
Slot Mill		
Ball-Nose Radius		
Other Applications		

4137
Vc = 390 sfm
D.O.C. x ae = 1.772" x 0.197"
Dry

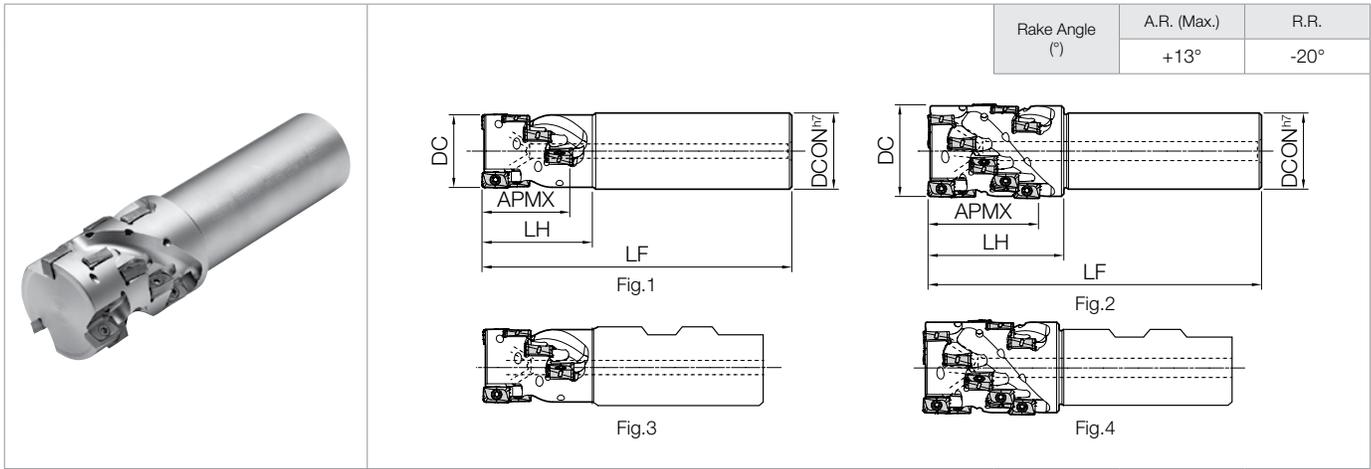
Better surface quality than competitor A.



Corner-R(RE) 0.4 ,1.0 ,1.2 ,1.6 and 2.0 Added to GM Chipbreaker Lineup

LOMU100404ER-GM LOMU150504ER-GM	LOMU100408ER-GM LOMU150508ER-GM	LOMU150510ER-GM	LOMU100412ER-GM LOMU150512ER-GM	LOMU100416ER-GM LOMU150516ER-GM	LOMU100420ER-GM LOMU150520ER-GM

MEWH Helical End Mill (Coolant Hole for Bottom Insert)



Toolholder Dimensions (Inch)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (in)					Coolant Hole	Drawing	Spare Parts			Applicable Inserts		
						DC	DCON	LF	LH	APMX			Insert Screw	Wrench	Anti-seize Compound			
Weldon	MEWH 1000-W100-10-3-2T	●	2	3	6	1.000	1.000	3.806	1.523	1.102	Yes	Fig.3	SB-3065TRP	DTPM-8	P-37	LOMU1004..		
	1250-W125-10-4-2T	●		4	8	1.250	1.250	4.161	1.878	1.456								
	1500-W125-10-5-3T	●	3	5	15	1.500	1.500	4.610	2.244	1.811		Fig.4	Recommended Torque for Insert Screw 1.2N · m					
	1500-W150-10-5-3T	●		15	1.500	1.500	4.957	2.267	1.811									
	MEWH 1500-W125-15-4-2T	●	2	4	8	1.500	1.250	4.846	2.480	2.086		Yes	Fig.4	SB-4090TRP	DTPM-15		P-37	LOMU1505..
	1500-W150-15-4-2T	□																	8	1.500	1.500	5.193	2.504	2.086
	2000-W150-15-4-3T	●	3	12	2,000	1.500	5.252	2.480				Fig.3	Recommended Torque for Insert Screw 3.5N · m					

Toolholder Dimensions (Metric)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Coolant Hole	Drawing	Spare Parts			Applicable Inserts		
						DC	DCON	LF	LH	APMX			Insert Screw	Wrench	Anti-seize Compound			
Cylindrical	MEWH 025-S25-10-3-2T	●	2	3	6	25	25	120	37	28	Yes	Fig.1	SB-3065TRP	DTPM-8	P-37	LOMU1004..		
	032-S32-10-4-2T	●		4	8	32	32	130	46	37								
	040-S32-10-5-2T	●	3	5	10	40	32	140	57	46		Fig.2	Recommended Torque for Insert Screw 1.2N · m					
	040-S32-10-5-3T	●		15	40	32	140	57	46									
	MEWH 040-S32-15-4-2T	●	2	4	8	40	32	160	63	53		Yes	Fig.2	SB-4090TRP	DTPM-15		P-37	LOMU1505..
	050-S42-15-4-2T	●																	8	40	32	160	63	53
	050-S42-15-4-3T	●	3	12	50	42	160	63	53			Fig.2	Recommended Torque for Insert Screw 3.5N · m					

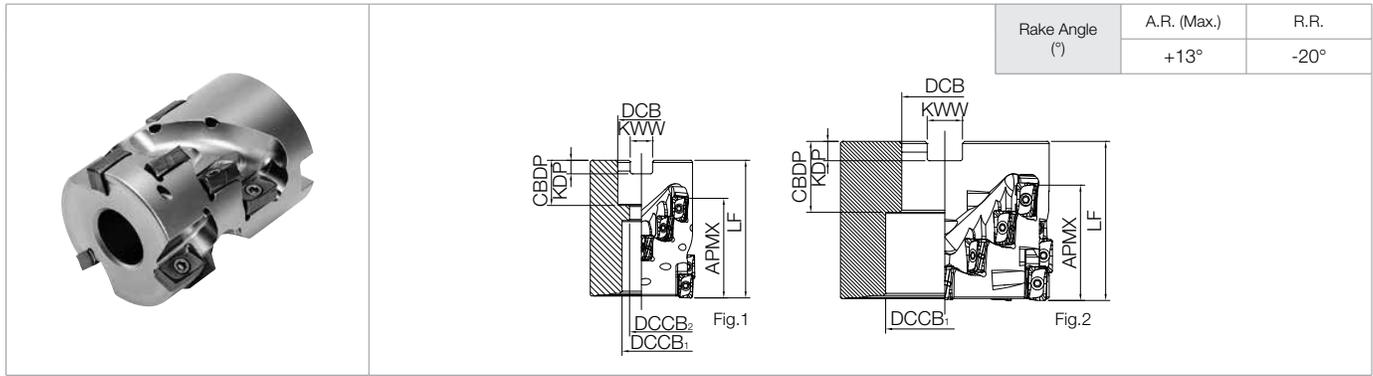
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Recommended Cutting Conditions **M95**

Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MEWH Shell Mill (without Coolant Hole)



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (in)								Drawing	Spare Parts				Applicable Inserts ➔ M16	
					DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW		APMX	Insert Screw	Wrench	Anti-seize Compound		Arbor Bolt
MEWH 1500R-10-4-3T	☐	3	4	12	1.50	0.75	0.669	0.433	2.087	0.750	0.187	0.312	1.456	Fig.1	SB-3065TRP	DTPM-15	P-37	HH3/8-1.25	LOMU1004..
2000R-10-5-3T	☐		5	15	2.00				2.520											2.086
MEWH 2000R-15-4-3T	●	3	4	12	2.00	0.75	0.669	0.433	2.756	0.750	0.187	0.312	2.086	Fig.1	SB-4090TRP	DTPM-15	P-37	HH3/8-1.25	LOMU1505..
2500R-15-3-3T	☐		3	9	2.50				2.283											2.086
3000R-15-4-4T	☐	4	16	3.00	1.00	0.866	0.551	2.756	1.063	0.236	0.381	2.086	Fig.2						
4000R-15-4-5T	☐	5	20	4.00	1.50	2.047	-	2.913	1.142	0.393	0.625	2.086	Fig.2						

Toolholder Dimensions (Metric)

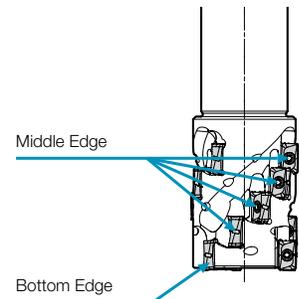
Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)								Drawing	Spare Parts				Applicable Inserts ➔ M16	
					DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW		APMX	Insert Screw	Wrench	Anti-seize Compound		Arbor Bolt
MEWH 040R-10-4-3T-M	●	3	4	12	40	16	15	9	53	19	5.6	8.4	37	Fig.1	SB-3065TRP	DTPM-8	P-37	HH8X25	LOMU1004..
050R-10-5-3T-M	●		5	15	50	22	18	11	64	21	6.3	10.4	46						
MEWH 050R-15-4-3T-M	●	3	4	12	50	22	18	11	70	21	6.3	10.4	53	Fig.1	SB-4090TRP	DTPM-15	P-37	HH10X30	LOMU1505..
063R-15-3-3T-M	●		3	9	63	27	20	13	58	24	7	12.4	41						
080R-15-4-4T-M	●	4	16	80	32	26	18	70	28	8	14.4	53	Fig.2						
100R-15-4-5T-M	●	5	20	100	40	55	-	74	33	9	16.4	53	Fig.2						

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Aluminum machining is not recommended (AM chipbreaker is not available for MEWH)

Applicable Inserts

Part Number	Applicable Inserts ➔ M16		
	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)
MEWH ...-10-...	LOMU1004..ER-GM	LOMU100408ER-SM	LOMU100408ER-GH
MEWH ...-15-...	LOMU1505..ER-GM	LOMU150508ER-SM	LOMU150508ER-GH



Applicable Insert Guide for MEWH

Recommended Cutting Conditions ➔ M95

Insert Location	Toolholder Part Number											
	MEWH...-10-...						MEWH...-15-...					
	Corner-R (RE) (mm)						Corner-R (RE) (mm)					
Bottom Edges	0.4	0.8	1.2	1.6	2.0	0.4	0.8	1.0	1.2	1.6	2.0	
*Middle Edges	0.4 / 0.8	0.4 / 0.8	0.4 / 0.8	0.4	0.4	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	0.4~1.6	

*For Middle Edges, it is not recommended to use the insert with larger corner-R(RE) than shown in the table, because it will make finished surface uneven.

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)					
		Toolholder Part Number		MEGACOAT NANO			CVD Carbide	DLC Carbide	Carbide
		Helical End Mill	Shell Mill	PR1535	PR1525	PR1510	CA6535	PDL025	GW25
		MEWH1000W-MEWH2000W MEWH025-MEWH050	MEWH1500R-MEWH4000R MEWH040R-MEWH100R						
GM	Carbon Steel	0.002- 0.004 -0.008		☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-
	Alloy Steel	0.002- 0.004 -0.006		☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-
	Mold Steel	0.002- 0.003 -0.005		☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-
	Austenitic Stainless Steel	0.002- 0.003 -0.005		☆ 330- 520 -660	☆ 330- 520 -660	-	-	-	-
	Martensitic Stainless Steel	0.002- 0.003 -0.004		☆ 490- 660 -820	-	-	★ 590- 790 -980	-	-
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004		★ 300- 390 -490	-	-	-	-	-
	Gray Cast Iron	0.002- 0.004 -0.007		-	-	★ 390- 590 -820	-	-	-
	Nodular Cast Iron	0.002- 0.003 -0.005		-	-	★ 330- 490 -660	-	-	-
	Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004		☆ 70- 100 -160	-	-	★ 70- 100 -160	-	-
	Titanium Alloys	0.002- 0.003 -0.005		☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-
SM	Carbon Steel	0.002- 0.004 -0.007		☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-
	Alloy Steel	0.002- 0.003 -0.005		☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-
	Mold Steel	0.002- 0.003 -0.005		☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-
	Austenitic Stainless Steel	0.002- 0.003 -0.005		★ 330- 520 -660	☆ 330- 520 -660	-	-	-	-
	Martensitic Stainless Steel	0.002- 0.003 -0.004		☆ 490- 660 -820	-	-	★ 590- 790 -980	-	-
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004		☆ 300- 390 -490	-	-	-	-	-
	Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004		☆ 70- 100 -160	-	-	★ 70- 100 -160	-	-
	Titanium Alloys	0.002- 0.003 -0.005		★ 130- 200 -260	-	☆ 100- 160 -230	-	-	-
	Carbon Steel	0.002- 0.004 -0.008		☆ 390- 590 -820	★ 390- 590 -820	-	-	-	-
	Alloy Steel	0.002- 0.004 -0.006		☆ 330- 520 -720	★ 330- 520 -720	-	-	-	-
GH	Mold Steel	0.002- 0.003 -0.005		☆ 260- 460 -590	★ 260- 460 -590	-	-	-	-
	Austenitic Stainless Steel	0.002- 0.003 -0.005		☆ 330- 520 -660	☆ 330- 520 -660	-	-	-	-
	Martensitic Stainless Steel	0.002- 0.003 -0.004		☆ 490- 660 -820	-	-	☆ 590- 790 -980	-	-
	Precipitation Hardened Stainless Steel	0.002- 0.003 -0.004		☆ 300- 390 -490	-	-	-	-	-
	Gray Cast Iron	0.002- 0.004 -0.008		-	-	☆ 390- 590 -820	-	-	-
	Nodular Cast Iron	0.002- 0.003 -0.006		-	-	☆ 330- 490 -660	-	-	-
	Ni-base Heat Resistant Alloy	0.002- 0.003 -0.004		☆ 70- 100 -160	-	-	☆ 70- 100 -160	-	-
	Titanium Alloys	0.002- 0.003 -0.005		☆ 130- 200 -260	-	☆ 100- 160 -230	-	-	-

※ Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions
 ※ Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

★ : 1st Recommendation
 ☆ : 2nd Recommendation

■ MEWH Cutting Performance

● LOMU1004 Type

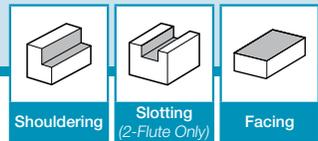
Cutting Dia.	Part Number	2 Flute		Part Number	3 Flute	
		D.O.C. x ae			D.O.C. x ae	
Ø1.000" Ø25mm	MEWH1000 -W100-10-3-2T MEWH025 -S25-10-3-2T			-	-	
Ø1.250" Ø32mm	MEWH1250 -W125-10-4-2T MEWH032 -S32-10-4-2T			-	-	
Ø1.500" Ø40mm	MEWH1500 -W125-10-5-2T MEWH040 -S32-10-5-2T			MEWH1500 -W150-10-5-3T MEWH040 -S32-10-5-3T		

● LOMU1505 Type

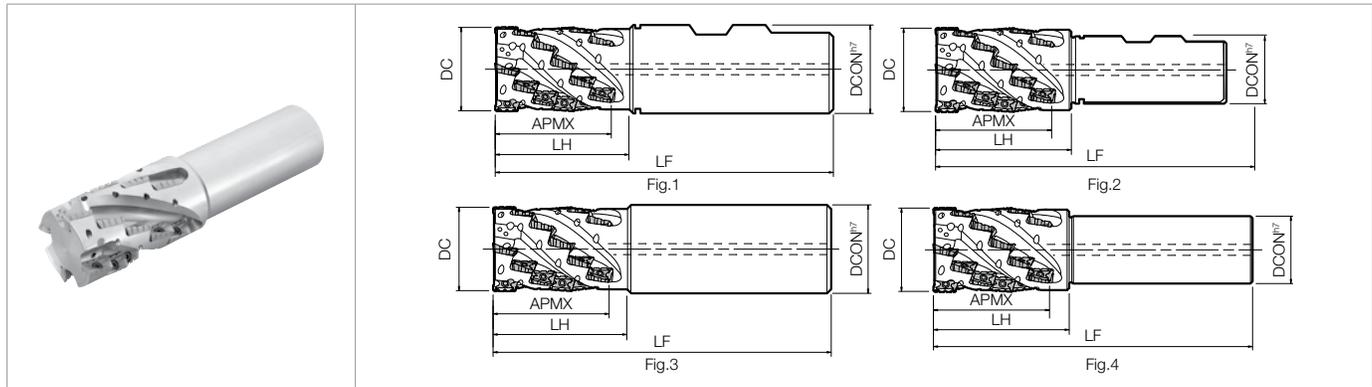
Cutting Dia.	Part Number	2 Flute		Part Number	3 Flute	
		D.O.C. x ae			D.O.C. x ae	
Ø1.500" Ø40mm	MEWH1500 -W125-15-4-2T MEWH040 -S32-15-4-2T			-	-	
Ø2.000" Ø50mm	MEWH2000 -W150-15-4-2T MEWH050 -S42-15-4-2T			MEWH2000 -W150-15-4-3T MEWH050 -S42-15-4-3T		

Vc = 400 sfm
 fz = 0.003~0.005 ipt
 GM Chipbreaker
 Workpiece: 4137
 Overhang Length: End mill overhang length is "LH" of the dimension list

INSERT GRADES A
 TURNING INSERTS B
 GEN/PCD INSERTS C
 TURNING HOLDERS D
 SMALL TOOLS E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 DRILLING K
 MILLING M
 QUICK CHANGE TOOLING N
 SPARE PARTS P
 TECHNICAL R
 INDEX T



MECH Helical End Mill (Coolant Hole for Bottom Insert)



Toolholder Dimensions (Inch)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (in)					Rake Angle (°)		Drawing	Coolant Hole	Spare Parts			Applicable Inserts ● M23			
						DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench	Anti-seize Compound				
Weldon	MECH 1000-W100-11-4-2T	●	2	4	8	1.00	1.00	4.17	1.81	1.46	+21°	-10°	Fig.1	No	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3			
	1250-W125-11-5-2T	●				5	10	1.25	1.25	4.52	2.17	1.81							-9°		
	1250-W125-11-5-4T	●	4	6	24	1.50	1.50	4.90	2.52	2.16	+23°	-8°	Fig.2								
	1500-W125-11-6-4T	●						5.28	2.52	2.16	-8°	Fig.1									
	1500-W150-11-6-4T	●						7	28	2.00	1.50	5.73	2.95						2.52	-7°	Fig.2
	2000-W150-11-7-4T	●										42									
	2000-W1500-11-7-6T	●	6	7	42	2.00	1.50	5.73	2.95	2.52	-7°	Fig.2									
	MECH 1500-W125-17-4-2T	●	2	4	8	1.50	1.25	5.26	2.87	2.32	+19°	-7°	Fig.2						No	SB-4070TRN	DTM-15	P-37	BDMT170408ER-N3 BDMT170408ER-N4
1500-W150-17-4-2T	●	5.64					2.87	2.32	-7°	Fig.1											
2000-W1500-17-5-4T	●	4					5	20	2.00	1.50	6.26	3.46	2.91	-7°	Fig.2						

Toolholder Dimensions (Metric)

Shank	Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Drawing	Coolant Hole	Spare Parts			Applicable Inserts ● M23					
						DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.			Insert Screw	Wrench	Anti-seize Compound						
Cylindrical	MECH 025-S25-11-4-2T	●	2	4	8	25	25	120	46	37	+21°	-10°	Fig.3	Yes	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3					
	032-S32-11-5-2T	●				5	10	32	32	140	55	46							-9°				
	032-S32-11-5-4T	●	4	6	24	40	42	150	64	55	+23°	-8°	Fig.4										
	040-S32-11-6-4T	●						160	64	55	-8°	Fig.3											
	040-S42-11-6-4T	●						7	28	50	42	172	75						64	-7°	Fig.4		
	050-S42-11-7-4T	●										42											
	050-S42-11-7-6T	●	6	7	42	50	42	172	75	64	-7°	Fig.4											
	MECH 040-S32-17-4-2T	●	2	4	8	40	32	160	73	59	+19°	-7°	Fig.4						Yes	SB-4070TRN	DTM-15	P-37	BDMT170408ER-N3 BDMT170408ER-N4
	040-S42-17-4-2T	●					42	170	73	59	-7°	Fig.3											
	050-S42-17-5-4T	●					4	5	20	50	42	185	88											74	-6°	Fig.4

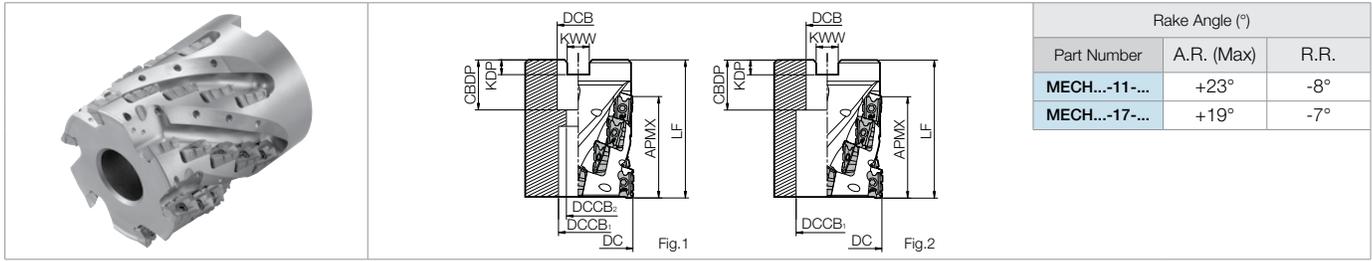
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Applicable Inserts

Part Number	Applicable Inserts ● M23			
	2-Notch	3-Notch	3-Notch	4-Notch
MECH...-11-...	BDMT 11T308ER-N2	BDMT 11T308ER-N3	-	-
MECH...-17-...	-	-	BDMT 170408ER-N3	BDMT 170408ER-N4

Recommended Cutting Conditions ● M101

MECH Shell Mill (without Coolant Hole)

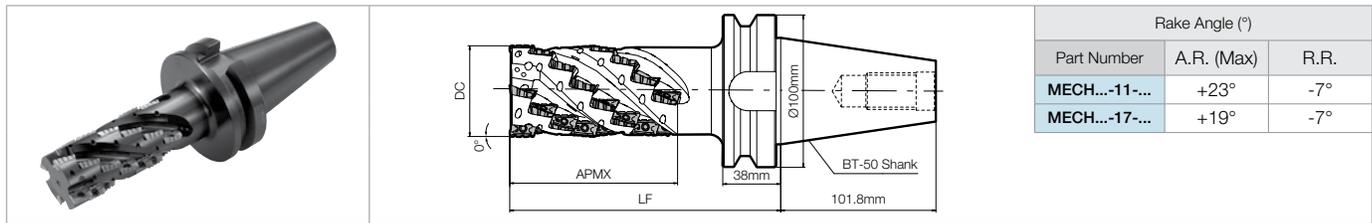


Toolholder Dimensions

Part Number	Stock	Unit	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (in)										Drawing	Spare Parts				Applicable Inserts M23				
						DC	DCB	DCCB	DCCB ₂	LF	CDDP	KDP	KWW	APMX	Insert Screw		Wrench	Anti-seize Compound	Arbor Bolt						
MECH 2000R-11-5-6T	●	inch	6	5	30	2.00	0.75	0.63	0.417	2.480	0.750	0.197	0.313	1.811	Fig.1	SB-2555TRG	DTM-8	P-37	HH3/8-1.5	BDMT11T308ER-N2 BDMT11T308ER-N3					
2000R-17-2-4T	●		4	2	8					2.047											3.070	0.750	0.197	0.313	1.181
2000R-17-4-4T	●		4	4	16					3.070																0.750	0.197	0.313	1.181	2.322
MECH 040R-11-4-4T-M	●	mm	4	4	16	40	16	15	9	50	19	5.6	8.4	37	Fig.1	SB-2555TRG	DTM-8	P-37	HH8X25 HH10X30	BDMT11T308ER-N2 BDMT11T308ER-N3					
050R-11-5-6T-M	●		6	5	30	50	22	18	11	63	21	6.3	10.4	46											
MECH 050R-17-2-4T-M	●		4	2	8	50	22	18	11	52	21	6.3	10.4	30											
050R-17-4-4T-M	●		4	4	16	50	22	18	11	78	21	6.3	10.4	59											
MECH 063R-17-3-4T-M	●		4	3	12	63	27	20	14	70	24	7	12.4	45											
080R-17-4-6T-M	●		6	4	24	80	32	26	18	85	28	8	14.4	59											
MECH 100R-17-4-6T-M	●	mm	6	4	24	100	40	56	-	85	30	9	16.4	59	Fig.2	SB-4070TRN	DTM-15	P-37	HH12X35 HH16X45	BDMT170408ER-N3 BDMT170408ER-N4					
MECH 063R-17-3-4T	●		4	3	12	63	25.4	20	14	70	26	6	9.5	45											
080R-17-4-6T	●		6	4	24	80	31.75	26	18	85	32	8	12.7	59											
100R-17-4-6T	●		6	4	24	100	38.1	56	-	85	38	10	15.9	59											

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

MECH-BT50 Integral Arbor (without Coolant Hole)



Toolholder Dimensions

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)			Weight (kg)	Spare Parts			Applicable Inserts M23
					DC	LF	APMX		Insert Screw	Wrench	Anti-seize Compound	
MECH 050R11-8-4T-BT50	●	4	8	32	50	143	73	4.8	SB-2555TRG	DTM-8	P-37	BDMT11T308ER-N2 BDMT11T308ER-N3
MECH 050R17-7-4T-BT50	●	4	7	28	50	173	104	4.9	SB-4070TRN	DTM-15	P-37	BDMT170408ER-N3 BDMT170408ER-N4
063R17-7-4T-BT50	●				63			5.9				
080R17-7-4T-BT50	●				80			7.8				
100R17-7-6T-BT50	●				100			10.2				

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Applicable Inserts

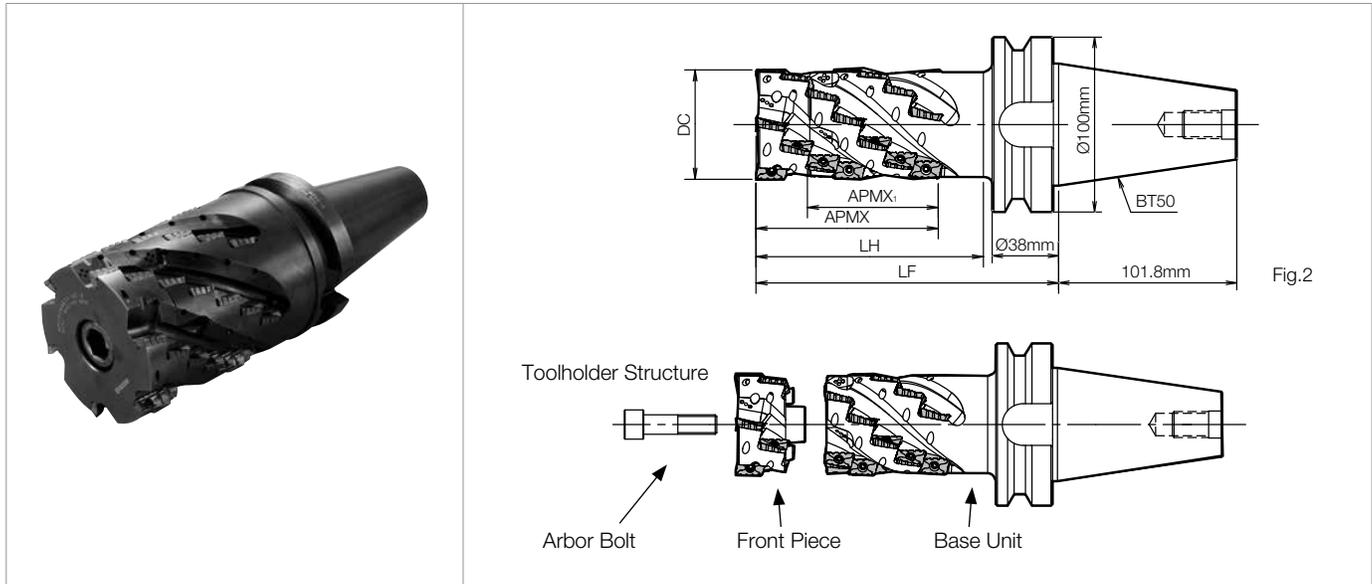
Part Number	Applicable Inserts M23			
	2-Notch	3-Notch	3-Notch	4-Notch
MECH...-11-...	BDMT 11T308ER-N2	BDMT 11T308ER-N3	-	-
MECH...-17-...	-	-	BDMT 170408ER-N3	BDMT 170408ER-N4

Recommended Cutting Conditions M101

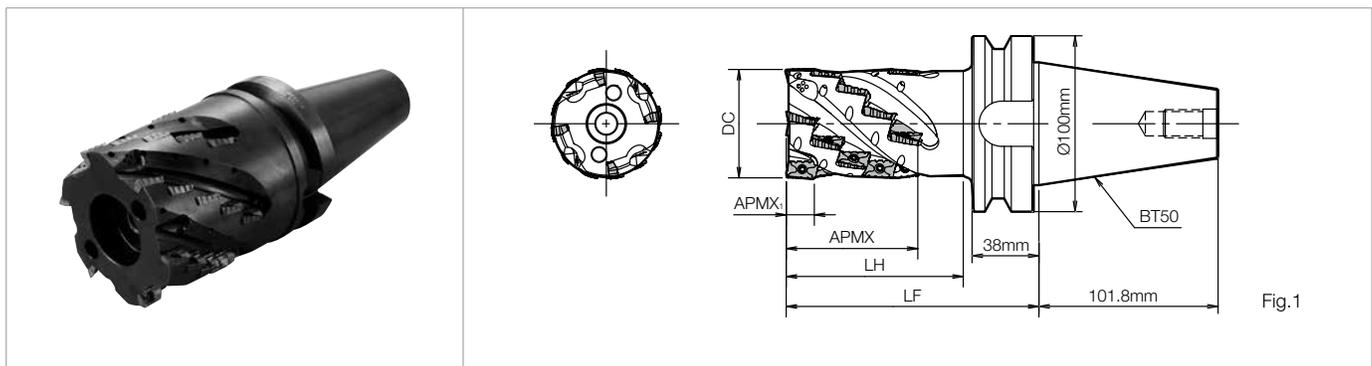
INSERT GRADES A
TURNING INSERTS B
GEN/PCD INSERTS C
TURNING HOLDERS D
SMALL TOOLS E
BORING F
GROOVING G
CUT-OFF H
THREADING J
DRILLING K
MILLING M
QUICK CHANGE TOOLING N
SPARE PARTS P
TECHNICAL R
INDEX T

MECH-BT50SA Integral Arbor Set (without Coolant Hole)

Base Unit / 1 Front Piece / Arbor Bolt



MECH-BT50-A Base Unit (without Coolant Hole)



- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Toolholder Dimensions

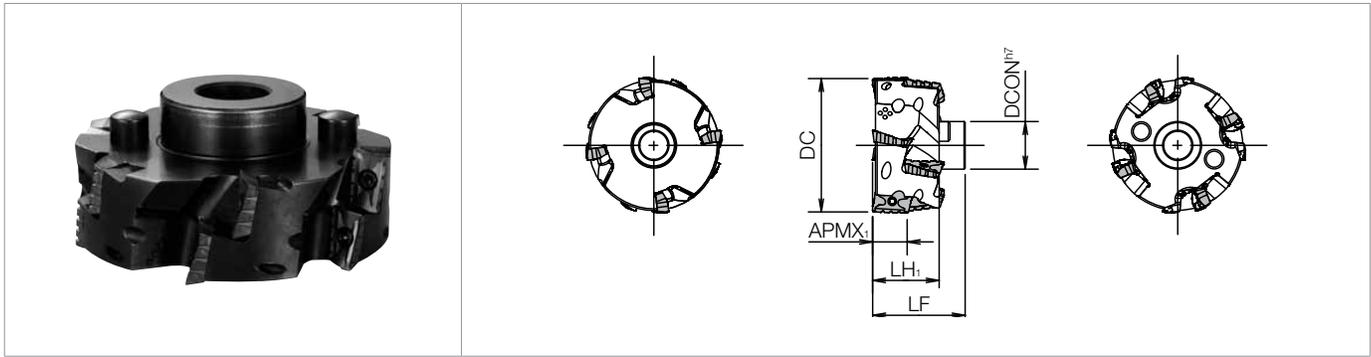
Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Drawing	Weight (kg)	
					DC	LF	LH	APMX	APMX _i	A.R.	R.R.			
Integral Arbor (Set)	MECH 050R11-4T-BT50SA	<input type="checkbox"/>	4	8	32	50	143	99	73	55	+23°	-7°	Fig.1	4.8
	063R17-4T-BT50SA	<input type="checkbox"/>		28	63	173	130	104	75	+19°	-7°	5.8		
	080R17-4T-BT50SA	<input type="checkbox"/>		28	80							7.6		
	100R17-6T-BT50SA	<input type="checkbox"/>		42	100	9.8								
Base Unit	MECH 050R11-4T-BT50-A	<input type="checkbox"/>	4	6	24	50	125	81	55	10	+23°	-7°	Fig.2	4.6
	063R17-4T-BT50-A	<input type="checkbox"/>		20	63	143	100	75	16	+19°	-7°	5.4		
	080R17-4T-BT50-A	<input type="checkbox"/>		20	80							6.8		
	100R17-6T-BT50-A	<input type="checkbox"/>		30	100	8.5								

Recommended Cutting Conditions **M101**

Toolholder Structure

End Mill (Above)	=	Base Unit (Above)	+	Front Piece (1pc) M99	+	Arbor Bolt
MECH 050R11-4T-BT50SA		MECH050R11-4T-BT50-A		MECH050R11-4T-F		HH12X35
063R17-4T-BT50SA		MECH063R17-4T-BT50-A		MECH063R17-4T-F		HH12X40
080R17-4T-BT50SA		MECH080R17-4T-BT50-A		MECH080R17-4T-F		HH16X40
100R17-6T-BT50SA		MECH100R17-6T-BT50-A		MECH100R17-6T-F		HH20X40

MECH-F Front Piece (without Coolant Hole)



Toolholder Dimensions

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Weight (kg)
					DC	DCON	LF	LH ₁	APMX ₁	A.R.	R.R.	
MECH 050R11-4T-F	●	4	2	8	50	22	32	18	10	+23°	-7°	0.2
063R17-4T-F	●				63	22	44	30	16	+19°	-7°	0.4
080R17-4T-F	●				80	32						0.8
100R17-6T-F	●	6	2	12	100	45						1.3

Applicable Inserts

End Mill ● M98	Base Unit ● M98	Front Piece (1pc Above)	Applicable Inserts ● M23
MECH 050R11-4T-BT50SA	MECH050R11-4T-BT50-A	MECH050R11-4T-F	BDMT 11T308ER-N2 BDMT 11T308ER-N3
063R17-4T-BT50SA	MECH063R17-4T-BT50-A	MECH063R17-4T-F	BDMT 170408ER-N3 BDMT 170408ER-N4
080R17-4T-BT50SA	MECH080R17-4T-BT50-A	MECH080R17-4T-F	
100R17-6T-BT50SA	MECH100R17-6T-BT50-A	MECH100R17-6T-F	

Recommended Cutting Conditions ● **M101**

Toolholder Dimensions

Part Number		Spare Parts				
		Insert Screw	Wrench (for Insert Screw)	Arbor Bolt	Wrench (for Arbor Bolt)	Anti-seize Compound
Integral Arbor (Set)	MECH 050R11-4T-BT50SA	SB-2555TRG	DTM-8	HH12X35	LW-10	P-37
	063R17-4T-BT50SA	SB-4070TRN	DTM-15	HH12X40	LW-10	
	080R17-4T-BT50SA			HH16X40	LW-14	
	100R17-6T-BT50SA			HH20X40	LW-17	
Base Unit	MECH 050R11-4T-BT50-A	SB-2555TRG	DTM-8	HH12X35	LW-10	
	063R17-4T-BT50-A	SB-4070TRN	DTM-15	HH12X40	LW-10	
	080R17-4T-BT50-A			HH16X40	LW-14	
	100R17-6T-BT50-A			HH20X40	LW-17	
Front Piece	MECH 050R11-4T-F	SB-2555TRG	-	-	-	
	063R17-4T-F	SB-4070TRN	-	-	-	
	080R17-4T-F					
	100R17-6T-F					

● If you purchased the front piece only, the insert screw wrench, arbor bolt, and arbor bolt wrench are not included.

🔧 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

A
B
C
D
E
F
G
H
J
K
M
N
P
R
T

Enhanced Chip Evacuation

- Good Chip Evacuation

Notched Insert Breaks Chips into Small Pieces

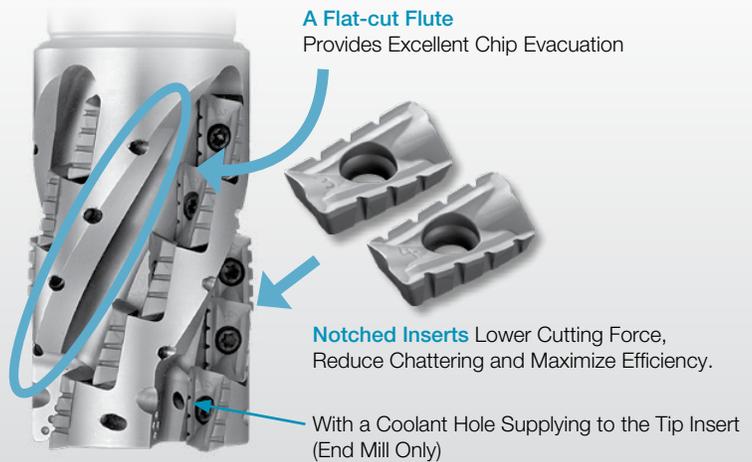


MECH



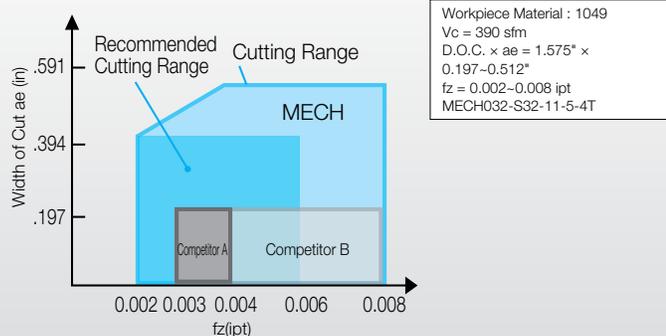
Competitor A

Workpiece Material: SS400
 Vc = 400 sfm
 D.O.C. x ae = 1.575" x 0.394"
 fz = 0.005 ipt
 MECH032-S32-11-5-4T

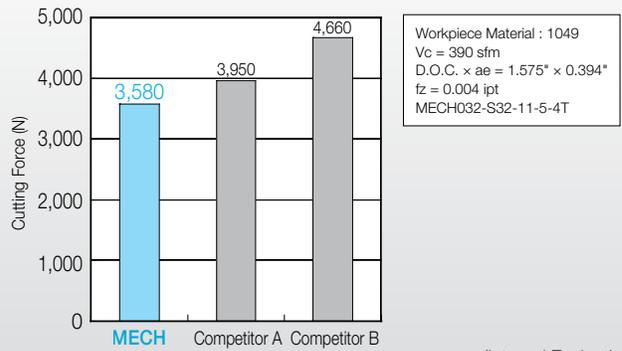


Low Cutting Force

- Low Cutting Force with Notched Inserts



Cutting Force (Principal Force)



(Internal Evaluation)

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING

Number of Inserts to Install

MECH Helical End Mill

Part Number	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			N2	N3	N3	N4
MECH 1000-W1000-11-4-2T 025-S25-11-4-2T	2	8	4	4		
1250-W1250-11-5-2T 032-S32-11-5-2T		10	5	5		
1250-W1250-11-5-4T 032-S32-11-5-4T	4	20	10	10		
1500-W1250-11-6-2T 040-S32-11-6-4T		24	12	12		
1500-W1500-11-6-4T 040-S42-11-6-4T		28	14	14		
2000-W1500-11-7-4T 050-S42-11-7-4T		42	21	21		
MECH 1500-W125-17-4-2T 040-S32-17-4-2T	2	8			4	4
1500-W150-17-4-2T 040-S42-17-4-2T						
2000-W1500-17-5-4T 050-S42-17-5-4T	4	20			10	10

MECH Shell Mill

Part Number	No. of Flutes	No. of Inserts	No. of Inserts			
			BDMT11T308ER-		BDMT170408ER-	
			N2	N3	N3	N4
MECH 040R-11-4-4T-M	4	16	8	8		
2000R-11-5-6T 050R-11-5-6T-M	6	30	15	15		
MECH 2000R-17-2-4T 050R-17-2-4T-M	4	8			4	4
2000R-17-4-4T 050R-17-4-4T-M		16			8	8
063R-17-3-4T-M		12			6	6
080R-17-4-6T-M	6	24			12	12
100R-17-4-6T-M						
MECH 063R-17-3-4T	4	12			6	6
080R-17-4-6T	6	24			12	12
100R-17-4-6T						

■ Precautions when Installing Notched Inserts

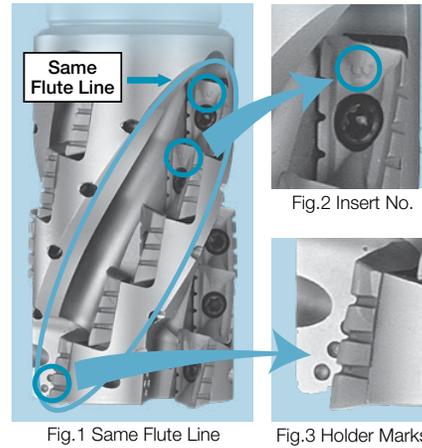
1. Install notched inserts by matching the insert with the number of marks on the holder body.

Insert Number and Holder Marks

Insert Size	11 Type		17 Type		
	Insert No.	2	3	3	4
Marks					

* Using the cutter with the inserts installed incorrectly will damage the holder.

2. When installing notched inserts in flute line, ensure that the number on the insert is the same as the insert in first stage. (Ref. to Fig.1, 2 and 3.)



◆ Recommended Cutting Conditions (when Using a Notched Insert)

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)				
		MEGACOAT NANO	MEGACOAT			PVD Coated Carbide
		PR1535	PR1225	PR1230	PR1210	PR830
Carbon Steel	0.003- 0.004 -0.006	☆ 390- 590 -820	☆ 390- 590 -820	★ 390- 590 -720	-	☆ 330- 460 -590
Alloy Steel	0.003- 0.004 -0.006	☆ 330- 520 -720	☆ 330- 520 -720	★ 330- 520 -660	-	☆ 330- 460 -590
Mold Steel	0.003- 0.004 -0.006	☆ 260- 460 -590	☆ 260- 460 -590	★ 260- 460 -520	-	☆ 330- 390 -490
Gray Cast Iron	0.003- 0.006 -0.007	-	-	-	★ 390- 590 -820	-
Nodular Cast Iron	0.003- 0.006 -0.007	-	-	-	★ 330- 490 -720	-
Titanium Alloys	0.003- 0.004 -0.006	★ 130- 200 -260	-	-	☆ 100- 160 -230	-

※ Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions

※ Machining with coolant is recommended for titanium alloys

• Recommended cutting conditions above are for notched inserts. If using an insert without a notch, the cutting depth (D.O.C.) and width (ae) should be 60% of that of notched inserts.

★ : 1st Recommendation
☆ : 2nd Recommendation

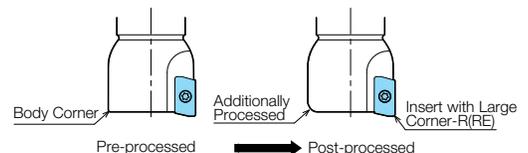
• JA Chipbreaker

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)
		Carbide
Aluminum Alloy (Si ≤ 13%)	0.003-0.012	GW25 660-2620
Aluminum Alloy (Si > 13%)	0.003-0.008	660-980

■ When using inserts with corner-R (RE) 1.6mm or larger, additional modifications of the cutter body will be necessary. Ref. to the table below for the recommended modifications. (Additional grind off is not necessary when corner-R (RE) is 1.2mm or less.)

Insert Corner-R(RE)	Additional Processing Dimension to Body Corner
1.6	R1.0
2.0	
2.4	R1.2
3.1	R1.6
4.0	R2.5

* Round-shaped additional processing is recommended. When applying chamfer shaped additional processing, do not cut away too much.

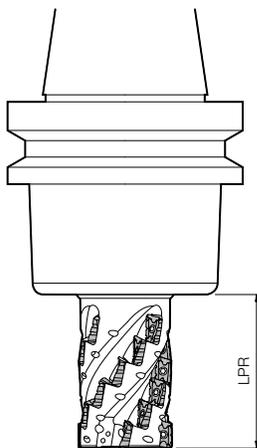


Cutting Performance (Used Machine: Machining Center Equivalent to AC15 / 18.5kW)

MECH Helical End Mill

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø1.000" Ø25mm	MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T	1.89
Ø1.250" Ø32mm	MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T	2.24
	MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
Ø1.500" Ø40mm	MECH1500-W1500-11-6-4T MECH040-S32-11-6-4T	2.56
	MECH1500-W1500-11-6-4T MECH040-S42-11-6-4T	
Ø2.000" Ø50mm	MECH2000-W1500-11-7-4T MECH050-S42-11-7-4T	2.99
	MECH2000-W1500-11-7-6T MECH050-S42-11-7-6T	
Ø1.500" Ø40mm	MECH1500-W1250-17-4-2T MECH040-S32-17-4-2T	2.91
	MECH1500-W1500-17-4-2T MECH040-S42-17-4-2T	
Ø2.000" Ø50mm	MECH2000-W1500-17-5-4T MECH050-S42-17-5-4T	3.50

Shape



- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

2 Flute Type

(Workpiece :1049)

Part Number	Shouldering	Slotting
	Cutting Speed: Vc = 330~590 sfm Feed fz = 0.003~0.006 ipt	Cutting Speed: Vc = 330~390 sfm Feed fz = 0.003~0.005 ipt
MECH1000-W1000-11-4-2T MECH025-S25-11-4-2T		
MECH1250-W1250-11-5-2T MECH032-S32-11-5-2T		
MECH1500-W1250-17-4-2T MECH1500-W1500-17-4-2T		
MECH040-S32-17-4-2T MECH040-S42-17-4-2T		

4 Flute / 6 Flute Type

MECH1250-W1250-11-5-4T MECH032-S32-11-5-4T	
MECH1500-W1250-11-6-4T MECH1500-W1500-11-6-4T	
MECH040-S32-11-6-4T MECH040-S42-11-6-4T	
MECH1200-W1500-11-7-4T MECH050-S42-11-7-4T	
MECH1200-W1500-11-7-6T MECH050-S42-11-7-6T	
MECH1200-W1500-17-5-4T MECH050-S42-17-5-4T	

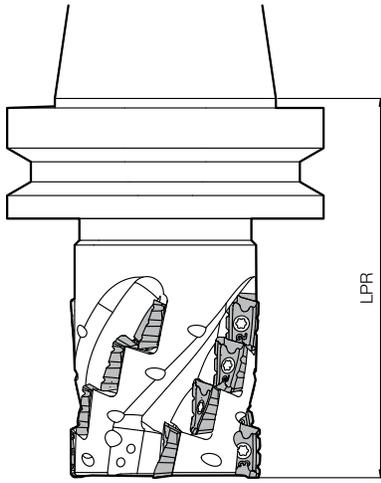
*4 and 6 flute types are not recommended for slotting

MECH Shell Mill

(Workpiece : 1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø40mm	MECH040R-11-4-4T-M	4.92
Ø2.000" Ø50mm	MECH2000R-11-5-6T MECH050R-11-5-6T-M	4.84
	MECH2000R-17-2-4T MECH050R-17-2-4T-M	4.41
	MECH2000R-17-4-4T MECH050R-17-4-4T-M	5.43
	MECH063R-17-3-4T-M	4.53
Ø80mm	MECH080R-17-4-6T-M	5.12
Ø100mm	MECH100R-17-4-6T-M	5.12

Shape



Part Number	Shouldering	
	Cutting Speed: $V_c = 330\text{--}590$ sfm Feed: $f_z = 0.003\text{--}0.006$ ipt	
MECH040R-11-4-4T-M		MECH063R-17-3-4T-M
MECH2000R-11-5-6T MECH050R-11-5-6T-M		MECH080R-17-4-6T-M
MECH2000R-17-2-4T MECH050R-17-2-4T-M		MECH100R-17-4-6T-M
MECH2000R-17-4-4T MECH050R-17-4-4T-M		

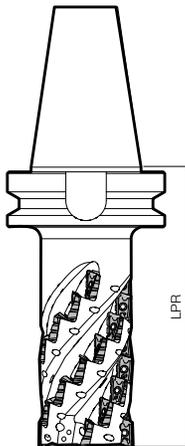
*Not recommended for slotting

- MECH-BT50 Integral Arbor
- MECH-BT50SA Integral Arbor with Replaceable Front Piece

(Workpiece : 1049)

Cutting Dia.	Part Number Inch Size Metric Size	Overhang Length LPR (in)
Ø50mm	MECH050R11-8-4T-BT50 MECH050R11-4T-BT50SA	5.63
	MECH050R17-7-4T-BT50	6.81
Ø63mm	MECH063R17-7-4T-BT50 MECH063R17-4T-BT50SA	
Ø80mm	MECH080R17-7-4T-BT50 MECH080R17-4T-BT50SA	
Ø100mm	MECH100R17-7-6T-BT50 MECH100R17-6T-BT50SA	

Shape

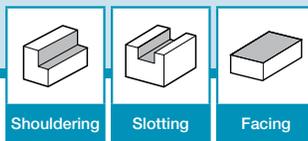


Part Number	Shouldering	
	Cutting Speed: $V_c = 330\text{--}590$ sfm Feed: $f_z = 0.003\text{--}0.006$ ipt	
MECH050R11-8-4T-BT50 MECH050R11-4T-BT50SA		MECH080R17-7-4T-BT50 MECH080R17-4T-BT50SA
MECH050R17-7-4T-BT50		MECH100R17-7-6T-BT50 MECH100R17-6T-BT50SA
MECH063R17-7-4T-BT50 MECH063R17-4T-BT50SA		

*Not recommended for slotting

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

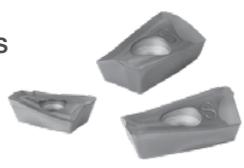
NEW ITEMS!



MECHT

Helical End Mill for Titanium Alloy Machining

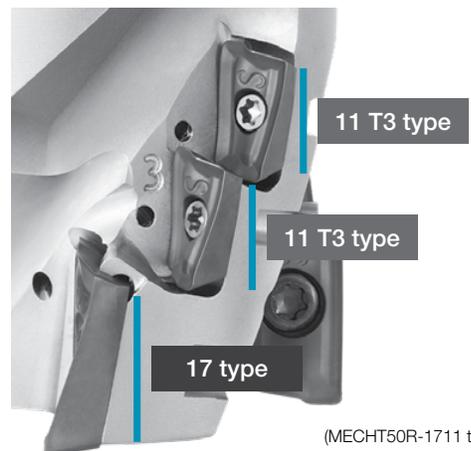
Insert Size Combination Improves Roughing Capabilities
Maintains Stable Machining and Long Tool Life



Developed to Reduce Chattering and Chip Recutting Issues

Unique Insert Combination

The larger bottom inserts are positioned to handle larger cutting forces (excluding $\phi 32$)
Stable machining with improved fracture resistance



(MECHT50R-1711 type)

New Design for Higher Reliability

Bottom inserts are held in place by double-faced contacts

Holding Surface 1

Wide Holding Surface

Holding Surface 2

Additional Hold in the Axial Direction



Bore Dia.

Larger bore diameter improves fastening power and reduces chattering
 $\phi 50$ mm Cutter with a $\phi 27$ mm Bore (Conventional Bore : $\phi 22$ mm)

Toolholder Hardness Hardened 15% more than conventional holders

Toolholder Spec Custom ordering available
(Custom number of inserts and stages)

Excellent Chip Evacuation

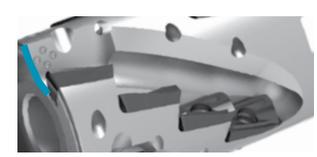
New flute design

Large, smooth flutes prevent chip clogging

MECHT ($\phi 50$ -4T 3 Stages)

Conventional ($\phi 50$ -4T 4 Stages)

Large flute



Smooth design

All insert pockets have coolant holes

Optimized hole diameter controls flow amount and pressure

Smooth chip evacuation as well as superior cooling of the cutting edge

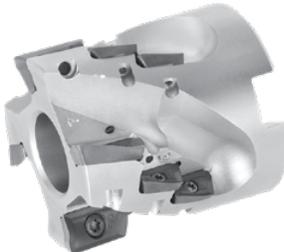


Chips Example

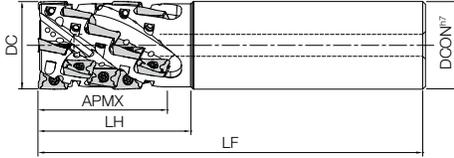
Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M MILLING

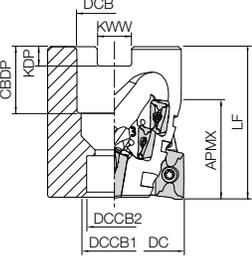
MECHT Helical Mill (with Coolant Holes)



End Mill Fig.1



Shell Mill Fig.2



Rake Angle (°)		
Part Number	A.R. (Max)	R.R.
MECHT32...-11-	+23°	-9°
MECHT50...-1711-	1st Stage	+19° -7°
	2nd Stage and Above	+23° -6°
MECHT63...-17-	+19°	-7°
MECHT80...-17-	+19°	-7°

Helical End Mill Dimensions (Metric)

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)					Drawing	Spare Parts		Applicable Inserts M22	
					DC	DCON	LF	LH	APMX		Insert Screw	Wrench	1st Stage	2nd Stage and Above
MECHT 32-S32-11-5-4T	●	4	5	20	32	32	140	55	46	Fig.1	SB-2555TRG	DTM-8	BDMT11T3...	*1 BDMT11T308...

Helical Shell Mill Dimensions (Metric)

Part Number	Stock	No. of Flutes	No. of Stages	No. of Inserts	Dimensions (mm)								Drawing	Spare Parts			Applicable Inserts M22		
					DC	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW		APMX	Insert Screw	Wrench	Arbor Bolt	1st Stage	2nd Stage and Above
MECHT 50R-1711-3-4T-M	●	4	3	12	50	27	20	14	55	24	7	12.4	34	Fig.2	SB-2555TRG	DTM-8	HH12X40	BDMT1704...	*1 BDMT11T308...
50R-1711-4-5T-M	●	5	4	20																65	43	SB-4070TRN	DTM-15	HH12X50
MECHT 63R-17-4-5T-M	●	5	4	20	63	27	20	14	80	24	7	12.4	60	SB-4070TRN	DTM-15	HH12X65	*1 BDMT170408...		
80R-17-4-6T-M	●	6	4	24	80	32	26	17	80	28	8	14.4	60	SB-4070TRN	DTM-15	HH16X65			

*1. Use inserts with Corner R (RE) of 0.8mm or less for the 2nd and above stages
Machining with coolant is recommended (internal coolant pressure 218 psi or more)

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Applicable Inserts **M22**

Insert	Part Number	Dimensions (mm)					Angle		MEGACOAT NANO
		W1	S	D1	L	RE	AS	AN	PR1535
 Low Cutting Force	BDMT 11T302ER-JS	6.7	3.8	2.8	11.0	0.2	18°	13°	●
	11T304ER-JS					0.4			●
	11T308ER-JS					0.8			●
	BDMT 170404ER-JS	9.6	4.9	4.4	17.0	0.4	18°	13°	●
	170408ER-JS					0.8			●

General JT chipbreaker and notched insert (only if holder has an even number of inserts) can also be used.
For more information, please contact your Kyocera sales representative.

Recommended Cutting Conditions

Workpiece Material	Applications	Depth and Width of Cut (in)		Feed Rate fz (ipt)	Recommended Insert Grade Vc (sfm)	
		D.O.C.	W.O.C.		MEGACOAT NANO	
					PR1535	
Titanium Alloy	Shouldering	~Length of Cut (APMX)	~0.5DC	0.004- 0.005 -0.006	100- 130 -200	
	Slotting	~0.5DC	1DC	0.002- 0.003 -0.004	100- 130 -160	

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

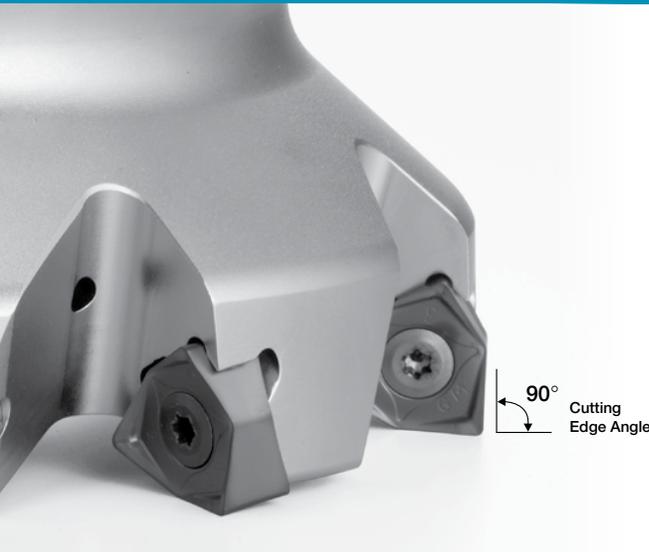
MILLING **M**

QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

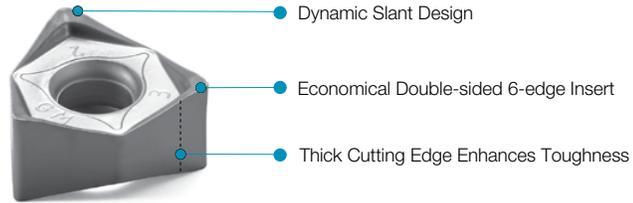
TECHNICAL **R**

INDEX **T**



M-SIX (MFWN)

Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance
Wide Application Range and Now Includes PDL025 DLC Coated Inserts for Aluminum

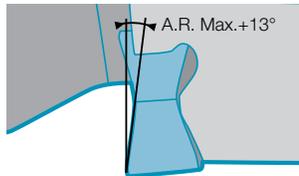


1 Sharp Cutting due to Lower Cutting Forces

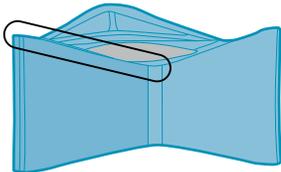
Low Cutting Force due to Steep Rake Angle

Dynamic Slant Design Reduces Initial Impact when Cutting Edge Enters the Workpiece

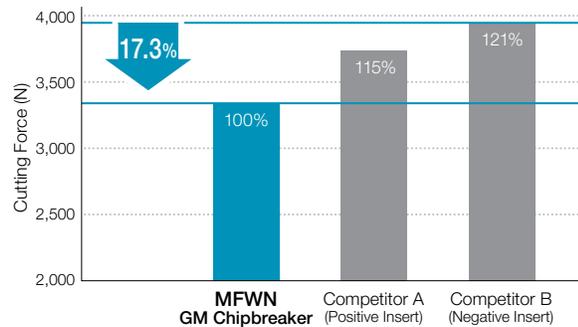
Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications



Dynamic Slant Design



Cutting Force Comparison (In-house Evaluation)



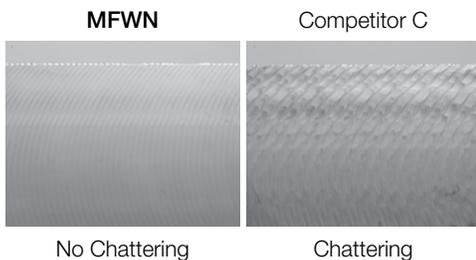
Cutting Force is the Resultant Force of the Principal Force and the Feed Force

Cutting Conditions: $V_c = 590$ sfm, D.O.C. \times ae = $0.275'' \times 0.400''$, fz = 0.008 ipt
Workpiece: 1049 Cutter Dia. $\varnothing 5.000''$

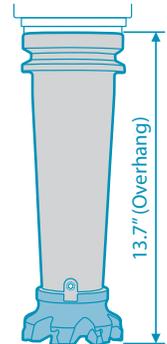
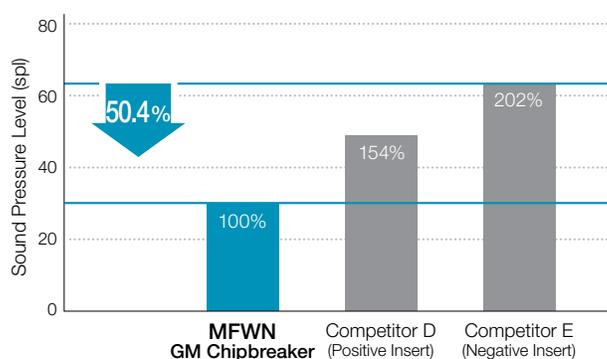
2 Reduced Chattering Even with Extended Milling Adapters

Resistant to Chattering due to Low Cutting Force Design and applicable to long overhang

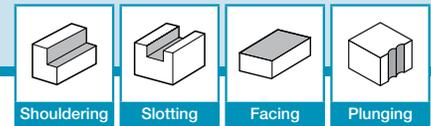
Surface Roughness Comparison (In-house Evaluation)



Cutting Noise Comparison (In-house Evaluation)



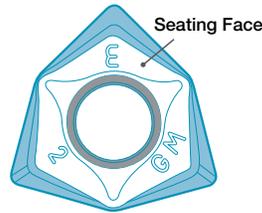
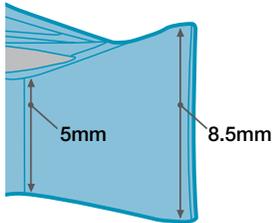
Cutting Conditions: $V_c = 660$ sfm, D.O.C. \times ae = $0.118'' \times 0.590''$, fz = 0.004 ipt
Workpiece: 1049 Cutter Dia. $\varnothing 3.000''$ (7 Inserts)



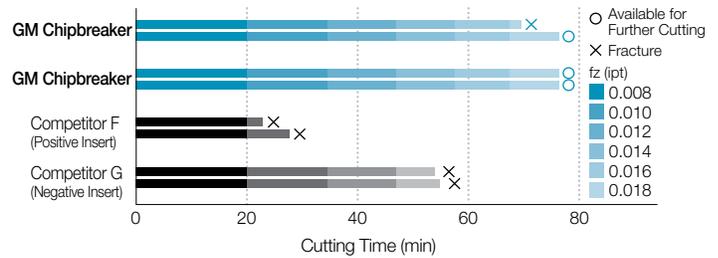
3 Superior Fracture Resistance with Thick Edge Design

Cutting Edge Thickness: 5 - 8.5mm

Stable Clamping with the Unique Insert Face Design



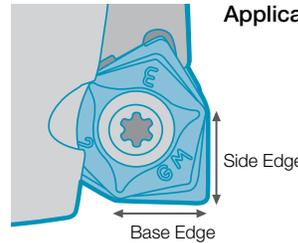
Fracture Resistance Comparison (In-house Evaluation)



Cutting Conditions: $V_c = 330$ sfm, D.O.C. \times ae = 0.080" \times 4.000", fz = 0.004 ~ 0.018 ipt, Dry Workpiece: 4140H (38 ~ 42HS) Interrupted with a Slot in the Workpiece

4 Neutral Inserts

Available for Shouldering and Facing
Neutral Inserts are Applicable to Left-hand Cutters (Custom Order)



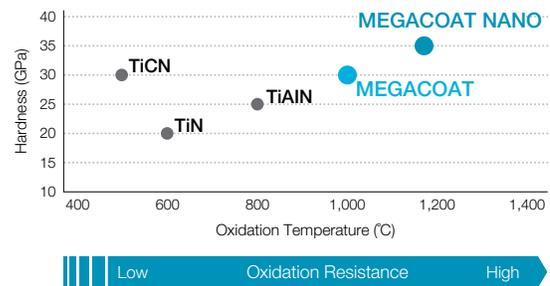
Applicable to a Wide Range of Applications

5 MEGACOAT NANO Coated Insert Grade for Long Tool Life

PR1525 for steel, PR1510 for cast iron and PR1535 for Ni-base heat-resistant alloy, titanium alloy and precipitation-hardened stainless steel

Prevents wear and fracturing with high hardness (35GPa) and superior oxidation resistance (oxidation temperature: 1,150°C)

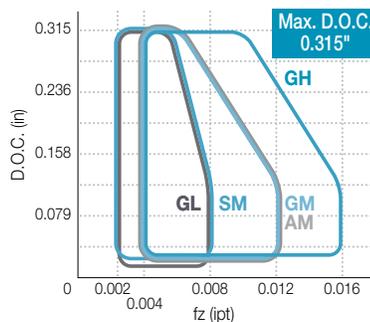
Coating Property



6 Extensive Insert Lineup Covering Various Applications

Chipbreaker	Applications	Shape
GM	General Purpose	
SM	Low Cutting Force	
GH	Heavy Milling	
GL	Surface-Finish Oriented	
AM	Aluminum / Non-ferrous Metals	

Application Range



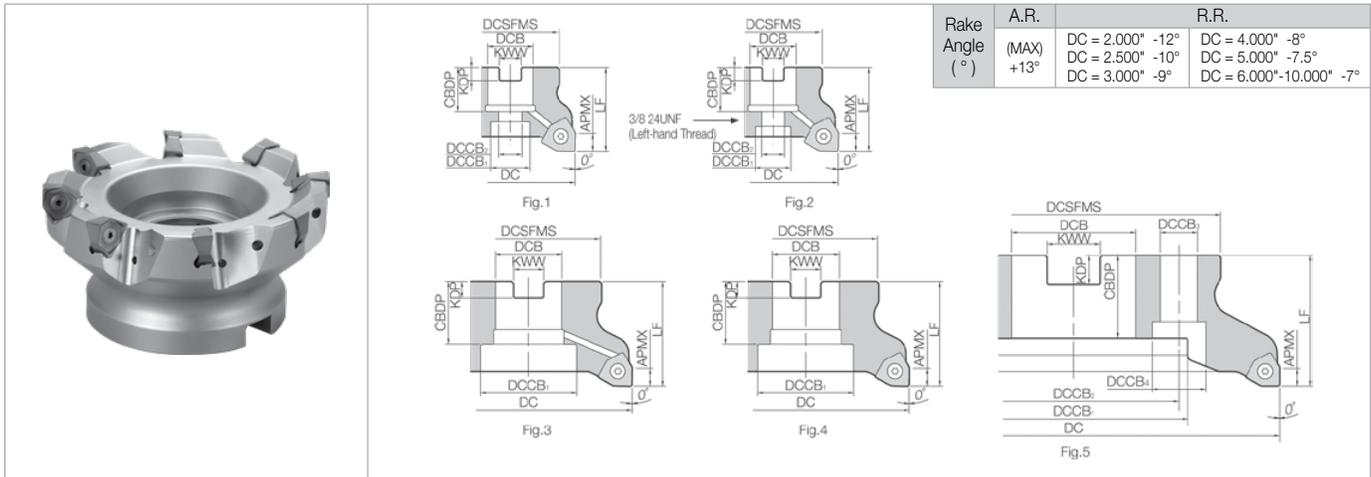
Smooth Chip Evacuation



Properly Curled Chips (The Photo was Taken by a High Speed Camera)

- A INSERT GRADES
- B TURNING INSERTS
- C GEN/PCD INSERTS
- D TURNING HOLDERS
- E SMALL TOOLS
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- K DRILLING
- M MILLING
- N QUICK CHANGE TOOLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

M-SIX (MFWN) Face Mill (Inch)



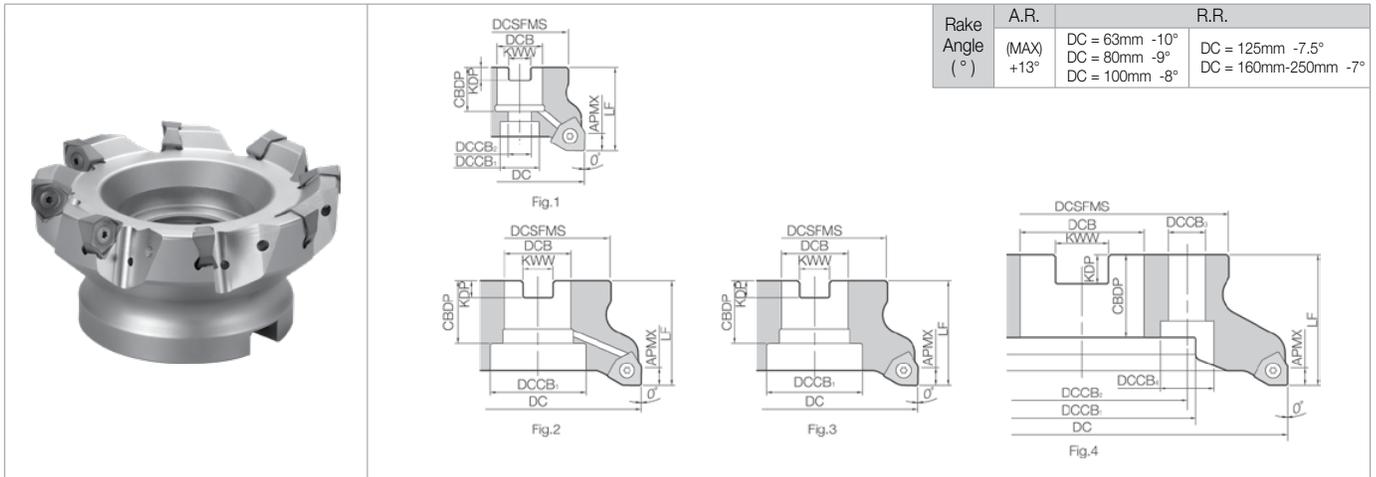
Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	Dimensions (in)										Drawing	Weight (kg)	Shim	Coolant Hole					
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX					DCCB ₃	DCCB ₄			
Coarse Pitch	MFWN 902500R-3T	●	3	2.500	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.312	0.315	-	-	Fig.1	0.4	Yes			
	903000R-4T	●	4	3.000	2.283	1.000	0.875	0.551	1.968	1.063	0.236	0.381				Fig.1	0.8				
	904000R-5T	●	5	4.000	2.756	1.500	2.047	-	1.968	1.142	0.393	0.625				Fig.3	1.1				
	905000R-6T	●	6	5.000	3.425	1.500	2.175		2.480	1.496	0.393	0.625				Fig.3	2.5				
	906000R-8T	●	8	6.000	4.016	2.000	2.835	2.480	1.496	0.433	0.752	Fig.4				3.4					
	908000R-10T	●	10	8.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008				0.709	1.024		Fig.5	6.0	No
	901000R-12T	●	12	10.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008				0.709	1.024		Fig.5	8.2	
Fine Pitch	MFWN 902000R-4T	●	4	2.000	1.752	0.750	0.500	3/8 24UNF	1.968	0.830	0.187	0.312	0.315	-	-	Fig.2	0.4	Yes			
	902500R-4T	●	4	2.500	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.312				Fig.1	0.5				
	903000R-5T	●	5	3.000	2.283	1.000	0.875	0.551	1.968	1.063	0.236	0.381				Fig.1	0.8				
	904000R-7T	●	7	4.000	2.756	1.500	2.047	-	1.968	1.142	0.393	0.625				Fig.3	1.0				
	905000R-8T	●	8	5.000	3.425	1.500	2.175		2.480	1.496	0.393	0.625				Fig.3	2.5				
	906000R-10T	●	10	6.000	4.016	2.000	2.835	2.480	1.496	0.433	0.752	Fig.4				3.5					
	908000R-12T	●	12	8.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008				0.709	1.024		Fig.5	6.2	No
901000R-14T	●	14	10.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008	0.709	1.024	Fig.5	8.4						
Extra-Fine Pitch	MFWN 902500R-5T	●	5	2.500	1.890	0.750	0.669	0.433	1.575	0.750	0.187	0.312	0.315	-	-	Fig.1	0.4	Yes			
	903000R-7T	●	7	3.000	2.283	1.000	0.875	0.551	1.968	1.063	0.236	0.381				Fig.1	0.8				
	904000R-9T	●	9	4.000	2.756	1.500	2.047	-	1.968	1.142	0.393	0.625				Fig.3	1.0				
	905000R-12T	●	12	5.000	3.425	1.500	2.175		2.480	1.496	0.393	0.625				Fig.3	2.4				
	906000R-14T	●	14	6.000	4.016	2.000	2.835	2.480	1.496	0.433	0.752	Fig.4				3.4					
	908000R-16T	●	16	8.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008				0.709	1.024		Fig.5	6.1	No
	901000R-18T	●	18	10.000	5.591	2.500	3.937	4.000	2.480	1.575	0.551	1.008				0.709	1.024		Fig.5	8.4	

Spare Parts ● M110

Applicable Inserts ● M111

M-SIX (MFWN) Face Mill (Metric)



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Drawing	Weight (kg)	Shim	Coolant Hole				
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	DCCB ₃					DCCB ₄			
Inch Bore Dia.	Coarse Pitch	MFWN 90080R-4T	●	4	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	8			Fig.1	1.0	Yes		
		90100R-5T	●	5	100	70	1.250"	46		50	1.339"	0.315"	0.500"				Fig.2	1.3			
		90125R-6T	●	6	125	87	1.500"	55		63	1.496"	0.394"	0.625"				Fig.2	2.6			
		90160R-8T	●	8	160	102	2.000"	72		63	1.496"	0.433"	0.750"				Fig.3	3.9			
		90200R-10T	●	10	200	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	6.3
		90250R-12T	●	12	250	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	8.7
	Fine Pitch	MFWN 90080R-5T	●	5	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	8			Fig.1	1.0	No		
		90100R-7T	●	7	100	70	1.250"	46		50	1.339"	0.315"	0.500"				Fig.2	1.4			
		90125R-8T	●	8	125	87	1.500"	55		63	1.496"	0.394"	0.625"				Fig.2	2.7			
		90160R-10T	●	10	160	102	2.000"	72		63	1.496"	0.433"	0.750"				Fig.3	4.0			
		90200R-12T	●	12	200	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	6.6
		90250R-14T	●	14	250	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	8.9
Extra-Fine Pitch	MFWN 90080R-7T	●	7	80	60	1.000"	20	13	50	1.063"	0.236"	0.375"	8			Fig.1	1.1	No			
	90100R-9T	●	9	100	70	1.250"	46		50	1.339"	0.315"	0.500"				Fig.2	1.3				
	90125R-12T	●	12	125	87	1.500"	55		63	1.496"	0.394"	0.625"				Fig.2	2.7				
	90160R-14T	●	14	160	102	2.000"	72		63	1.496"	0.433"	0.750"				Fig.3	4.1				
	90200R-16T	●	16	200	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	6.7	
	90250R-18T	●	18	250	142	1.875"	110	101.6	63	1.575"	0.551"	1.000"				18	26		Fig.4	9.1	
Metric Bore Dia.	Coarse Pitch	MFWN 90063R-3T-M	●	3	63	47	22	19	11	40	21	6.3	10.4	8			Fig.1	0.5	Yes		
		90080R-4T-M	●	4	80	60	27	20	13	50	24	7	12.4				Fig.1	1.0			
		90100R-5T-M	●	5	100	70	32	46		50	30	8	14.4				Fig.2	1.3			
		90125R-6T-M	●	6	125	87	40	55		63	33	9	16.4				Fig.2	2.5			
		90160R-8T-M	●	8	160	102	40	68	66.7	63	32	9	16.4				14	20		Fig.4	3.8
		90200R-10T-M	●	10	200	142	60	110	101.6	63	40	14	25.7				18	26		Fig.4	6.0
	Fine Pitch	MFWN 90063R-4T-M	●	4	63	47	22	19	11	40	21	6.3	10.4	8			Fig.1	0.5	No		
		90080R-5T-M	●	5	80	60	27	20	13	50	24	7	12.4				Fig.1	1.0			
		90100R-7T-M	●	7	100	70	32	46		50	30	8	14.4				Fig.2	1.3			
		90125R-8T-M	●	8	125	87	40	55		63	33	9	16.4				Fig.2	2.6			
		90160R-10T-M	●	10	160	102	40	68	66.7	63	32	9	16.4				14	20		Fig.4	3.9
		90200R-12T-M	●	12	200	142	60	110	101.6	63	40	14	25.7				18	26		Fig.4	6.3
Extra-Fine Pitch	MFWN 90063R-5T-M	●	5	63	47	22	19	11	40	21	6.3	10.4	8			Fig.1	0.5	No			
	90080R-7T-M	●	7	80	60	27	20	13	50	24	7	12.4				Fig.1	1.1				
	90100R-9T-M	●	9	100	70	32	46		50	30	8	14.4				Fig.2	1.3				
	90125R-12T-M	●	12	125	87	40	55		63	33	9	16.4				Fig.2	2.6				
	90160R-14T-M	●	14	160	102	40	68	66.7	63	32	9	16.4				14	20		Fig.4	3.9	
	90200R-16T-M	△	16	200	142	60	110	101.6	63	40	14	25.7				18	26		Fig.4	6.4	
90250R-18T-M	△	18	250	142	60	110	101.6	63	40	14	25.7	18	26	Fig.4	8.8						

Spare Parts ● M110

Applicable Inserts ● M111

INSERT GRADES	A
TURNING INSERTS	B
GBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

M-SIX (MFWN)

● Face Mill Spare Parts (Inch)

Part Number	Spare Parts								
	Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	Mounting Screw
		TT	DTM						
MFWN 902500R-3T	SB-50140TR	TTW-15		MFWN-90	SPW-7050	LW-5	P-37	HH3/8-1.25 (HH3/8-1.25H)	-
903000R-4T	Recommended Torque for Insert Clamp 4.2 N·m		-	Recommended Torque for Insert Clamp 6.0 N·m				HH1/2-1.25 (HH1/2-1.25H)	-
904000R-5T ~ 901000R-12T								-	-
MFWN 902000R-4T							P-37	-	XNS610 ¹
902500R-4T	SB-50140TR	TTW-15						HH3/8-1.25 (HH3/8-1.25H)	-
903000R-5T	Recommended Torque for Insert Clamp 4.2 N·m		-	-	-	-		HH1/2-1.25 (HH1/2-1.25H)	-
904000R-7T ~ 901000R-14T								-	-
MFWN 902500R-5T	SB-50140TR	TTW-15	-				P-37	HH3/8-1.25 (HH3/8-1.25H)	-
903000R-7T	SB-40140TRN	-	DTM-15	-	-	-		HH1/2-1.25 (HH1/2-1.25H)	-
904000R-9T ~ 901000R-18T	Recommended Torque for Insert Clamp 3.5 N·m							-	-

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation. *1Differential screw (3/8-24UNF) Applicable Inserts **M111**

If through spindle coolant is required, please order arbor bolt in () separately.

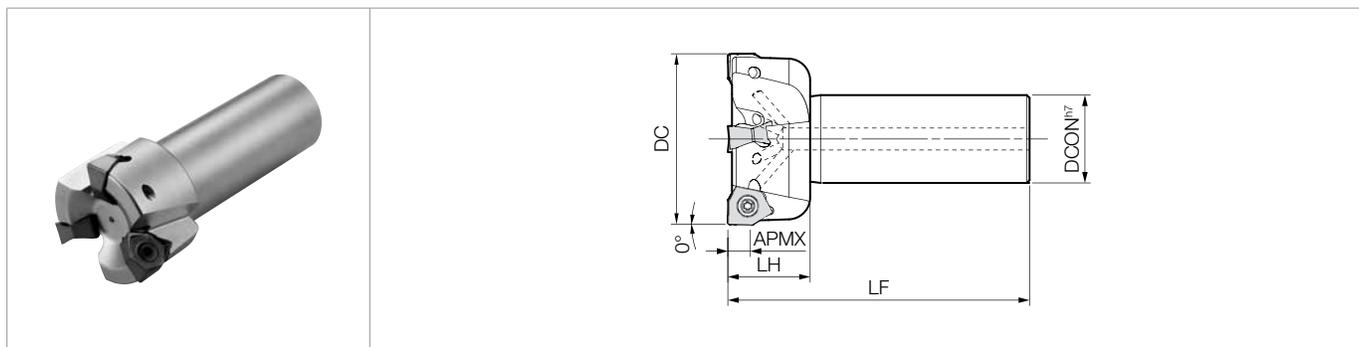
● Face Mill Spare Parts (Metric)

Part Number	Spare Parts								
	Insert Screw	Wrench		Shim	Shim Screw	Wrench	Anti-Seize Compound	Arbor Bolt	
		TT	DTM						
MFWN 90063R-3T-M	SB-50140TR	TTW-15		MFWN-90	SPW-7050	LW-5	P-37	HH10X30 (HH10X1.25H)	
90080R-4T-(M)	Recommended Torque for Insert Clamp 4.2 N·m		-	Recommended Torque for Insert Clamp 6.0 N·m				HH12X35 (HH12X35H)	
90100R-5T-(M) ~ 90250R-12T-(M)								-	
MFWN 90063R-4T-M	SB-50140TR	TTW-15					P-37	HH10X30 (HH10X1.25H)	
90080R-5T-(M)	Recommended Torque for Insert Clamp 4.2 N·m		-	-	-	-		HH12X35 (HH12X35H)	
90100R-7T-(M) ~ 90250R-14T-(M)								-	
MFWN 90063R-5T-M	SB-50140TR	TTW-15	-				P-37	HH10X30 (HH10X1.25H)	
90080R-7T-(M)	SB-40140TRN	-	DTM-15	-	-	-		HH12X35 (HH12X35H)	
90100R-9T-(M) ~ 90250R-18T-(M)	Recommended Torque for Insert Clamp 3.5 N·m							-	

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation. Applicable Inserts **M111**

If through spindle coolant is required, please order arbor bolt in () separately.

M-SIX (MFWN) End Mill (with Coolant Hole)



Toolholder Dimensions

Shank	Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Spare Parts		
					DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.		Insert Screw	Wrench	Anti-seize Compound
Weldon	MFWN 902000R-W125-3T	●	inch	3	2.000	1.250	3.600	1.180	0.315	+13°	-12°	Yes	SB-50140TR	TTW-15	P-37
	902500R-W125-4T	●		4	2.500										
	903000R-W125-5T	●		5	3.000										
Cylindrical	MFWN 90050R-S32-3T	●	mm	3	50	32	110	30	8	+13°	-12°	Yes	SB-50140TR	TTW-15	P-37
	90063R-S32-4T	●		4	63										
	90080R-S32-5T	●		5	80										

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Inserts

Part Number	Applicable Inserts M21				
MFWN90...	WNEU 080608EN-GL	WNMU 080608EN-GM	WNMU 080608EN-SM	WNMU 080608EN-GH	WNGT 080608FN-AM

Recommended Cutting Conditions [M112](#)

M-SIX (MFWN)

● How to Mount the Insert

1. Be sure to remove dust and chips from the insert mounting pocket
2. After applying anti-seize compound on portion of taper and thread, attach the screw to the front end of the wrench. While lightly pressing the insert against the constraint surfaces, put the screw into the hole of the insert and tighten (See Fig. 1)
3. When tightening the screw, make sure that the wrench is parallel to the screw. Remember that the screw hole of the holder for Extra Fine pitch is angled to the pocket floor (See Fig. 2 and Fig. 3)



Fig.1



Fig.2



Fig.3

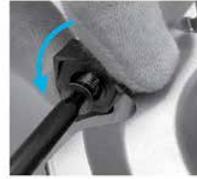


Fig.4

4. Be careful not to tighten the screw with excessive torque. Recommended torque is 4.2N·m for M5 screw (SB-50140TR) and 3.5N·m for M4 screw (SB-40140TRN)
5. After tightening the screw, make sure that there is no clearance between the insert seat surface and the pocket floor of the holder or between the insert side surfaces and the constraint surface of the holder. If there is any clearance, remove the insert and mount it again according to the above steps
6. To index the cutting edge of the insert, turn the insert counterclockwise. (See Fig. 4) The insert corner identification number is stamped on the top surface of the insert

● How to Replace the Shim

1. Be sure to remove dust and chips from the insert mounting pocket
2. The shim must be mounted in the proper direction. While aligning the surface of the shim with the mark on it to the corresponding constraint surface (see Fig. 1) and lightly pressing the shim toward the constraint surface of the pocket wall (see Fig. 2), insert the screw into the hole of the shim and tighten (See Fig. 3). When tightening screw, make sure that the screw is vertical to the pocket floor (See Fig 3). Recommended torque is 6.0Nm

3. After tightening the screw, make sure that there is no clearance between the shim seat surface and the pocket floor. If there is any clearance, remove the shim and mount it again according to the above steps

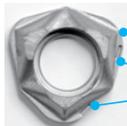


Fig.1

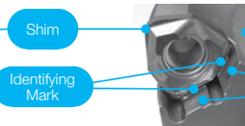


Fig.2



Fig.3



Shim Screw

Wrench

Shim

Identifying Mark

Cutter Body

Contact Face

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt) () : TN620M	Recommended Insert Grade (Vc sfm)							
			Cermet	MEGACOAT NANO			MEGACOAT HARD	CVD Coated Carbide	DLC Coated Carbide	Carbide
				TN620M	PR1535	PR1525					PR1510	PR015S	CA6535	PDL025	GW25
GM	Carbon Steel	0.004-0.008-0.012 (0.002-0.004-0.006)	★ 660-820-980	☆ 390-590-820	★ 390-590-820	-	-	-	-	-
	Alloy Steel	0.004-0.008-0.012 (0.002-0.004-0.006)	★ 590-720-820	☆ 330-520-720	★ 330-520-720	-	-	-	-	-
	Mold Steel	0.004-0.006-0.010 (0.002-0.004-0.005)	★ 490-590-720	☆ 260-460-590	★ 260-460-590	-	-	-	-	-
	Austenitic Stainless Steel	0.004-0.006-0.010	-	☆ 330-520-660	☆ 330-520-660	-	-	-	-	-
	Martensitic Stainless Steel	0.004-0.006-0.010	-	☆ 490-660-820	-	-	-	☆ 590-790-980	-	-
	Precipitation Hardened Stainless Steel	0.004-0.006-0.010	-	★ 300-390-490	-	-	-	-	-	-
	Gray Cast Iron	0.004-0.008-0.012	-	-	-	★ 390-590-820	-	-	-	-
	Nodular Cast Iron	0.004-0.006-0.010	-	-	-	★ 330-490-660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.004-0.005-0.008	-	☆ 70-100-160	-	-	-	★ 70-130-160	-	-
	Other Applications									
SM (GL) ^{#1}	Carbon Steel	0.002-0.005-0.008 (0.002-0.003-0.005)	★ 660-820-980	☆ 390-590-820	☆ 390-590-820	-	-	-	-	-
	Alloy Steel	0.002-0.005-0.008 (0.002-0.003-0.005)	★ 590-720-820	☆ 330-520-720	☆ 330-520-720	-	-	-	-	-
	Mold Steel	0.002-0.003-0.006 (0.002-0.003-0.004)	★ 490-590-720	☆ 260-460-590	☆ 260-460-590	-	-	-	-	-
	Austenitic Stainless Steel	0.002-0.005-0.008	-	★ 330-520-660	☆ 330-520-660	-	-	-	-	-
	Martensitic Stainless Steel	0.002-0.005-0.008	-	☆ 490-660-820	-	-	-	★ 590-790-980	-	-
	Precipitation Hardened Stainless Steel	0.002-0.005-0.008	-	☆ 300-390-490	-	-	-	-	-	-
	Gray Cast Iron	0.002-0.005-0.008	-	-	-	☆ 390-590-820	-	-	-	-
	Nodular Cast Iron	0.002-0.003-0.006	-	-	-	☆ 330-490-660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.002-0.004-0.006	-	☆ 70-100-160	-	-	-	☆ 70-130-160	-	-
	Titanium Alloy	0.002-0.003-0.006	-	★ 130-200-260	-	-	-	-	-	-
GH ^{#2}	Carbon Steel	0.008-0.012-0.016	-	☆ 390-590-820	☆ 390-590-820	-	-	-	-	-
	Alloy Steel	0.008-0.012-0.016	-	☆ 330-520-720	☆ 330-520-720	-	-	-	-	-
	Mold Steel	0.006-0.008-0.012	-	☆ 260-460-590	☆ 260-460-590	-	-	-	-	-
	Austenitic Stainless Steel	0.008-0.010-0.012	-	☆ 330-520-660	☆ 330-520-660	-	-	-	-	-
	Martensitic Stainless Steel	0.008-0.010-0.012	-	☆ 490-660-820	-	-	-	☆ 590-790-980	-	-
	Precipitation Hardened Stainless Steel	0.008-0.010-0.012	-	☆ 300-390-490	-	-	-	-	-	-
	Gray Cast Iron	0.008-0.012-0.016	-	-	-	☆ 390-590-820	-	-	-	-
	Nodular Cast Iron	0.006-0.008-0.012	-	-	-	☆ 330-490-660	-	-	-	-
	Ni-base Heat Resistant Alloy	0.006-0.008-0.010	-	☆ 70-100-160	-	-	-	☆ 70-130-160	-	-
	Hard Materials (≤ 60HRc)	0.006-0.008-0.010	-	-	-	-	★ 260-330-390	-	-	-
AM	Non-ferrous Material	0.004-0.008-0.012	-	-	-	-	-	★ 660-1970-2950	☆ 660-1640-2620	-

• Bold numbers in the graph indicate the most recommended value of feed (fz) Adjust cutting speed and feed rate according to the actual machining conditions ★ :1st Recommendation
 • Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys ☆ : 2nd Recommendation
 ※1 GL Chipbreaker is recommended for surface finish oriented milling
 ※2 When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≤ 0.012 ipt. GH chipbreaker is not recommended for extra-fine pitch cutter

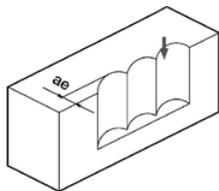
● Applicable Chipbreaker

Cutter	Chipbreaker			
	GM	SM (GL)	GH	AM
Coarse Pitch (with Shim)	✓	✓	✓	✓
Fine Pitch (without Shim)	✓	✓	✓ (fz ≤ 0.012 ipt Recommended)	✓
Extra Fine Pitch (without Shim)	✓	✓	Not Recommended	Not Recommended

● Cutter Type and Insert Selection Guide

Purpose	Cutter			Chipbreaker				
	Coarse Pitch	Fine Pitch	Extra-Fine Pitch	GM	SM	GH	GL	AM
General Milling for Steel and Alloy Steel		✓		✓				
Steel and Alloy Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Productivity Oriented (D.O.C. ≥ 0.158" fz ≥ 0.010 ipt)	✓					✓		
Surface Roughness Oriented	✓	✓					✓	
General Milling for Stainless Steel		✓			✓			
Stainless Steel (to prevent chattering due to low rigidity machine or poor clamping power)	✓				✓			
Cast Iron Milling (Improved Efficiency)			✓	✓				
Cast Iron (D.O.C. ≥ 0.158" fz ≥ 0.010 ipt)	✓					✓		
General Milling for Aluminum Alloys		✓						✓
Aluminum Alloys (to prevent chattering due to low rigidity)	✓							✓

● Plunging



Cutting Dia.	MAX. Width of Cut (ae)
All Items	0.315"



NOT available for ramping or helical milling, due to interference between workpiece and insert.

■ Case Studies

No.50

- Machine Part
- Vc = 560 sfm
- D.O.C. × ae = 0.098" × 5.118"
- fz = 0.007 ipt (Vf = 19.685 ipm)
- Wet
- MFWN90160R-8T (8 Inserts)
- WNMU080608EN-GM (PR1525)

PR1525	163 cc/min
Competitor A (Positive Cutter)	68 cc/min

Competitor A continued to cut under low cutting conditions as the workpiece was slipping due to unstable chucking. With MFWN, stable cutting was possible at higher feed rates.

(User Evaluation)

Manganese Steel

- Construction Equipment Part
- Vc = 490 sfm
- D.O.C. × ae = 0.039" × 3.937"
- fz = 0.008 ipt (Vf = 26.299 ipm)
- Dry
- MFWN90100R-7T (7 Inserts)
- WNMU080608EN-GM (PR1525)

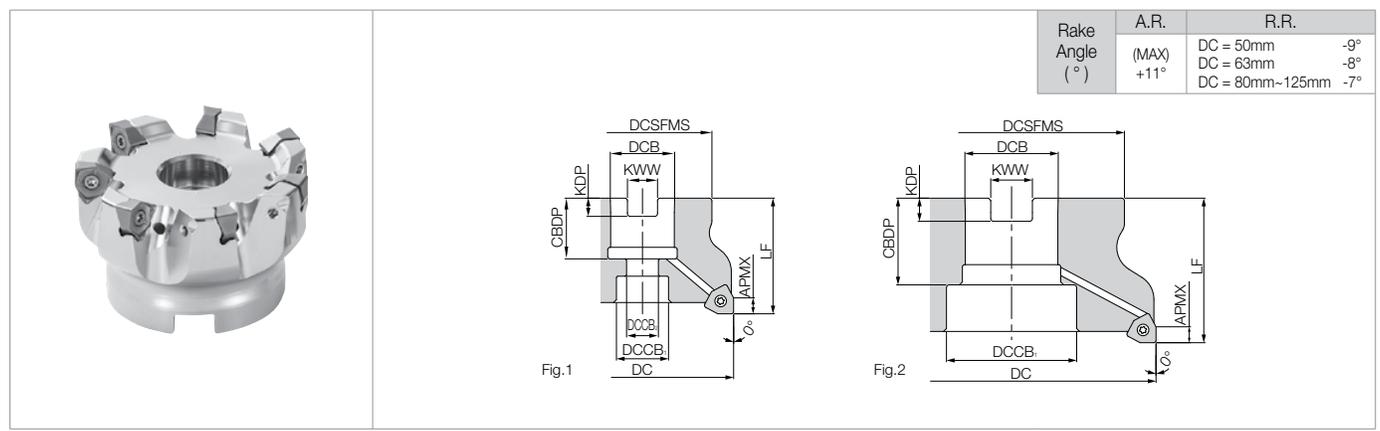
PR1525	2 pcs/edge
Competitor B (Negative Cutter)	1 pcs/edge

Despite instability with the long overhang of the workpiece, MFWN doubled tool life and improved efficiency by 150%.

(User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFWN-Mini Face Mill (Metric)



Rake Angle (°)	A.R.	R.R.	
	(MAX)	DC = 50mm	-9°
	+11°	DC = 63mm	-8°
		DC = 80mm-125mm	-7°

Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)										Coolant Hole	Drawing	Weight (kg)	Max. RPM*				
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX								
Inch Bore Dia. Coarse Pitch	MFWN 90080R-05-7T	●	7	80	70	1.000*	20	13	50	1.063"	0.236"	0.375"	5	Yes	Fig.1	1.3	10,900			
	90100R-05-8T	●	8	100	78	1.250*	45	-		1.339"	0.315"	0.500"			Fig.2	1.6	9,700			
	90125R-05-11T	●	11	125	89	1.500*	55	-		1.496"	0.394"	0.625"			Fig.2	2.9	8,700			
Inch Bore Dia. Fine Pitch	MFWN 90080R-05-9T	●	9	80	70	1.000*	20	13	50	1.063"	0.236"	0.375"	5	Yes	Fig.1	1.2	10,900			
	90100R-05-11T	●	11	100	78	1.250*	45	-		1.339"	0.315"	0.500"			Fig.2	1.6	9,700			
	90125R-05-14T	●	14	125	89	1.500*	55	-		1.496"	0.394"	0.625"			Fig.2	2.8	8,700			
Metric Bore Dia. Coarse Pitch	MFWN 90050R-05-5T-M	●	5	50	48	22	17.5	11	40	21	6.3	10.4	5	Yes	Fig.1	0.4	13,800			
	90063R-05-6T-M	●	6	63	48	22	18									0.5	12,300			
	90080R-05-7T-M	●	7	80	70	27	20	13	50	24	7	12.4			1.2	10,900				
	90100R-05-8T-M	●	8	100	78	32	45	-		30	8	14.4			1.6	9,700				
	90125R-05-11T-M	●	11	125	89	40	55	-		33	9	16.4			2.8	8,700				
	Metric Bore Dia. Fine Pitch	MFWN 90050R-05-6T-M	●	6	50	48	22	17.5	11	40	21	6.3			10.4	5	Yes	Fig.1	0.4	13,800
		90063R-05-7T-M	●	7	63	48	22	18											0.5	12,300
		90080R-05-9T-M	●	9	80	70	27	20	13	50	24	7			12.4			1.2	10,900	
		90100R-05-11T-M	●	11	100	78	32	45	-		30	8			14.4			1.5	9,700	
		90125R-05-14T-M	●	14	125	89	40	55	-		33	9			16.4			2.7	8,700	

Max. Revolution*
When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

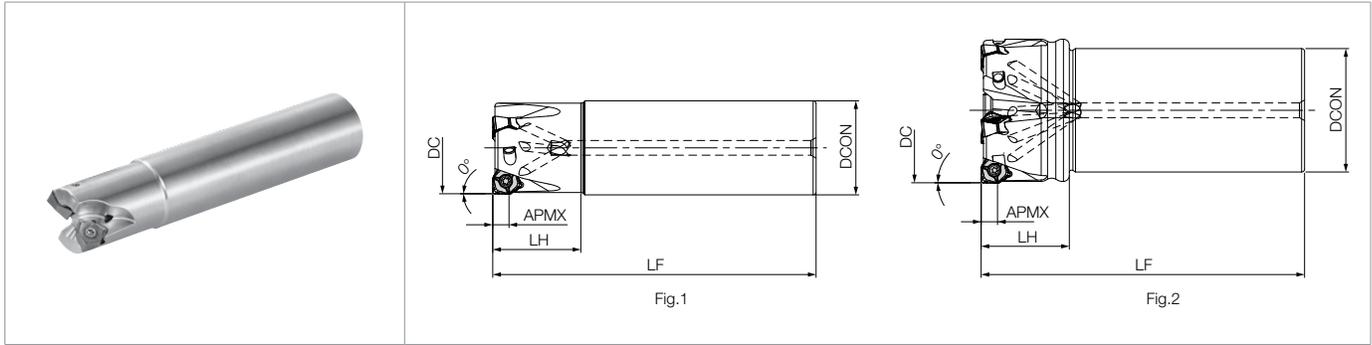
Recommended Cutting Conditions **M117**
Applicable Inserts **M116**

Face Mill Spare Parts

Part Number	Spare Parts				
	Insert Screw	Wrench	Anti-Seize Compound	Arbor Bolt	
Coarse Pitch	MFWN 90050R-05-5T-M	SB-3065TRP	DTPM-8	P-37	HH10x30
	90063R-05-6T-M				HH10x30
	90080R-05-7T(-M)				HH12x35
	90100R-05-8T(-M)				-
	90125R-05-11T(-M)				-
Fine Pitch	MFWN 90050R-05-6T-M	SB-3065TRP	DTPM-8	P-37	HH10x30
	90063R-05-7T-M				HH10x30
	90080R-05-9T(-M)				HH12x35
	90100R-05-11T(-M)				-
	90125R-05-14T(-M)				-

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MFWN-Mini End Mill (Metric)



Toolholder Dimensions (Metric)

Shank	Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Coolant Hole	Drawing	Max. RPM*	Spare Parts		
				DC	DCON	LF	LH	APMX	A.R. (Max)	R.R.				Insert Screw	Wrench	Anti-seize Compound
Cylindrical	MFWN 90025R-S25-05-2T	●	2	25	25	120	32	5	+11°	Yes	Fig.1	19,500	SB-3065TRP	DTPM-8	P-37	
	90032R-S32-05-3T	●	3	32	130	40	-14.5°					17,200				
	90040R-S32-05-4T	●	4	40	150	50	-12°					15,400				
	90050R-S32-05-5T	●	5	50	32	110	30					-10°				13,800
	90063R-S32-05-6T	●	6	63								-9°				12,300
	90080R-S32-05-7T	●	7	80								-8°				10,900

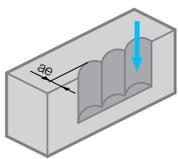
Max. Revolution*

When running the end mill and cutter at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Recommended Cutting Conditions **M117**

Applicable Inserts **M116**

Plunging



Available for Plunging

Cutting Dia.	Maximum width of cut (ae)
All Cutters	5 mm

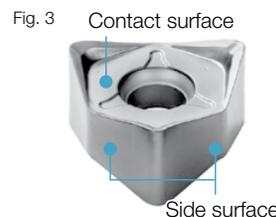
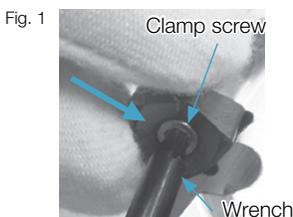
Ramping and helical milling are not recommended due to interference between workpiece and flank face

Applicable Chipbreaker by Cutter Type

Cutter Type	Chipbreaker		
	GM	SM	GH
Coarse Pitch	○	○	○
Fine Pitch	○	○	△ (fz = 0.0081pt or less)

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side
2. Coat anti-seize compound thinly on portion of taper and thread of clamp screw prior to installation.
After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the insert seat surface and holder surface (Fig.1)
3. Tighten the wrench while holding parallel to the clamp screw.
Recommended tightening torque ··· 1.2 Nm
4. After tightening, check that there is no gap between the contact surface of the insert and the surface of the insert seat, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.



INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

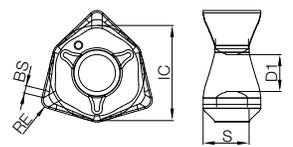
● Applicable Inserts

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

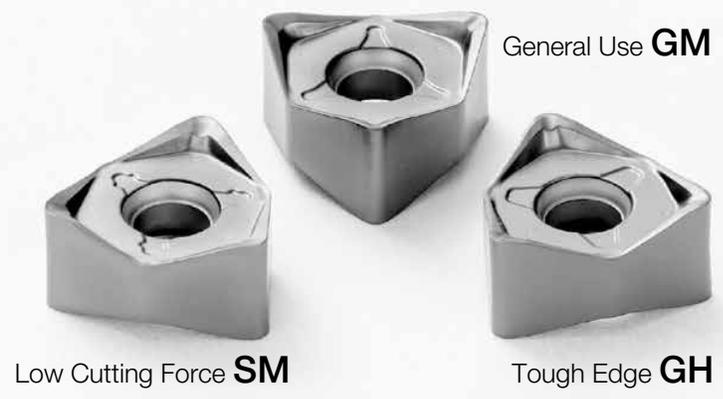
P	Free-Cutting Steel	☆	★		
	Carbon/Alloy Steel	☆	★		
M	Austenitic Stainless Steel	★	☆		
	Martensitic Stainless Steel	★			
	Precipitation Hardened Stainless Steel	★			
K	Gray Cast Iron				★
	Nodular Cast Iron				★
N	Non-ferrous Metals				
S	Heat-Resistant Alloys	★			
	Titanium Alloy	★			
H	Hard Materials				★

Insert (Right-hand Shown)	Part Number	Dimensions (mm)					MEGACOAT NANO				MEGACOAT HARD
		IC	S	D1	BS	RE	PR1535	PR1525	PR1510	PR015S	
 General Purpose	WNMU 050408EN-GM	8.8	4.2	3.4	0.7	0.8	●	●	●		
 Low Cutting Force	WNMU 050408EN-SM	8.8	4.2	3.4	0.7	0.8	●	●	●		
 Tough Edge (Heavy Milling)	WNMU 050408EN-GH	8.8	4.2	3.4	0.7	0.8	●	●	●	●	

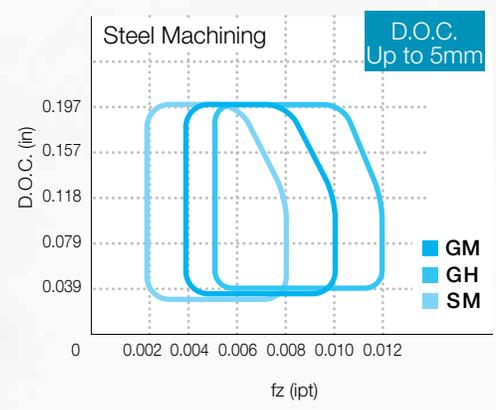


- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications
- M** MILLING

Three insert chipbreakers and four grades available



Applicable Chipbreaker Range



Steel, Cast Iron, Stainless Steel and Heat-Resistant Alloy Machining
PR1510 / PR1525 / PR1535 MEGACOAT NANO

For hardened materials (60 HRC or less)
PR015S (GH only) MEGACOAT HARD

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)			
			MEGACOAT NANO			MEGACOAT HARD
			PR1535	PR1525	PR1510	PR015S
GM	Carbon Steel	0.004 ~ 0.008 ~ 0.010	☆ 390 ~ 590 ~ 820	★ 390 ~ 590 ~ 820	-	-
	Alloy Steel	0.004 ~ 0.008 ~ 0.010	☆ 330 ~ 520 ~ 720	★ 330 ~ 520 ~ 720	-	-
	Mold Steel	0.004 ~ 0.006 ~ 0.008	☆ 260 ~ 460 ~ 590	★ 260 ~ 460 ~ 590	-	-
	Austenitic Stainless Steel	0.004 ~ 0.006 ~ 0.008	☆ 330 ~ 520 ~ 660	☆ 330 ~ 520 ~ 660	-	-
	Martensitic Stainless Steel	0.004 ~ 0.006 ~ 0.008	☆ 490 ~ 660 ~ 820	-	-	-
	Precipitation Hardened Stainless Steel	0.004 ~ 0.006 ~ 0.008	★ 300 ~ 390 ~ 490	-	-	-
	Gray Cast Iron	0.004 ~ 0.008 ~ 0.010	-	-	★ 390 ~ 590 ~ 820	-
	Nodular Cast Iron	0.004 ~ 0.006 ~ 0.008	-	-	★ 330 ~ 490 ~ 660	-
	Ni-base Heat Resistant Alloy	0.004 ~ 0.005 ~ 0.006	☆ 70 ~ 100 ~ 160	-	-	-
SM	Carbon Steel	0.002 ~ 0.005 ~ 0.008	☆ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 820	-	-
	Alloy Steel	0.002 ~ 0.005 ~ 0.008	☆ 330 ~ 520 ~ 720	☆ 330 ~ 520 ~ 720	-	-
	Mold Steel	0.002 ~ 0.003 ~ 0.006	☆ 260 ~ 460 ~ 590	☆ 260 ~ 460 ~ 590	-	-
	Austenitic Stainless Steel	0.002 ~ 0.005 ~ 0.008	★ 330 ~ 520 ~ 660	☆ 330 ~ 520 ~ 660	-	-
	Martensitic Stainless Steel	0.002 ~ 0.005 ~ 0.008	☆ 490 ~ 660 ~ 820	-	-	-
	Precipitation Hardened Stainless Steel	0.002 ~ 0.005 ~ 0.008	☆ 300 ~ 390 ~ 490	-	-	-
	Gray Cast Iron	0.002 ~ 0.005 ~ 0.008	-	-	☆ 390 ~ 590 ~ 820	-
	Nodular Cast Iron	0.002 ~ 0.003 ~ 0.006	-	-	☆ 330 ~ 490 ~ 660	-
	Ni-base Heat Resistant Alloy	0.002 ~ 0.003 ~ 0.006	★ 70 ~ 100 ~ 160	-	-	-
Titanium Alloy	0.002 ~ 0.003 ~ 0.006	★ 130 ~ 200 ~ 260	-	☆ 130 ~ 200 ~ 260	-	
GH	Carbon Steel	0.006 ~ 0.008 ~ 0.012	☆ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 820	-	-
	Alloy Steel	0.006 ~ 0.008 ~ 0.012	☆ 330 ~ 520 ~ 720	☆ 390 ~ 520 ~ 720	-	-
	Mold Steel	0.006 ~ 0.008 ~ 0.010	☆ 260 ~ 460 ~ 590	☆ 260 ~ 460 ~ 590	-	-
	Austenitic Stainless Steel	0.006 ~ 0.008 ~ 0.010	☆ 330 ~ 520 ~ 660	☆ 330 ~ 520 ~ 660	-	-
	Martensitic Stainless Steel	0.006 ~ 0.008 ~ 0.010	☆ 490 ~ 660 ~ 820	-	-	-
	Precipitation Hardened Stainless Steel	0.006 ~ 0.008 ~ 0.010	☆ 300 ~ 390 ~ 490	-	-	-
	Gray Cast Iron	0.006 ~ 0.008 ~ 0.012	-	☆ 390 ~ 590 ~ 820	☆ 390 ~ 590 ~ 820	-
	Nodular Cast Iron	0.006 ~ 0.008 ~ 0.010	-	☆ 330 ~ 490 ~ 660	☆ 330 ~ 490 ~ 660	-
	Ni-base Heat Resistant Alloy	0.004 ~ 0.006 ~ 0.008	☆ 70 ~ 100 ~ 160	-	-	-
Hard Materials (≤ 60HRC)	0.002 ~ 0.003 ~ 0.006	-	-	-	★ 160 ~ 260 ~ 330	

- Bold numbers in the graph indicate the most recommended starting conditions. Adjust cutting speed and feed rate according to the actual machining conditions.
- Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys
- When using GH chipbreaker for fine pitch cutters, recommended feed is fz ≤ 0.008 ipt

★ : 1st Recommendation
☆ : 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFSN88

High Efficiency Milling with a 2° Lead Angle

Economical Double-sided 8-edge Insert

Reduces Chattering with a Low Cutting Force Design

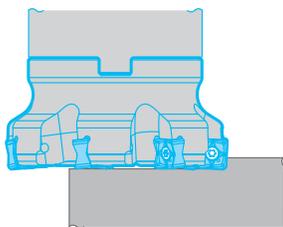
Good for Shoulder Roughing and Large Lineup of Sizes from Ø32mm for Various Machining Applications

1 Economical Double-sided 8-edge Insert Good for Shoulder Roughing

Cost reduction with a near 0° lead angle

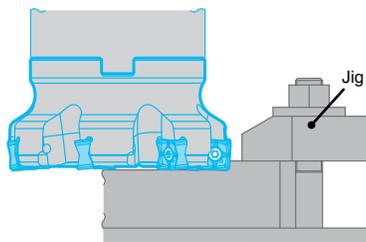
Shoulder Roughing

Cost reduction by switching from 0° lead angle cutter with positive inserts

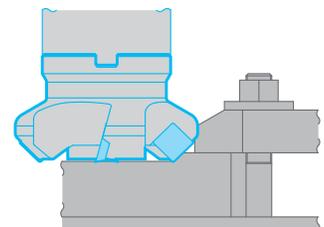


Facing Without Interfering with Fixtures

MFSN88



Conventional 45° Cutter

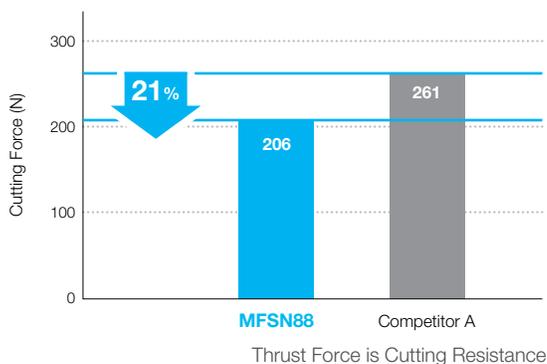


See page [M45](#) for unmachined corner portion

2 Reduces Chattering with a Low Cutting Force Design

Chatter resistant medium to rough machining range

Cutting Force Comparison (Internal Evaluation)



Cutting Conditions : Vc = 660 sfm, f = 0.006 ipt, D.O.C. = 0.118"
Cutter Diameter Ø63mm, Workpiece : 1049 Steel

3 Extended Tool Life with MEGACOAT NANO Technology

Insert grade and chipbreaker lineup for various machining applications



GM Chipbreaker
1st Recommendation
(General Purpose)



GH Chipbreaker
Tough Edge

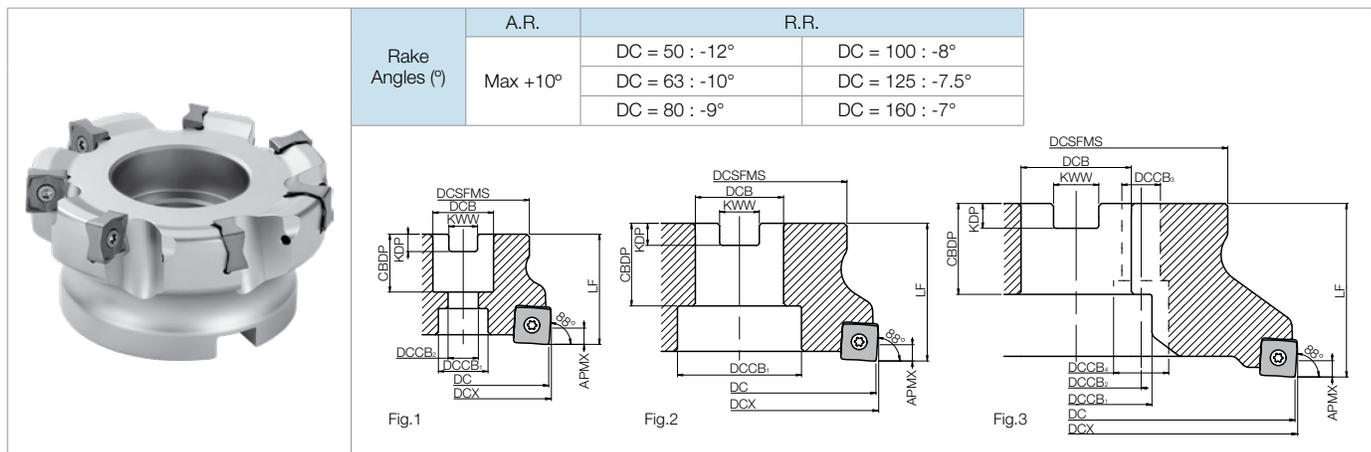


SM Chipbreaker
for Stainless Steel



Facing

MFSN88 Face Mill (Metric Size)



Toolholder Dimensions

Part Number			Stock	No. of Inserts	Dimensions (mm)										Drawing	Weight (kg)	Shim
					DC	DCX	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW				DCCB_{3}	DCCB_{4}
Inch Bore Dia.	Fine Pitch	MFSN 88080R-6T-G	●	6	80	82	70	1.000"	20	13	50	1.063"	0.236"	0.375"	Fig.1	1.1	No
		MFSN 88100R-7T-G	●	7	100	102	78	1.250"	45	1.339"		0.315"	0.500"	Fig.2		1.5	
		MFSN 88125R-9T-G	●	9	125	127	89	1.500"	55	1.496"	0.394"	0.625"	Fig.2		2.5		
		MFSN 88160R-11T-G	●	11	160	162	110	2.000"	70	1.496"	0.433"	0.750"		Fig.2	4.1		
	Extra Fine Pitch	MFSN 88080R-9T-G	●	9	80	82	70	1.000"	20	13	50	1.063"	0.236"		0.375"	Fig.1	
		MFSN 88100R-11T-G	●	11	100	102	78	1.250"	45	1.339"		0.315"	0.500"	Fig.2	1.5		
		MFSN 88125R-13T-G	●	13	125	127	89	1.500"	55	1.496"	0.394"	0.625"	Fig.2		2.6		
		MFSN 88160R-15T-G	●	15	160	162	110	2.000"	70	1.496"	0.433"	0.750"		Fig.2	4.3		
Metric Bore Dia.	Fine Pitch	MFSN 88050R-4T-M-G	●	4	50	52	48	22	17.5	11	40	21	6.3		10.4	Fig.1	0.3	No
		MFSN 88063R-5T-M-G	●	5	63	65		18	1.1								
		MFSN 88080R-6T-M-G	●	6	80	82	70	27	20	13	50	24	7	12.4	Fig.2	1.1	
		MFSN 88100R-7T-M-G	●	7	100	102	78	32	45	50	30	8	14.4	Fig.2		1.4	
		MFSN 88125R-9T-M-G	●	9	125	127	89	40	55	63	33	9	16.4		14	20	Fig.3		4.2
	Extra Fine Pitch	MFSN 88050R-5T-M-G	●	5	50	52	48	22	17.5	11	40	21	6.3	10.4	Fig.1	0.3	No
		MFSN 88063R-7T-M-G	●	7	63	65		18	1.1								
		MFSN 88080R-9T-M-G	●	9	80	82	70	27	20	13	50	24	7	12.4	Fig.2	1.1	
		MFSN 88100R-11T-M-G	●	11	100	102	78	32	45	50	30	8	14.4	Fig.2		1.4	
		MFSN 88125R-13T-M-G	●	13	125	127	89	40	55	63	33	9	16.4		14	20		Fig.3	2.5
MFSN 88160R-15T-M-G	●	15	160	162	110	40	55	63	33	9	16.4	14	20	Fig.3	4.3		

Recommended Cutting Conditions **M121**

Applicable Inserts **M120**

Spare Parts (Both Metric & Inch Size Bore Dia.)

Part Number		Spare Parts			
		Insert Screw	Wrench	Anti-seize Compound	Arbor Bolt
Fine Pitch	MFSN 88050R-4T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	MFSN 88063R-5T-M-G				HH10X30
	MFSN 88080R-6T(-M)-G				HH12X35
	MFSN 88100R-7T(-M)-G				-
	MFSN 88125R-9T(-M)-G				-
	MFSN 88160R-11T(-M)-G				-
Extra Fine Pitch	MFSN 88050R-5T-M-G	SB-4090TRP	DTPM-15	P-37	HH10X30
	MFSN 88063R-7T-M-G				HH10X30
	MFSN 88080R-9T(-M)-G				HH12X35
	MFSN 88100R-11T(-M)-G				-
	MFSN 88125R-13T(-M)-G				-
	MFSN 88160R-15T(-M)-G				-

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed.

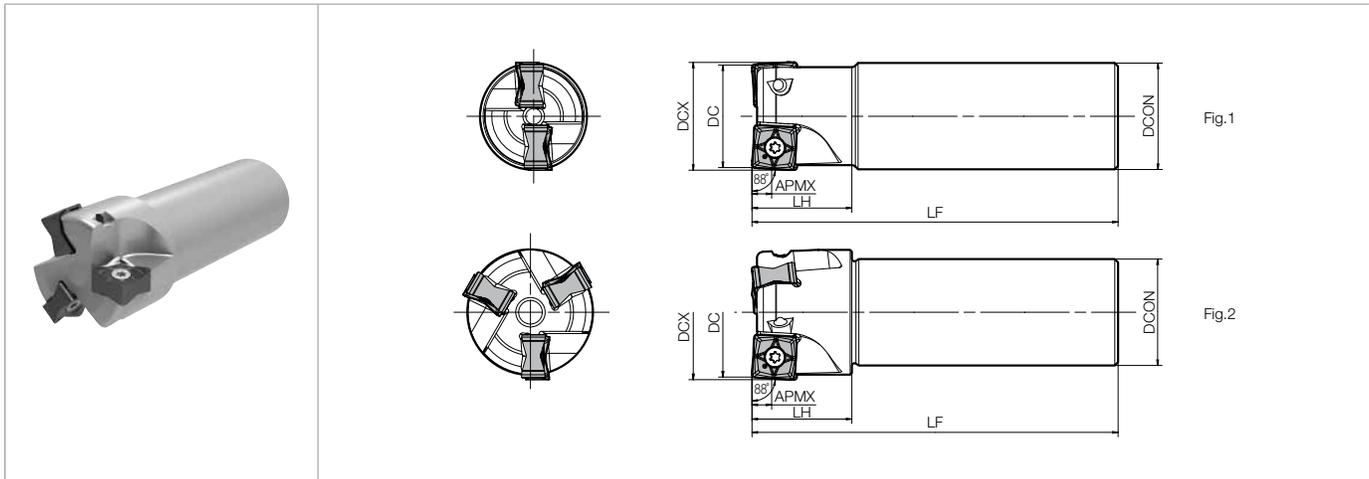
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**



MFSN88 End Mill (Metric Size)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)							Rake Angles		Spare Parts		
			DC	DCX	DCON	LF	LH	APMX	A.R. (Max)	R.R.	Insert Screw	Wrench	Anti-seize Compound	
MFSN 88032R-S32-2T-G	●	2	32	34	32	110	30	5	10°	-15.5°	SB-4090TRP	DTPM-15	P-37	
88040R-S32-3T-G	●	3	40	42						-13°				

Recommended Cutting Conditions **M121**

Applicable Inserts

Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

Material	Free-Cutting Steel	Carbon/Alloy Steel	Austenitic Stainless Steel	Martensitic Stainless Steel	Precipitation Hardened Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloy	Hard Materials
P	■	■	☆	★	☆						
M			★	★	★						
K											★
N											
S									★	★	
H											★

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Cermet	MEGACOAT NANO				MEGA COAT HARD
		IC	S	D1	BS	RE		TN620M	PR1535	PR1525	PR1510		PR015S
<p>General Purpose</p>	SNMU 130508EN-GM						●	●	●	●		
<p>Low Cutting Force</p>	SNMU 130508EN-SM	0.512	0.217	0.185	0.039	1/32		●	●	●		
<p>Tough Edge (Heavy Milling)</p>	SNMU 130508EN-GH							●	●	●	●	

MFSN88 RECOMMENDED CUTTING CONDITIONS

◆ Recommended Cutting Conditions (Coated Carbide)

● Coated Carbide

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)			
			MEGACOAT NANO			MEGACOAT HARD
			PR1535	PR1525	PR1510	PR015S
GM	Carbon Steel	0.0039-0.0079-0.0118	☆ 390-590-820	★ 390-590-820	-	-
	Alloy Steel	0.0039-0.0079-0.0118	☆ 330-520-720	★ 330-520-720	-	-
	Mold Steel	0.0039-0.0059-0.0098	★ 260-460-590	★ 260-460-590	-	-
	Austenitic Stainless Steel	0.0039-0.0059-0.0098	☆ 330-490-660	☆ 330-490-660	-	-
	Martensitic Stainless Steel	0.0039-0.0059-0.0098	☆ 330-490-660	-	-	-
	Precipitation Hardened Stainless Steel	0.0039-0.0059-0.0098	★ 300-390-490	-	-	-
	Gray Cast Iron	0.0039-0.0079-0.0118	-	-	★ 390-590-820	-
	Nodular Cast Iron	0.0039-0.0059-0.0098	-	-	★ 330-490-660	-
	Ni-base Heat Resistant Alloys	0.0039-0.0047-0.0079	☆ 70-100-160	-	-	-
SM	Carbon Steel	0.0024-0.0047-0.0079	-	☆ 390-590-820	-	-
	Alloy Steel	0.0024-0.0047-0.0079	-	☆ 330-520-720	-	-
	Mold Steel	0.0024-0.0031-0.0059	-	☆ 260-460-590	-	-
	Austenitic Stainless Steel	0.0024-0.0047-0.0079	★ 330-490-660	☆ 330-490-660	-	-
	Martensitic Stainless Steel	0.0024-0.0047-0.0079	★ 330-490-660	-	-	-
	Precipitation Hardened Stainless Steel	0.0024-0.0047-0.0079	☆ 300-390-490	-	-	-
	Gray Cast Iron	0.0024-0.0047-0.0079	-	-	☆ 390-590-820	-
	Nodular Cast Iron	0.0024-0.0039-0.0059	-	-	☆ 330-490-660	-
	Ni-base Heat Resistant Alloys	0.0024-0.0031-0.0059	★ 70-100-160	-	-	-
	Titanium Alloys	0.0024-0.0031-0.0059	★ 130-200-260	-	-	-
GH	Carbon Steel	0.0059-0.0098-0.0138	-	☆ 390-590-820	-	-
	Alloy Steel	0.0059-0.0098-0.0138	-	☆ 330-520-720	-	-
	Mold Steel	0.0039-0.0079-0.0118	-	☆ 260-460-590	-	-
	Gray Cast Iron	0.0059-0.0098-0.0138	-	-	☆ 390-590-820	-
	Nodular Cast Iron	0.0039-0.0079-0.0118	-	-	☆ 330-490-660	-
	Hard Materials (≤ 60HRc)	0.0039-0.0079-0.0118	-	-	-	★ 260-330-390

- Center value in the table indicate the most recommended value. Adjust cutting speed and feed rate according to the actual machining conditions
- Machining with coolant is recommended for Ni-base heat resistant alloy and titanium alloys

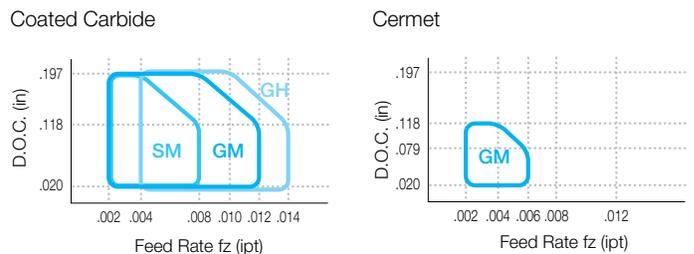
★: 1st Recommendation ☆: 2nd Recommendation

● Cermet

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Cutting Speed Vc : sfm)
			Cermet
GM	Carbon Steel	0.002-0.005-0.006	★ TN620M
	Alloy Steel	0.002-0.005-0.006	★ 660-820-980
	Mold Steel	0.002-0.004-0.005	★ 590-720-820

★: 1st Recommendation

● Applicable Chipbreaker Range

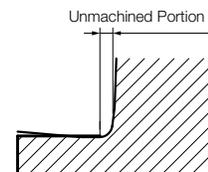


● Applicable Chipbreakers

Cutter Type	Chipbreaker		
	GM	SM	GH
Fine Pitch	✓	✓	✓
Extra Fine Pitch	✓	✓	✓ (Feed rate is recommended under fz = 0.008 ipt)

● Reference Data for Unmachined Corner Portion

D.O.C.	1mm	2mm	3mm	4mm	5mm
Unmachined Portion	0.82mm	0.93mm	0.97mm	1.00mm	1.04mm



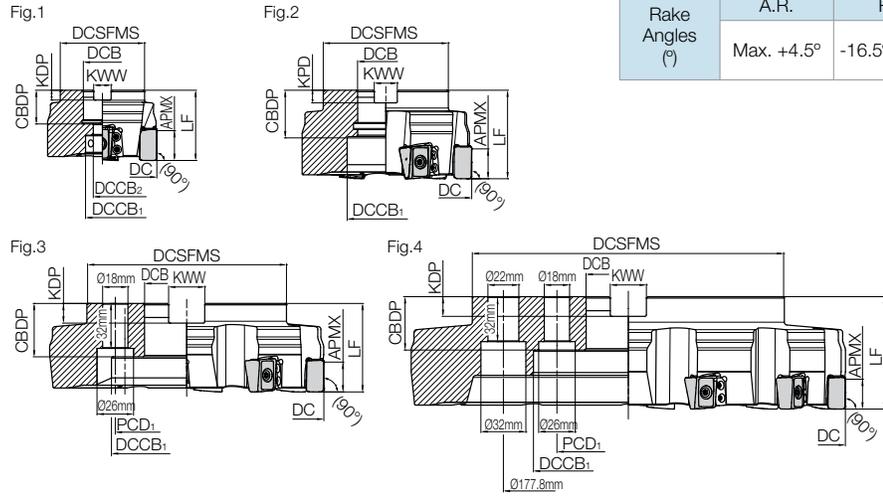
INSERT GRADES	A
TURNING INSERTS	B
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TURNING HOLDERS	D
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BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T



Facing

MFLN90 Face Mill

For MFLN45 and MFLN70, see page M42~M43



Rake Angles (°)	A.R.	R.R.
	Max. +4.5°	-16.5° ~ 13.5°

Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	Dimensions (mm)												Coolant Hole	Drawing	Weight (kg)	
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	PCD ₁					
Inch Bore Dia.	MFLN	90080R-4T	●	4	80	60	1.000"	24	13	50	1.063"	0.236"	0.375"	20	-	Yes	Fig.1	1.0
		90100R-4T	●	4	100	70	1.250"	45	50	1.339"	0.315"	0.500"	20				-	Yes	Fig.2	1.6
		90125R-6T	●	6	125	89	1.500"	55	63	1.496"	0.394"	0.625"			20	-			No	Fig.3	3.0
		90160R-7T	●	7	160	110	2.000"	90	63	1.496"	0.433"	0.750"	20	101.6			No	Fig.3		4.6
		90200R-8T	●	8	200	142	1.875"	132	80	1.496"	0.551"	1.000"			20	101.6		No	Fig.4	7.2
		90250R-10T	●	10	250	172	2.050"	205	80	1.496"	0.551"	1.000"	20	101.6			No		Fig.4	10.5
90315R-12T	●	12	315	222	2.050"	205	80	1.496"	0.551"	1.000"	20	101.6			No	Fig.4		21.8
Metric Bore Dia.	MFLN	90080R-4T-M	●	4	80	60	27	24	13	50			24	7		12.4	20	-	Yes	Fig.1	1.0
		90100R-4T-M	●	4	100	70	32	45	50	30	8	14.4	20	-	Yes	Fig.2				1.5
		90125R-6T-M	●	6	125	89	40	55	63	33	9	16.4				20	66.7	No	Fig.3	2.9
		90160R-7T-M	●	7	160	110	90	63	38	14	25.7	20	101.6	No	Fig.3				4.5
		90200R-8T-M	●	8	200	142	132	80	14	25.7	20				101.6	No	Fig.3	6.9
		90250R-10T-M	●	10	250	172	205	80	14	25.7		20	101.6	No			Fig.3	10.3
90315R-12T-M	●	12	315	222	205	80	14	25.7	20	101.6	No				Fig.4	20.9		

Spare Parts

Part Number	Spare Parts						
	Insert Screw	Wrench	Shim	Shim Screw	Wrench	Anti-seize Compound	Arbor Bolt
MFPN ...080R-4T(-M)	SB-60200TRP	TTP-20	MAP-2216	SB-40140TR	DTM-15	P-37	HH12X35
...100R-4T(-M)							
...315R-12T(-M)							
	Recommended Torque for Insert Screw 6.0Nm		Recommended Torque for Shim Screw 3.5Nm				

🔧 Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

Applicable Insert Selection

	LOGU221616ER-GM (Corner-R)	LOGU2216PAER-GM (Corner Chamfer)
MFLN45	✓	Not Applicable
MFLN70	✓	Not Applicable
MFLN90	✓	✓



INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

- PR1525** : 1st recommendation for wear resistance. Great for scale removal and cast iron machining
- PR1535** : Defect resistant, tough substrate for stable machining

Applicable Inserts

Usage Classification
 ★ Roughing / 1st Choice
 ☆ Roughing / 2nd Choice

P	Free-Cutting Steel	☆	★
	Carbon/Alloy Steel	☆	★
K	Gray Cast Iron	☆	★
	Nodular Cast Iron	☆	★

Insert (Right-hand Shown)		Part Number	Dimensions (in)					MEGACOAT NANO	
Corner-R	Corner Chamfer		W1	S	D1	INSL	BS	PR1535	PR1525
		LOGU 221616ER-GM	0.492	0.654	0.268	0.898	0.248	●	●
		LOGU 2216PAER-GM	0.492	0.665	0.268	0.898	0.189	●	●

MFLN90

★: 1st Recommendation ☆: 2nd Recommendation

Workpiece Material	D.O.C. (in)		Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc : sfm)	
	Width of Cut (≤0.5xDC)	Width of Cut (>0.5xDC)		MEGACOAT NANO	
				PR1535	PR1525
Carbon Steel	~0.709	~0.591	0.004 ~ 0.008 ~ 0.016	☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Alloy Steel				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Mold Steel				☆ 230 ~ 330 ~ 390	★ 260 ~ 390 ~ 490
Gray Cast Iron	~0.787	~0.709	0.004 ~ 0.008 ~ 0.016	☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590
Nodular Cast Iron				☆ 260 ~ 390 ~ 490	★ 330 ~ 490 ~ 590

- The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Dry machining is recommended.

How to Replace the Insert Shim Seat

- Completely eliminate chips and dust from the shim mounting side.
- Coat medium strength screw locking adhesive on the screws.
- Tighten the screw keeping the shim pushed against the pocket surface of toolholder.
- After tightening both screws temporarily, tighten them with appropriate torque. (Recommended torque:3.5 N·m)
- Please check that there is no gap between the shim and the pocket surfaces of toolholder.

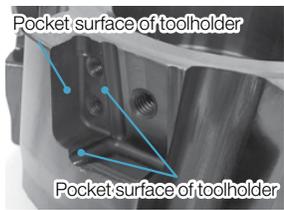


Fig.1

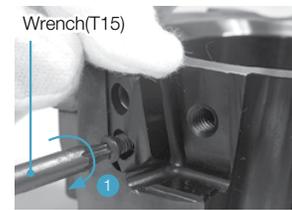


Fig.2



Fig.3



Fig.4

How to Mount Inserts

- Completely eliminate chips and dust from the insert mounting side.
- After mounting a clamp screw on the top edge of wrench, tighten the screw while keeping the insert pushed against the shim seat surface and holder surface (Fig.1,2)
- Make sure that the identification on the top of the insert is the same in each pocket. (Fig.3)
- Tighten the wrench (20IP) in while holding parallel to the clamp screw.
- Tighten the insert clamp screw at an appropriate torque. (Recommended torque: 6.0 Nm)
- After tightening, check that there is no gap between the insert and the surface of the shim, or between the side surface of insert and the holder surface. If there is a gap, remount the insert using the directions above.



Fig.1



Fig.2

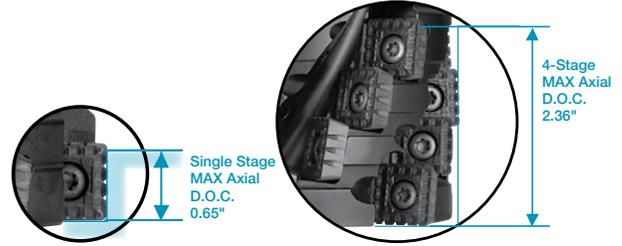


Fig.3

MSRS90 Heavy Milling Cutter



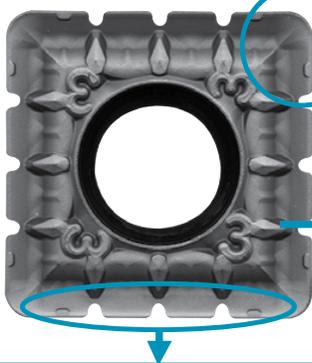
- Multiple Cutting Edge Lengths Available
1, 2, and 4-Stage (ø3.00in, ø80mm, ø100mm)



- High Efficiency, Low Cutting Force and Low Vibration Milling Cutter
- Neutral and Corner-R Insert

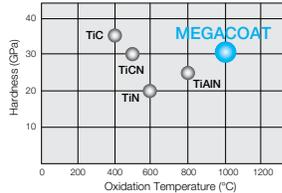
Applicable to Shouldering (Cutting Angle: 90°), High Feed Cutting (Cutting Angle: 30°), Plunging, and Side Cutting.

Custom-ordered Milling Cutter with High Performance Notched Neutral Inserts Offer Expansive Possibilities



Neutral Insert with Corner-R is Available for a Variety of Applications

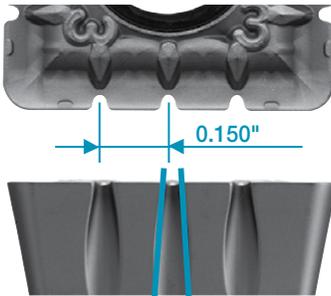
Long Tool Life with MEGACOAT



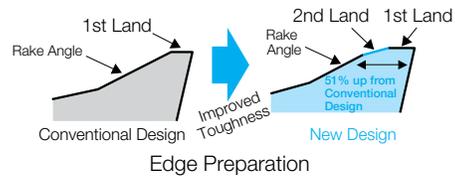
High Hardness and High Oxidation Resistance
Long Tool Life: MEGACOAT



Notched Insert SPMT180616EN type



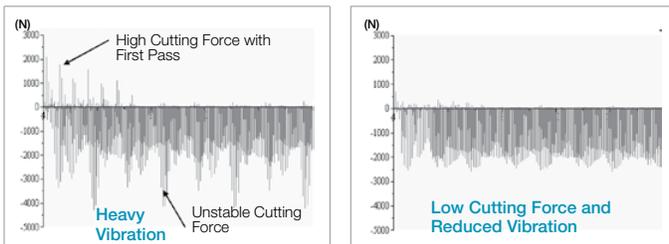
- Notched inserts break chips into smaller pieces and reduce cutting forces.
- Available for high feed cutting due to lower cutting forces at workpiece entry.
- New, double-land edge prep improves the cutting edge strength, while a small notch helps to reduce cutting forces



- Neutral Insert
- Available for Various cutting angles
- Cutting edge length 0.709"

● Low Cutting Force (Effect of Notched Insert)

Comparison of Cutting Forces



Notched Inserts Provide Lower Cutting Forces and Reduce Vibration



Tapered Cutter



Plunge Cutter



45° Face Mill



High Feed Cutter

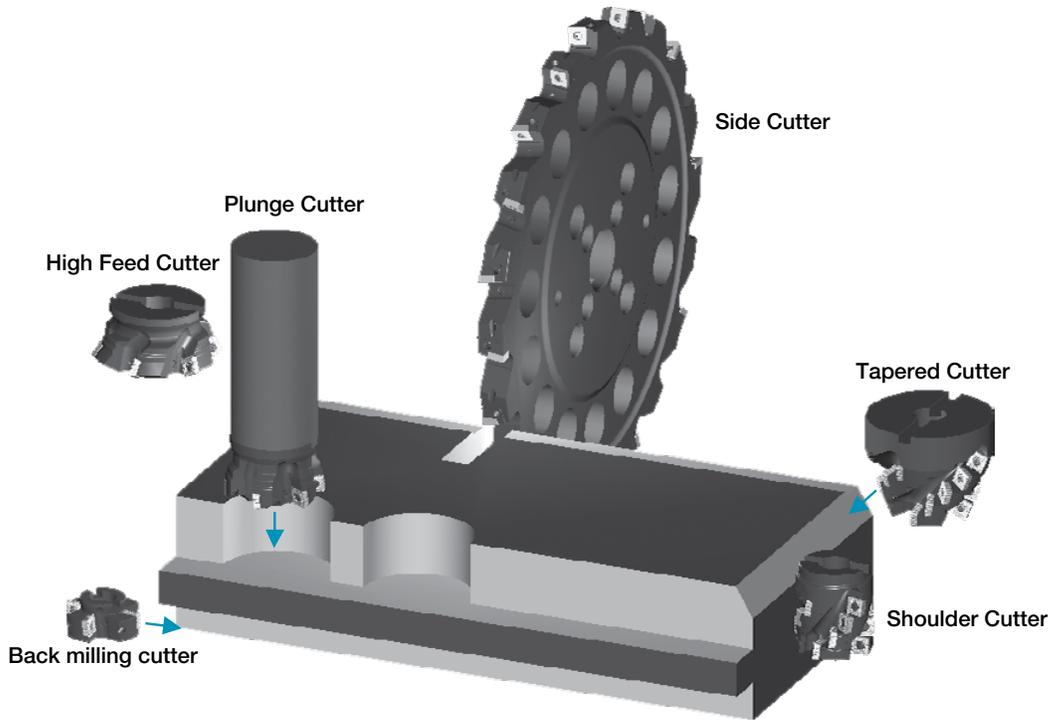


Shoulder Cutter

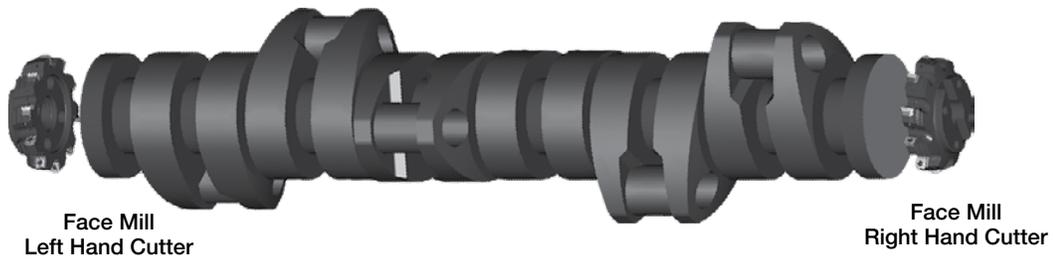
Applicable Inserts: Available for Various Applications

Applications	Chipbreaker Type	3-Notched	4-Notched	Solid Edge
General Purpose (1st Recommendation)	Standard	 NB3	+	 NB4
Low Cutting Force	Low Cutting Force	 NB3P	+	 NB4P
Focusing on Edge Strength	Without Notch (Usable with Notched Inserts)	( NB3	or	 NB4) + 

Various Cutting Possibilities with Custom-Design and Standard Cutters

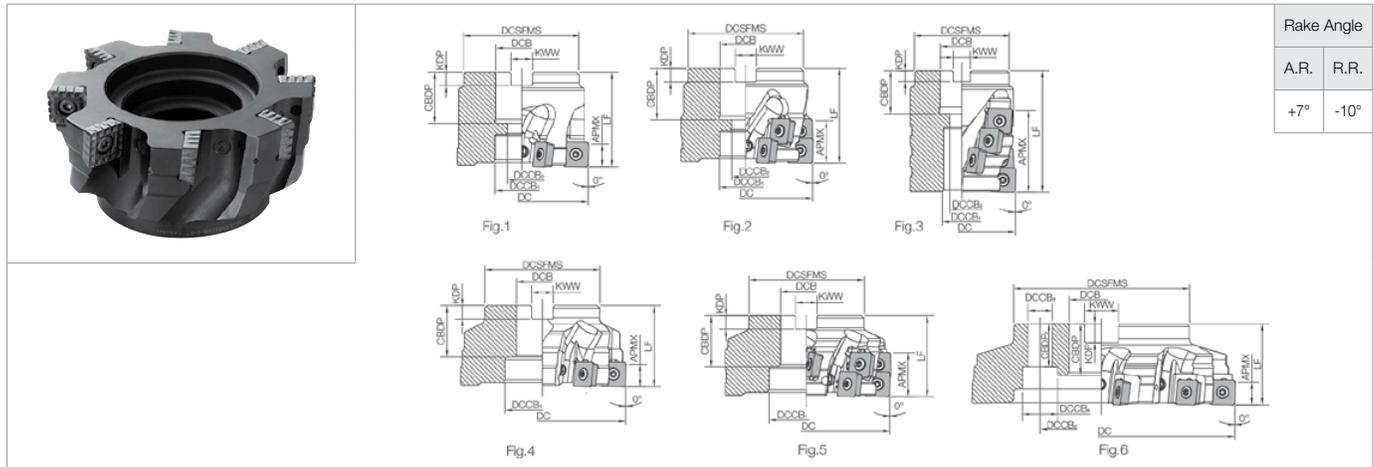


● Shaft Length Determination



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSRS90 Heavy Milling (Inch)



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (in)													Drawing	Weight (kg)
					DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	CBDP ₂		
MSRS 903000R-1-4T	●	4	4	1										0.65				Fig.1	2.43
903000R-2-4T	●	8	4	2	3.00	2.75	1.00	0.87	0.55	2.36	1.06	0.24	0.38	1.22				Fig.2	2.21
903000R-4-4T	●	16	4	4						3.35				2.36				Fig.3	3.50
904000R-1-6T	●	6	6	1	4.00	3.35		2.05		2.76	1.14			0.65	-	-	-	Fig.4	4.41
904000R-2-6T	●	12	6	2			1.50					0.39	0.63	1.22				Fig.5	3.97
905000R-1-8T	●	8	8	1	5.00	3.35		2.17			1.42							Fig.4	5.73
906000R-1-8T	●	8	8	1	6.00	3.94	2.00	2.76		2.36	1.50	0.43	0.75	0.65					7.50
908000R-1-10T	●	10	10	1	8.00	5.12	2.50	-	4.00		1.58	0.55	1.01		0.71	1.02	1.26	Fig.6	13.23
9010000R-1-12T	●	12	12	1	10.00														27.49

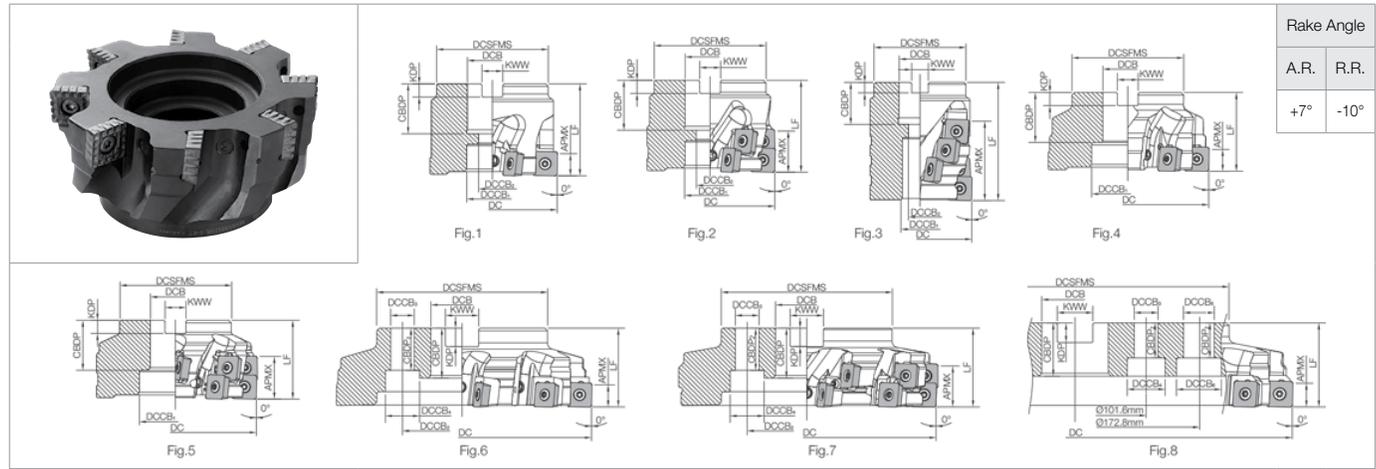
Applicable Inserts

Part Number	Applicable Inserts M28				
MSRS90...	SPMT 180616EN-NB3	SPMT 180616EN-NB4	SPMT 180616EN-NB3P	SPMT 180616EN-NB4P	SPMT 180616EN-V

Spare Parts **M128**

Recommended Cutting Conditions **M128-129**

MSRS90 Heavy Milling (Metric)



Toolholder Dimensions (Metric)

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (mm)																Drawing	Weight (kg)
					DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆	CBDP ₂			
Inch Bore Dia.	MSRS 90080R-1-4T	●	4	1															Fig.1	1.4		
	90080R-2-4T	●	8	2	80	70	1.250"	27	18	60	1.260"	0.315"	0.500"						Fig.2	1.2		
	90080R-4-4T	●	16	4						85									Fig.3	1.5		
	90100R-1-6T	●	6	1						70									Fig.1	2.3		
	90100R-2-6T	●	12	2	100			39	21	90									Fig.2	2.1		
	90100R-4-6T	□	24	4		85	1.500"												Fig.3	3.2		
	90125R-1-8T	●	8	1															Fig.4	2.6		
	90125R-2-8T	□	16	2	125			55											Fig.5	2.4		
	90160R-1-8T	●	8	1															Fig.4	4.3		
	90160R-2-8T	□	16	2	160	100	2.000"	70			1.496"	0.433"	0.750"						Fig.5	4.1		
	90200R-1-10T	●	10	1						60									Fig.6	6.7		
	90200R-2-10T	□	20	2															Fig.7	6.6		
	90250R-1-12T	●	12	1											18	26			Fig.6	12.6		
	90250R-2-12T	□	24	2	250		1.875"												Fig.7	12.5		
90315R-1-14T	●	14	1															Fig.8	16.1			
90315R-2-14T	□	28	2	315	220									17	27	22	32	25	-	16.0		
Metric Bore Dia.	MSRS 90080R-1-4T-M	●	4	1															Fig.1	1.3		
	90080R-2-4T-M	●	8	2	80	70	27	20	13	60	24	7	12.4						Fig.2	1.1		
	90080R-4-4T-M	●	16	4						85									Fig.3	1.4		
	90100R-1-6T-M	●	6	1						70									Fig.1	2.2		
	90100R-2-6T-M	●	12	2	100		32	45		90	30	8	14.4						Fig.2	2.0		
	90100R-4-6T-M	□	24	4		85													Fig.3	3.1		
	90125R-1-8T-M	●	8	1															Fig.4	2.6		
	90125R-2-8T-M	□	16	2	125														Fig.5	2.4		
	90160R-1-8T-M	●	8	1															Fig.6	4.2		
	90160R-2-8T-M	□	16	2	160	110		40	55						14	20			28	Fig.7	4.0	
	90200R-1-10T-M	●	10	1																Fig.6	6.7	
	90200R-2-10T-M	□	20	2	200															Fig.7	6.6	
	90250R-1-12T-M	●	12	1											18	26			32	Fig.6	12.6	
	90250R-2-12T-M	□	24	2	250		60				40	14	25.7						Fig.7	12.5		
90315R-1-14T-M	●	14	1																Fig.8	16.1		
90315R-2-14T-M	□	28	2	315	220									17	27	22	32	25	-	16.0		

Applicable Inserts

Part Number	Applicable Inserts M28				
					
MSRS90...	SPMT 180616EN-NB3	SPMT 180616EN-NB4	SPMT 180616EN-NB3P	SPMT 180616EN-NB4P	SPMT 180616EN-V

Spare Parts **M128**

Recommended Cutting Conditions **M128-129**

● : Standard Item □ : Made to Order △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

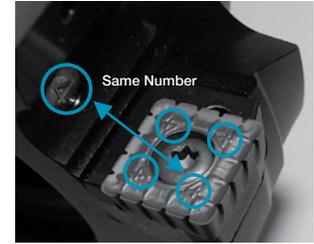
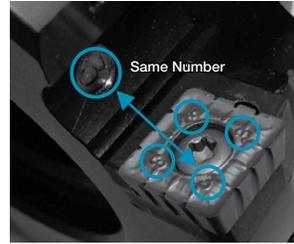
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TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● Caution when Installing Notched Inserts

It is important to install the appropriate notched insert into the correct position. Failure to do so may result in damage to the toolholder body. The appropriate insert is marked on the pocket of the cutter body.

When installing the inserts, match the number on the top of insert to the number of the cutter body.

Description	No. of Inserts	No. of Flutes	No. of Stages	No. of Inserts	
				Notched	
				NB3(P)	NB4(P)
MSRS 90100R-1-6T	6	6	1	3	3
90100R-2-6T	12		2	6	6
90100R-4-6T	24		4	12	12



● Spare Parts (Inch and Metric Toolholders)

Part Number		Spare Parts							
		Clamp Screw	Wrench	Cartridge		Clamp Screw	Wrench	Anti-Seize Compound	Arbor Bolt
				MAP-1806M 	MAP-1806S (Bottom Edge Only)				
Without Cartridge	MSRS 903000R-1-4T	SB-60120TR	TT-25L	-	-	-	-	P-37	HH1/2-1.25
	903000R-2-4T			-	-	-	-		
	903000R-4-4T			-	-	-	-		
With Cartridge	MSRS 904000R-1-6T	SB-60120TR	TT-25L	Recommended Torque for Insert Clamp 7.5 N-m		SB-40140TR	DT-15	P-37	-
	904000R-2-6T			-					
	MSRS 905000R-1-8T			-					
Without Cartridge	MSRS 906000R-1-8T	SB-60120TR	TT-25L	MAP-1806M	-	SB-40140TR	DT-15	P-37	-
	908000R-1-10T			Recommended Torque for Cartridge Clamp 3.5 N-m		-	-		
	9010000R-1-12T			-					
With Cartridge	MSRS 90080R-○-4T	SB-60120TR	TT-25L	MAP-1806M ¹	MAP-1806S ²	SB-40140TR	DT-15	P-37	-
	90100R-○-6T			Recommended Torque for Cartridge Clamp 3.5 N-m		-	-		
	90125R-○-8T			-					
Without Cartridge	MSRS 90160R-○-8T	SB-60120TR	TT-25L	MAP-1806M ¹	MAP-1806S ²	SB-40140TR	DT-15	P-37	HH16X45
	90315R-○-14T			Recommended Torque for Cartridge Clamp 3.5 N-m		-	-		HH20X55
	MSRS 90080R-○-4T-M			-		-	-		HH12X35
With Cartridge	90100R-○-6T-M	SB-60120TR	TT-25L	MAP-1806M ¹	MAP-1806S ²	SB-40140TR	DT-15	P-37	-
	90125R-○-8T-M			Recommended Torque for Cartridge Clamp 3.5 N-m		-	-		-
	MSRS 90160R-○-8T-M			-		-	-		-
Other Applications	90315R-○-14T-M	-		MAP-1806M ¹	MAP-1806S ²	SB-40140TR	DT-15	-	-
		-		Recommended Torque for Cartridge Clamp 3.5 N-m		-	-	-	-

*1: MAP-1806M is only for applicable MSRS90...R-1... cutters

*2: MAP-1806S is only for the bottom edge (1st stage) of MSRS90...R-2... Use it only for the bottom edge (1st stage).

How to Attach the Cartridge : You need to tighten 2 clamp screws to fix the cartridge. Tighten the slant screw first and then tighten the other screw.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

◆ Recommended Cutting Conditions

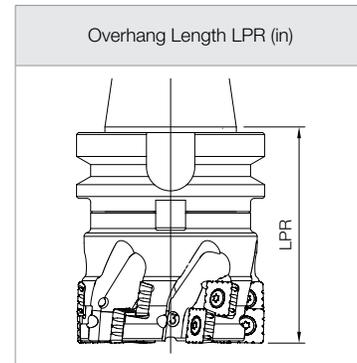
Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade (Vc sfm)	
	General Purpose NB3+NB4	Low Cutting Force NB3P+NB4P	MEGACOAT	
			PR1230	PR1210
Soft Steel	0.004- 0.008 -0.010	0.004- 0.008 -0.010	★ 400- 500 -725	☆ 400- 500 -725
Carbon Steel	0.004- 0.008 -0.010	0.004- 0.008 -0.010	★ 325- 500 -650	☆ 325- 500 -650
Alloy Steel	0.004- 0.006 -0.008	0.004- 0.006 -0.008	★ 325- 500 -650	☆ 325- 500 -650
Die Steel	0.004- 0.006 -0.008	0.004- 0.005 -0.006	★ 325- 500 -600	☆ 325- 500 -600
Gray Cast Iron	0.004- 0.008 -0.012	0.004- 0.008 -0.010	☆ 325- 600 -825	★ 325- 600 -825
Nodular Cast Iron	0.004- 0.008 -0.010	0.004- 0.007 -0.008	☆ 325- 600 -725	★ 325- 600 -725
Stainless Steel	Not Recommended			
Non-Ferrous Metals	Not Recommended			

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Shouldering)

MSRS90100R-1-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 4.72	Vc = 590 sfm	fz = 0.008 ipt	0.59 × 3.15	50.41
	4.72~7.87	Vc = 590 sfm	fz = 0.008 ipt	0.59 × 1.57	25.20
	≥ 7.9	Vc = 425 sfm	fz = 0.004 ipt	0.59 × 1.57	16.05
Carbon Steel	< 4.72	Vc = 490 sfm	fz = 0.008 ipt	0.59 × 3.15	42.05
	4.72~7.87	Vc = 490 sfm	fz = 0.008 ipt	0.59 × 1.57	20.99
	≥ 7.91	Vc = 325 sfm	fz = 0.004 ipt	0.59 × 1.57	13.97



MSRS90100R-2-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	Less than 4.72in	Vc = 590 sfm	fz = 0.008 ipt	1.18 × 1.97	62.97
	4.72~7.87in	Vc = 590 sfm	fz = 0.008 ipt	1.18 × 1.18	37.77
	7.91in and over	Vc = 425 sfm	fz = 0.004 ipt	1.18 × 0.98	20.08
Carbon Steel	Less than 4.72in	Vc = 490 sfm	fz = 0.008 ipt	1.18 × 1.97	52.54
	4.72~7.87in	Vc = 490 sfm	fz = 0.008 ipt	1.18 × 1.18	31.55
	7.91in and over	Vc = 325 sfm	fz = 0.004 ipt	1.18 × 0.98	17.51

MSRS90100R-4-6T

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	Less than 5.51in	Vc = 590 sfm	fz = 0.008 ipt	2.36 × 0.79	50.41
	5.51in~7.87in	Vc = 590 sfm	fz = 0.008 ipt	2.36 × 0.39	25.20
	7.91in and over	Vc = 425 sfm	fz = 0.004 ipt	2.36 × 0.39	16.05
Carbon Steel	Less than 5.51in	Vc = 490 sfm	fz = 0.008 ipt	2.36 × 0.79	42.05
	5.51in~7.87in	Vc = 490 sfm	fz = 0.008 ipt	2.36 × 0.39	20.99
	7.91in and over	Vc = 325 sfm	fz = 0.004 ipt	2.36 × 0.39	13.97

■ Case Studies

Ductile Iron, 60-40-8

- Industrial Parts
- Vc = 490 sfm
- D.O.C. × ae = 0.236" × 2.559"
- fz = 0.006 ipt (Vf = 16.93 ipm)
- MSRS90100R-1-6T (6 Flutes)
- SPMT180616EN-NB3/NB4 (PR1210)

Machined Portion

MSRS90 (PR1210)	Chip Removal = 15.7 in³/min
Competitor A	6.5 in³/min

MSRS90 doubled the cutting efficiency compared to competitor A. Competitor A required 2 passes (D.O.C.×ae=0.118×2.56"). MSRS90 completed the cut in only 1 pass. Cutting time was reduced. (User Evaluation)

Chrome-Moly Steel

- Construction Machine Part
- Vc = 660 sfm
- D.O.C. × ae = 0.394" × 1.968"
- fz = 0.004 ipt (Vf = 15.748 ipm)
- MSRS90125R-1-8T (8 Flutes)
- SPMT180616EN-NB3/NB4 (PR1230)

MSRS90 (PR1230)	Chip Removal = 12.2 in³/min
Competitor B	9.3 in³/min

MSRS90 improved the cutting efficiency to 1.3 times that of competitor B. Competitor C machined with D.O.C.×ae=0.20×1.97". Tool cost is reduced to 1/3 although competitor C is expensive using 2-corner inserts. MSRS90 reduced machining cost as well as improved cutting efficiency. (User Evaluation)

Tool Steel

- Shipbuilding Parts
- Vc = 490 sfm
- D.O.C. × ae = 0.394" × 0.394"~1.968"
- fz = 0.004 ipt (Vf = 9.449 ipm)
- MSRS90160R-1-8T (8 Flutes)
- SPMT180616EN-NB3/NB4 (PR1230)

MSRS90 (PR1230)	Chip Removal = 7.32 in³/min
Competitor C	3.66 in³/min

MSRS90 doubled the cutting efficiency compared to competitor C (D.O.C.×ae=0.197×0.394~1.968"). MSRS90 doubled the axial D.O.C. due to lower cutting forces. MSRS90 can increase D.O.C. as the cutting speed (Vc=325 increases to 490). This resulted in total cutting efficiency improvement. (User Evaluation)

Structural Steel

- Power Generation Parts
- Vc = 530 sfm
- D.O.C. × ae = 0.394" × 0~0.787"
- fz = 0.006 ipt (Vf = 19.69 ipm)
- MSRS90125R-1-8T (8 Flutes)
- SPMT180616EN-NB3/NB4 (PR1230)

MSRS90 (PR1230)	12 faces/edge
Competitor D	8 faces/edge

MSRS90 improved tool life to 1.5 times that of competitor D. Competitor D required 2 passes (D.O.C.×ae=0.472×0~0.394") with a low feed rate (Vf=15.748ipm). Competitor D was very noisy due to large cutting forces. MSRS90 reduces the cutting force and noise level. (User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSR Heavy Milling Cutter

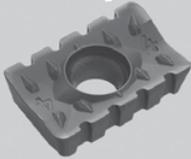
PR1230
(for Steel)



Low Cutting
Force Design



PR1210
(for Cast Iron)



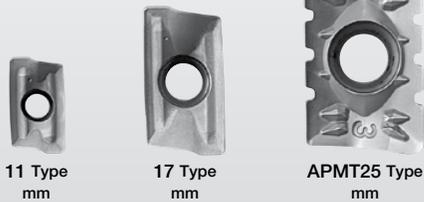
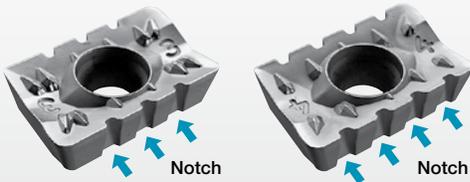
High Efficiency Heavy Milling



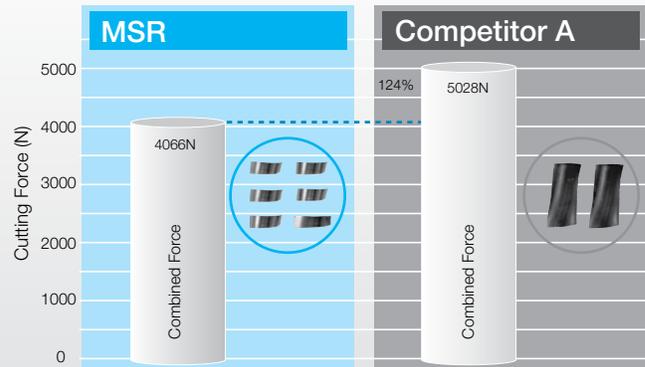
Notched inserts reduce cutting forces, and enable high feed rates by reducing chatter
Improved chip evacuation and low cutting forces due to the special chipbreaker designs
Enables heavy milling and deep cutting, and also drastically improves cutting efficiency (Reduced Cycle Time)

Notched Insert

Size Comparison (Full-Scale)



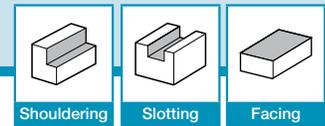
Cutting Force Comparison



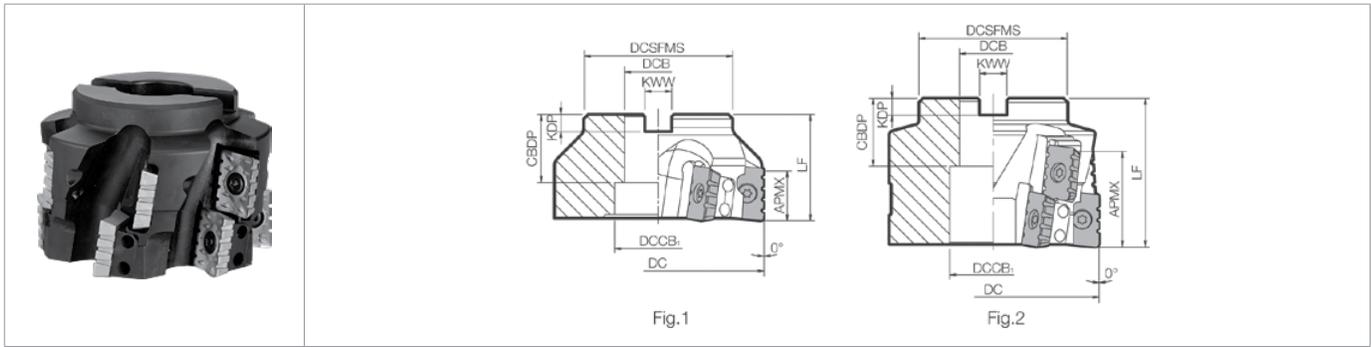
The exclusive notched chipbreakers provide low cutting resistance and good chip evacuation.

(User Evaluation)





MSR Heavy Milling (Inch)



Toolholder Dimensions (Inch)

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (in)										Rake Angle		Drawing	Weight (kg)
					DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW	APMX	A.R.	R.R.		
MSR 3000R-1	●	4	4	1	3.00	2.25	1.00	0.790		1.970	1.020	0.240	0.375	0.925	+9°	-5°	Fig.1	1.1
3000R-2	●	8	4	2						2.760				1.770			Fig.2	1.6
4000R-1-1.5ID	●	6	6	1	4.00	2.75	1.50	1.610		1.970	1.260	0.310	0.500	0.925			Fig.1	1.6
4000R-2-1.5ID	●	12	6	2						2.760				1.770			Fig.2	2.2

Spare Parts

Part Number	Spare Parts					
	Clamp Screw	Wrench	Shim	Clamp Screw	Wrench	Anti-Seize Compound
MSR 3000R... MSR 4000R...	SB-60120TR	TT-25L	MAP-2506	SB-40140TR	DT-15	P-37
	For Insert Clamp		For Shim Clamp			

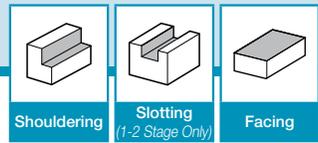
Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Inserts

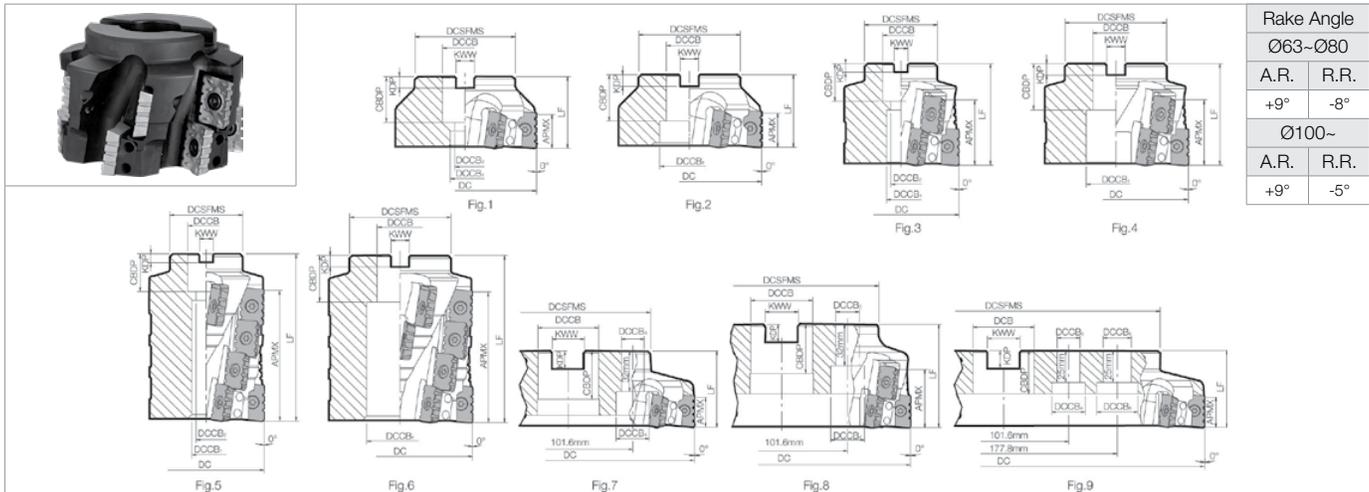
Part Number	Applicable Inserts M22			
	 3-Notch	 4-Notch	 3-Notch / Low Cutting Force	 4-Notch / Low Cutting Force
MSR 3000R... MSR 4000R...	APMT 2506○○ER-NB3	APMT 2506○○ER-NB4	APMT 250616ER-NB3P	APMT 250616ER-NB4P
Custom-Ordered Left-hand Cutter	APMT 250616EL-NB3	APMT 250616EL-NB4	-	-

Recommended Cutting Conditions **M134-M135**

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**



MSR Heavy Milling (Metric)



Rake Angle	
Ø63~Ø80	
A.R.	R.R.
+9°	-8°
Ø100~	
A.R.	R.R.
+9°	-5°

Toolholder Dimensions (Inch Bore Dia.)

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (mm)															Drawing	Weight (kg)
					DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆			
MSR 063R-1	●	4	1	1	63	50	1.000"	20	14	65	1.024"	0.236"	0.375"	23.5	-	-	-	-	Fig.1	0.8	
063R-2	●	8	2	2	63	50	1.000"	20	14	85	1.024"	0.236"	0.375"	45	-	-	-	-	Fig.3	1.0	
080R-1	●	4	1	1	80	55	1.000"	20	14	50	1.024"	0.236"	0.375"	23.5	-	-	-	-	Fig.1	1.1	
080R-2	●	8	2	2	80	55	1.000"	20	14	70	1.260"	0.315"	0.500"	45	-	-	-	-	Fig.3	1.6	
080R-2-31.75	●	8	4	4	80	70	1.250"	27	18	70	1.260"	0.315"	0.500"	45	-	-	-	-	Fig.3	1.7	
080R-4	●	16	4	4	80	55	1.000"	20	14	115	1.024"	0.236"	0.375"	90	-	-	-	-	Fig.5	2.6	
080R-4-31.75	●	16	4	4	80	70	1.250"	27	18	115	1.260"	0.315"	0.500"	90	-	-	-	-	Fig.5	2.7	
100R-1	●	6	1	1	100	70	1.250"	42	-	50	1.260"	0.315"	0.500"	23.5	-	-	-	-	Fig.2	1.6	
100R-2	●	12	2	2	100	70	1.250"	42	-	70	1.260"	0.315"	0.500"	45	-	-	-	-	Fig.4	2.2	
100R-4	●	24	4	4	100	70	1.250"	42	-	115	1.260"	0.315"	0.500"	90	-	-	-	-	Fig.6	3.6	
125R-1	●	6	1	1	125	85	1.500"	54	-	60	1.496"	0.394"	0.625"	23.5	-	-	-	-	Fig.2	3.5	
125R-2	●	12	2	2	125	85	1.500"	54	-	70	1.496"	0.394"	0.625"	45	-	-	-	-	Fig.4	3.8	
125R-4	●	24	4	4	125	85	1.500"	54	-	115	1.496"	0.394"	0.625"	90	-	-	-	-	Fig.6	6.1	
160R-1	●	8	1	1	160	100	2.000"	68	-	60	1.496"	0.433"	0.750"	23.5	-	-	-	-	Fig.2	5.8	
160R-2	●	16	2	2	160	100	2.000"	68	-	70	1.496"	0.433"	0.750"	45	-	-	-	-	Fig.4	6.4	
160R-4	●	32	4	4	160	100	2.000"	68	-	115	1.496"	0.433"	0.750"	90	-	-	-	-	Fig.6	10.7	
200R-1	●	10	1	1	200	130	1.875"	-	-	60	1.496"	0.551"	1.000"	23.5	18	26	-	-	Fig.7	7.5	
200R-2	●	20	2	2	200	130	1.875"	-	-	80	1.496"	0.551"	1.000"	45	18	26	-	-	Fig.8	10.4	
250R-1	●	12	1	1	250	130	1.875"	-	-	60	1.496"	0.551"	1.000"	23.5	18	26	-	-	Fig.7	10.9	
250R-2	●	24	2	2	250	130	1.875"	-	-	80	1.496"	0.551"	1.000"	45	18	26	-	-	Fig.8	14.7	
315R-1	□	14	14	1	315	220	1.875"	-	-	60	1.378"	0.551"	1.000"	23.5	17	27	22	32	Fig.9	16.0	

- Shim is not available for MSR063R (DC=63).
- Mounting bolt (HH12x40) is included for MSR063R and MSR080R. Mounting bolt (HH16x45) is included for MSR080R-O-31.75.
- It is not recommended using only top edge part (D.O.C.=30mm) for 4 stages type. If D.O.C. is small, use 1 stage or 2 stage type.
- Deep slotting is not recommended with these cutters.

Spare Parts **M131**
Applicable Inserts **M131**

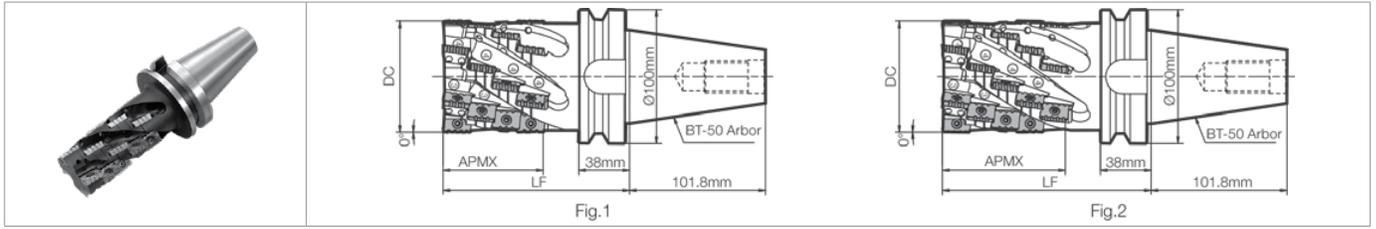
Toolholder Dimensions (Metric Bore Dia.)

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (mm)															Drawing	Weight (kg)
					DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LH	CBDP	KDP	KWW	APMX	DCCB ₃	DCCB ₄	DCCB ₅	DCCB ₆			
MSR 063R-1M	●	4	1	1	63	50	27	20	14	65	22	7.2	12.4	23.5	-	-	-	-	Fig.1	0.7	
063R-2M	●	8	2	2	63	50	27	20	14	85	22	7.2	12.4	45	-	-	-	-	Fig.3	0.9	
080R-1M	●	4	1	1	80	55	27	20	14	50	22	7.2	12.4	23.5	-	-	-	-	Fig.1	1.0	
080R-2M	●	8	2	2	80	55	27	20	14	70	22	7.2	12.4	45	-	-	-	-	Fig.3	1.5	
080R-4M	●	16	4	4	80	55	27	20	14	115	22	7.2	12.4	90	-	-	-	-	Fig.5	2.5	
100R-1M	●	6	1	1	100	70	32	42	-	50	28	8	14.4	23.5	-	-	-	-	Fig.2	1.5	
100R-2M	●	12	2	2	100	70	32	42	-	70	28	8	14.4	45	-	-	-	-	Fig.4	2.0	
100R-4M	●	24	4	4	100	70	32	42	-	115	28	8	14.4	90	-	-	-	-	Fig.6	3.2	
125R-1M	●	6	1	1	125	85	40	58	-	60	30	9	16.4	23.5	-	-	-	-	Fig.2	3.4	
125R-2M	●	12	2	2	125	85	40	58	-	70	30	9	16.4	45	-	-	-	-	Fig.4	3.7	
125R-4M	●	24	4	4	125	85	40	58	-	115	30	9	16.4	90	-	-	-	-	Fig.6	6.0	
160R-1M	●	8	1	1	160	100	40	68	-	60	30	10	16.4	23.5	-	-	-	-	Fig.2	6.1	
160R-2M	●	16	2	2	160	100	40	68	-	70	30	10	16.4	45	-	-	-	-	Fig.4	6.8	
200R-1M	●	10	1	1	200	130	60	-	-	60	38	15	25.4	23.5	18	26	-	-	Fig.7	7.0	
200R-2M	●	20	2	2	200	130	60	-	-	80	38	15	25.4	45	18	26	-	-	Fig.8	9.9	
250R-1M	●	12	1	1	250	130	60	-	-	60	38	15	25.4	23.5	18	26	-	-	Fig.7	10.3	
250R-2M	●	24	2	2	250	130	60	-	-	80	38	15	25.4	45	18	26	-	-	Fig.8	14.2	
315R-1M	□	14	14	1	315	230	60	-	-	60	35	15	25.4	23.5	17	27	22	32	Fig.9	15.5	

- Shim is not available for MSR063R (DC=63).
- Arbor bolt (HH12x35) is included for MSR063R / MSR080R.
- It is not recommended using only top edge part (D.O.C.=30mm) for 4 stages type. If D.O.C. is small, use 1 stage or 2 stage type.
- Deep slotting is not recommended with these cutters.

Spare Parts **M131**
Applicable Inserts **M131**

MSR-BT50



Toolholder Dimensions

Part Number	Stock	No. of Inserts	No. of Flutes	No. of Stages	Dimensions (mm)			Rake Angle		Drawing	Weight (kg)
					DC	LF	APMX	A.R.	R.R.		
MSR 063R-BT50-4	●	16	4	4	63	160	90	+9°	-8°	Fig.1	5.7
MSR 063R-BT50-5	●	20		5	180	111	Fig.2			6.2	
MSR 080R-BT50-4	●	16	4	4	80	160	90	+9°	-8°	Fig.1	6.9
MSR 080R-BT50-5	●	20		5	180	111	Fig.2			7.4	
MSR 100R-BT50-4	●	24	6	4	100	160	90	+9°	-5°	Fig.1	9.6
MSR 100R-BT50-5	●	30		5	180	111	Fig.2			10.5	

Spare Parts

Part Number	Spare Parts					
	Clamp Screw	Wrench	Shim	Clamp Screw	Wrench	Anti-Seize Compound
MSR 063R-□□						
MSR 080R-□□	SB-60120TR	TT-25L	MAP-2506	SB-40140TR	DT-15	P-37
MSR 315R-□□	For Insert Clamp		For Shim Clamp			
MSR 063R-BT50-○	SB-60120TR	TT-25L	MAP-2506	SB-40140TR	DT-15	P-37
MSR 080R-BT50-○	For Insert Clamp		For Shim Clamp			
MSR 100R-BT50-○	For Insert Clamp		For Shim Clamp			

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Inserts

Part Number	Applicable Inserts M22			
MSR... MSR...M	APMT 2506○○ER-NB3	APMT 2506○○ER-NB4	APMT 250616ER-NB3P	APMT 250616ER-NB4P
Custom-Ordered Left-hand Cutter	APMT 250616EL-NB3	APMT 250616EL-NB4	-	-

Recommended Cutting Conditions **M134-M135**

Caution when Installing Notched Inserts

It is important to install the appropriate notched insert into the correct position. Failure to do so may result in damage to the toolholder body. The appropriate insert is marked on the pocket of the cutter body.

- (3) is for APMT2506○○ER-NB3
- (4) is for APMT2506○○ER-NB4

(No. of Inserts - Example)

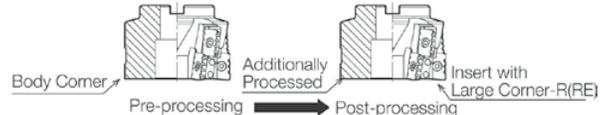
Part Number	No. of Inserts	No. of Flutes	No. of Inserts Notched	
			NB3	NB4
MSR 100R-1	6	6	3	3
100R-2	12		6	6
100R-4	24		12	12

Caution when Installing the Insert with Corner-R(RE) 4.0

When installing the insert with corner-radius 4.0mm, additional modifications for the body will be necessary. Refer to the table below for the recommended modifications.

Insert Corner-R (RE)	Additional Processing Dimension to Body Corner (mm)
4.0	R2.0

* Round- chamfer additional processing is recommended. When applying chamfer, do not cut away too much.



◆ Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade (Vc sfm)		
	General Purpose NB3+NB4	Low Cutting Force NB3P+NB4P	MEGACOAT		PVD Coated Carbide
			PR1230	PR1210	PR830
Carbon Steel	0.008	0.006	★ 330-490-660	-	☆ 300-490-590
Cast Iron	0.008	0.006	-	★ 330-490-660	-
Stainless Steel	Not Recommended				
Non-Ferrous Metals	Not Recommended				

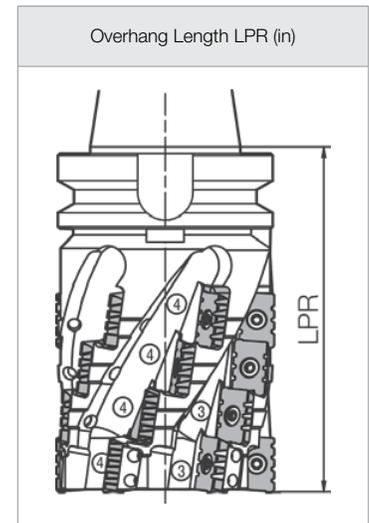
* For MSR, cutting speed should be carefully adjusted depending on the length of toolholder protruding from the end of machine spindle.
 · When the protruding length of toolholder is small, set the cutting speed to slightly higher than the recommended cutting conditions.
 · When the protruding length of toolholder is large, set the cutting speed to slightly lower than the recommended cutting conditions.

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Shouldering)

MSR100R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Carbon Steel	< 3.94	Vc = 590 sfm	fz = 0.008 ipt	0.79 × 3.15	67.13
	3.94~7.87	Vc = 590 sfm	fz = 0.008 ipt	0.79 × 1.57	33.56
	≥ 7.91	Vc = 400 sfm	fz = 0.008 ipt	0.79 × 1.18	16.84
Cast Iron	< 3.94	Vc = 500 sfm	fz = 0.008 ipt	0.79 × 3.15	56.14
	3.94~7.87	Vc = 500 sfm	fz = 0.008 ipt	0.79 × 1.57	28.07
	≥ 7.91	Vc = 325 sfm	fz = 0.008 ipt	0.79 × 1.18	13.91



MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 5.12	Vc = 590 sfm	fz = 0.008 ipt	1.57 × 1.57	67.13
	5.12~9.06	Vc = 590 sfm	fz = 0.008 ipt	1.57 × 0.79	33.56
	≥ 9.09	Vc = 400 sfm	fz = 0.008 ipt	1.57 × 0.79	22.46
Carbon Steel	< 5.12	Vc = 500 sfm	fz = 0.008 ipt	1.57 × 1.57	56.14
	5.12~9.06	Vc = 500 sfm	fz = 0.008 ipt	1.57 × 0.79	28.07
	≥ 9.09	Vc = 325 sfm	fz = 0.008 ipt	1.57 × 0.79	18.55

MSR100R-4

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 7.09	Vc = 590 sfm	fz = 0.008 ipt	2.95 × 0.79	63.16
	7.09~11.02	Vc = 590 sfm	fz = 0.008 ipt	2.95 × 0.39	31.61
	≥ 11.06	Vc = 400 sfm	fz = 0.008 ipt	2.95 × 0.39	21.05
Carbon Steel	< 7.09	Vc = 500 sfm	fz = 0.008 ipt	2.95 × 0.79	52.66
	7.09~11.02	Vc = 500 sfm	fz = 0.008 ipt	2.95 × 0.39	26.30
	≥ 11.06	Vc = 325 sfm	fz = 0.008 ipt	2.95 × 0.39	17.39

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M MILLING

◆ Recommended Cutting Conditions (Slotting)

MSR100R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 3.94	Vc = 590 sfm	fz = 0.008 ipt	0.55 × 3.94	58.95
	3.94~7.87	Vc = 500 sfm	fz = 0.008 ipt	0.28 × 3.94	24.59
	≥ 7.91	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 3.94	11.23
Carbon Steel	< 3.94	Vc = 500 sfm	fz = 0.008 ipt	0.28 × 3.94	24.59
	3.94~7.87	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 3.94	11.23
	≥ 7.91	Vc = 325 sfm	fz = 0.008 ipt	0.12 × 3.94	6.96

MSR100R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 5.12	Vc = 590 sfm	fz = 0.008 ipt	0.55 × 3.94	58.95
	5.12~9.06	Vc = 500 sfm	fz = 0.008 ipt	0.28 × 3.94	24.59
	≥ 9.09	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 3.94	11.23
Carbon Steel	< 5.12	Vc = 500 sfm	fz = 0.008 ipt	0.28 × 3.94	24.59
	5.12~9.06	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 3.94	11.23
	≥ 9.09	Vc = 325 sfm	fz = 0.008 ipt	0.12 × 3.94	6.96

MSR160R-1

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 3.94	Vc = 600 sfm	fz = 0.008 ipt	0.39 × 6.30	56.63
	3.94~7.87	Vc = 500 sfm	fz = 0.008 ipt	0.20 × 6.30	28.32
	≥ 7.91	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 6.30	14.83
Carbon Steel	< 3.94	Vc = 500 sfm	fz = 0.008 ipt	0.20 × 6.30	23.43
	3.94~7.87	Vc = 400 sfm	fz = 0.008 ipt	0.12 × 6.30	14.04
	≥ 7.91	Vc = 325 sfm	fz = 0.008 ipt	0.08 × 6.30	6.22

MSR160R-2

Workpiece Material	Overhang Length LPR (in)	Cutting Conditions		D.O.C. × ae (in)	Chip Removal Rate (in ³ /min)
		Cutting Speed (Vc)	Feed Rate (fz)		
Cast Iron	< 5.12	Vc = 600 sfm	fz = 0.008 ipt	0.39 × 6.30	56.63
	5.12~9.06	Vc = 500 sfm	fz = 0.008 ipt	0.20 × 6.30	23.43
	≥ 9.09	Vc = 400 sfm	fz = 0.008 ipt	0.16 × 6.30	14.83
Carbon Steel	< 5.12	Vc = 500 sfm	fz = 0.008 ipt	0.20 × 6.30	23.43
	5.12~9.06	Vc = 400 sfm	fz = 0.008 ipt	0.12 × 6.30	11.11
	≥ 9.09	Vc = 325 sfm	fz = 0.008 ipt	0.08 × 6.30	6.22

* Slotting is not recommended with 4 stage cutters

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Q & A

Q-1 What cutting conditions are recommended in most cases for MSR?

A-1 Vc= 500 sfm, fz = 0.008 ipt, larger cutting depth and smaller cutting width

In case of MSR100R-2

e.g.) Load Meter 120%

e.g.) Load Meter 90%

1st Pass	D.O.C. x ae: 0.59 x 2.95"
2nd Pass	
3rd Pass	

3rd Pass	2nd Pass	1st Pass
D.O.C x ae: 1.77 x 0.98"		
		

Q-2 What is the required equipment for MSR?

A-2 Maximum spindle revolution should be lower than 4000RPM. BT50 or larger.

* The reason it is not recommended for high RPM spindle machines is due to their lower torque value.
* Although MSR works with BT40 shank, maximum available fz is about 0.004ipt.

Q-3 What are the points to remember when using a lower horsepower machine?

A-3 Do not use large size cutters. $\varnothing 2.5"$ or $\varnothing 3.0"$ are recommended
Increase cutting speed and decrease feed rate.
Set up conditions to get the largest available torque by checking torque curve of the machine.
In conditions of Vc = 500 sfm, insufficient torque was available due to being in high gear.
In this case, use Vc which can exert enough torque, such as Vc = 400 sfm.
* Machine torque curve is a priority.

Q-4 How do I deal with an unstable workpiece?

A-4 Decrease feed rate during the initial cut.

* Vibration and workpiece movement are most likely to occur upon the cutters initial entry into the cut.

• Effective combinations for maintaining cycle time while reducing the feedrate.
Vc=500 sfm, fz=0.008 ipt
↓
Vc=650 sfm, fz=0.006 ipt

Q-5 What tool life can I expect?

A-5 Example:
Chip Weight: 1543lbs/Corner (Result by PR660)
Cutting Time: 90min. (Calculated Value)
Cutting Distance: 213.25ft (Calculated Value)
Metal Removal Rate? → About 17.20lbs Chips Removed per Minute
Tool Life Time = 1543lbs (Chip Weight) ÷ 17.20lbs (Chip Evacuation Amount per 1min) = 90min
Cutting Distance = 90min (Time by the End of Tool Life) x 28.228ipm (Table Feed Ratio per 1min) = 213.25ft
* Cutting Vc = 490 sfm, D.O.C. x ae: 0.787" x 2.756", Vf = 28.228ipm.
* Tool: MSR100R-2 (6 Flutes)

Q-6 How do I reduce chattering?

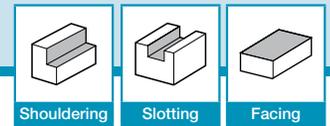
A-6 If chattering occurs, then the following conditions are recommended.
→ Reduce cutting speed and increase feed rate.

In case of Steel
· Vc=250 sfm
· fz=0.010 ipt

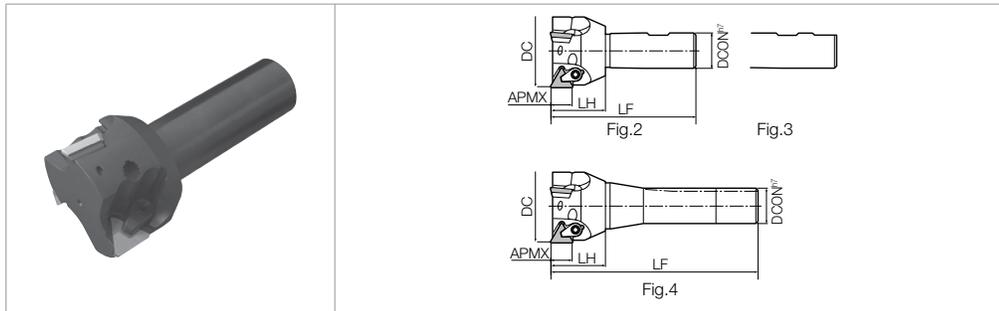
In case of Cast Iron
· Vc=250 sfm
· fz=0.014 ipt

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING



MTP90 End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Drawing	Rake Angle (°)		Spare Parts						
				DC	DCON	LF	LH	APMX		A.R. (Max)	R.R.	Clamp Set	Clamp	Clamp Screw	Wrench	Shim	Shim Clamp Screw	Wrench
												(Icons)	(Icon)	(Icon)	(Icon)	(Icon)	(Icon)	(Icon)
MTP 90-075-75W	●	inch	2	0.75	0.750	3.28	1.25	0.34	Fig.2	+3°	-3°	CPS-2S	-	-	FT-15	-	-	-
90-100-75W	●		3	1.00														
90-125-75W	●		2	1.25														
90-150-75W	●		3	1.50	0.875	3.53	1.50	0.53	Fig.2	+5°	0°	CPS-3	-	-	LW-3	KPT-32	SH3X6	LW-2
90-200-75W	●		3	2.00														
90-250-875W	●		3	2.50														
90-200-125W	●		3	2.00	1.250	3.90	1.69	0.71	Fig.3	+8°	0°	-	CP-8W	W8X18	LW-4	KPT-42	SH3X6	LW-2
90-250-125W	●		3	2.50														
90-300-125W	●		4	3.00														
MTP 90-200-R8	●	3	2.00	0.949	6.00	2.003	0.53	Fig.4	+5°	-	-	-	-	LW-3	KPT-32	SH3X6	LW-2	

Applicable Inserts

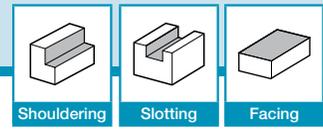
Part Number	Applicable Inserts M14				Applicable PCD Inserts M30	
	(Icon)	(Icon)	(Icon)	(Icon)	(Icon)	(Icon)
MTP90-075-75W MTP90-100-75W	-	-	-	TPG 22_ TPM 22_	-	TPG 22_
MTP90-125-75W MTP90-150-75W MTP90-200-75W MTP90-250-875W MTP90-200-R8	TPMR 32PDER-H	-	-	TPKN 32PDTR TPKN 32PDRF	-	-
MTP90...-125W	TPMR 43PDER-H	TPKR 43PDER-S	-	TPKN 43PDTR TPKN 43PDRF	-	-

Recommended Cutting Conditions

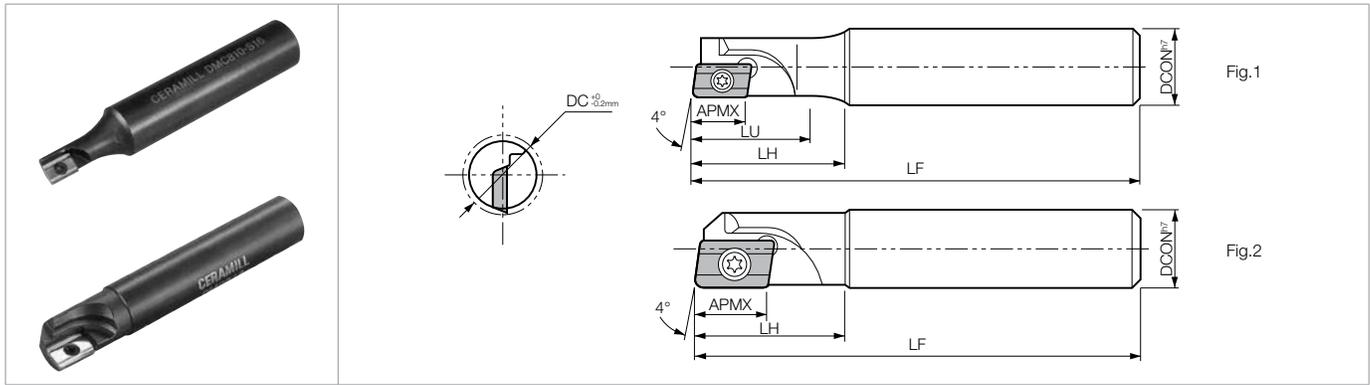
Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grade (Vc sfm)					
		Cermet	MEGACOAT		PVD Coated Carbide	Carbide	PCD
		TN100M	PR1225	PR1210	PR830	KW10	KPD001 (KPD010)
Carbon Steel	-0.010	★ 390~660	★ 390~820	-	☆ 390~660	-	-
Alloy Steel	-0.010	★ 330~590	★ 330~720	-	☆ 330~590	-	-
Mold Steel	-0.008	★ 330~590	★ 260~590	-	☆ 260~490	-	-
Stainless Steel	-0.008	☆ 390~660	★ 390~720	-	☆ 390~660	-	-
Cast Iron	-0.010	-	-	★ 330~720	-	☆ 260~490	-
Non-ferrous Metals	-0.008	-	-	-	-	★ 330~980	★ 980~2620

★ : 1st Recommendation
☆ : 2nd Recommendation

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**



DMC End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)						Rake Angle (°)		Drawing	Spare Parts						
			DC	DCON	LF	LH	LU	APMX	A.R.	R.R.		Clamp Screw	Wrench					
DMC 810-S16	●	1	10	16	90	27	16	8.5	+3°	-11°	Fig.1	SB-2545TR	FT-8					
811-S16	●		11															
812-S16	●		12															
813-S16	△		13		20													
814-S16	●		14															
815-S16	●		15															
816-S16	●		2	16	100	31	25		+6°	-8°								
820-S20	●		3	20										20	36	30	+8°	-6°
825-S25	△		25	25										46	40	-5°		
DMC 810	●	1	10	10	70	20	-	8.5	+3°	-6°	Fig.2	SB-2545TR	FT-8					
812	●		12	12	80	25	-5°											
DMC 016	△	1	16	16	90	25	-	11.0	+4°	-2°	Fig.2	SB-3060TR	FT-10					
020	●	2	20	20	110	30	+5°							0°				

Applicable Inserts

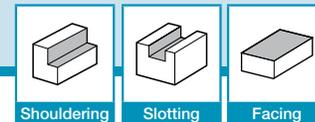
Part Number	Applicable Inserts → M24	
DMC8○○(-S○○)	 NDCT 831TR NDCT 831FR	 NDMM 831ER-SP
DMC0○○	 NDCT 032TR NDCT 032FR	 NDMM 031ER-SP NDMM 032ER-SP

DMC Recommended Cutting Conditions

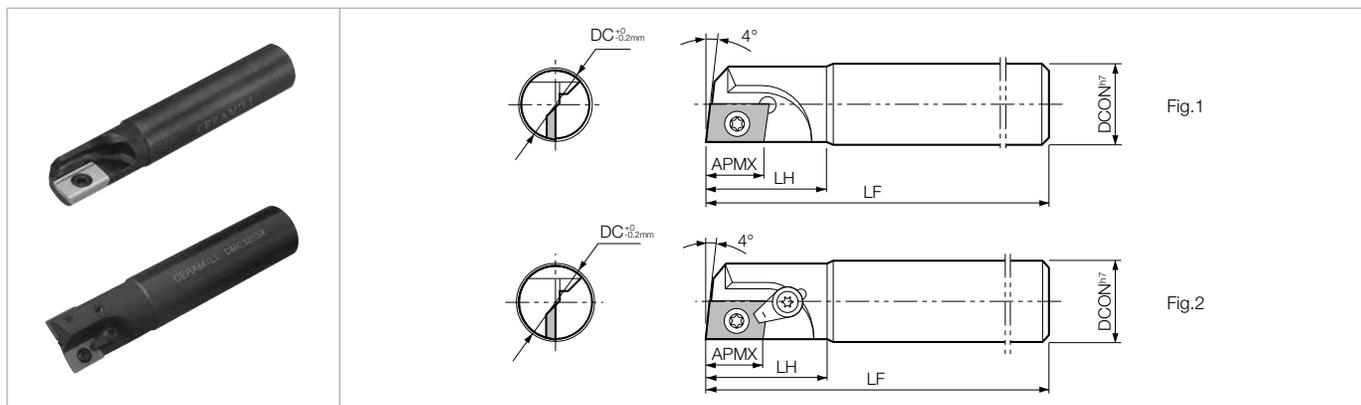
Workpiece Material	Feed Rate fz (IPT)	Recommended Insert Grade (Vc sfm)		Max. D.O.C. (in)		
		Cermet	Carbide	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
		TN100M	KW10			
Carbon Steel	~0.008	★ 390~660	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Alloy Steel	~0.008	★ 330~590	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Mold Steel	~0.006	★ 330~590	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Stainless Steel	~0.006	☆ 390~660	-	~Ø12mm	0.059	0.157 x 0.079
				Ø14mm~	0.079	0.236 x 0.079
Cast Iron	~0.008	-	★ 260~490	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Non-ferrous Metals	~0.008	-	★ 330~980	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118

Use DMC8○○ with Max. D.O.C. = 0.236" for shouldering.

★ : 1st Recommendation ☆ : 2nd Recommendation



DMC-SX End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Drawing	Spare Parts		
			DC	DCON	LF	LH	APMX	A.R.	R.R.		Clamp Set	Clamp Screw	Wrench
DMC 316SXT	●	1	16	16	90	30	14.0	+3°	Fig.1	-	SB-4060TR	FT-15	
320SX	●		20	20	110					40	-3°		Fig.2	CPS-2TR	SB-4065TR
325SX	●		25	25	120	0°							
332SX	●		32	32	130								
340SX	●		40	32	150								
DMC 320SX-200	●	2	20	20	200	50	14.0	+3°	Fig.1	-	SB-4065TR	FT-15	
325SX-220	●		25	25	220	60							-3°
332SX-250	●		32	32	250	80							-2°

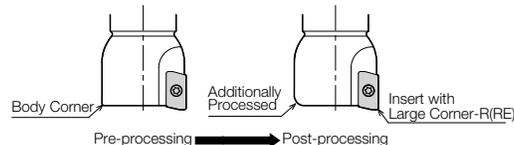
Applicable Inserts

Part Number	Applicable Inserts M24		
DMC 316SXT	NDCW 3205TR NDCW 321TR NDCW 322TR NDCW 325TR NDCW 3275TR NDCW 3210TR (NDCW 322TRX) (NDCW 322FRX)	NDCT 322TR NDCT 322FR (NDCT 322TRX)	NDMM 321ER-SP NDMM 322ER-SP
320SX			
325SX			
332SX			
340SX			
DMC 320SX-200	NDCW 3210TR (NDCW 322TRX) (NDCW 322FRX)	NDCT 322TR NDCT 322FR (NDCT 322TRX)	NDMM 321ER-SP NDMM 322ER-SP
325SX-220			
332SX-250			

When installing inserts with corner-R(RE) over 2.0mm, grind off the corner part of the tool's insert pocket to avoid contact with the workpiece. Additional modifications for the body will be necessary. Ref. to the table below for the recommended modifications. (Additional grind off is not necessary when corner-R(RE) is 0.8mm or less.)

Insert Corner-R(RE)	Additional Processing Dimension to Body Corner (mm)
2.0	R1.0
3.0	R1.6
4.0	R2.0

* Round-chamfer additional processing is recommended. When applying chamfer, do not cut away too much.



Inserts in parenthesis () are applicable, however toolholder will be further out from insert bottom. (See lower section of **M141**)

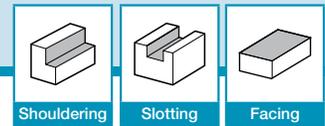
DMC-SX Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (pt)	Recommended Insert Grade (Vc sfm)		Max. D.O.C. (in)		
		Cermet	Carbide	Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
Carbon Steel	~0.008	★ 390-660	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Alloy Steel	~0.008	★ 330-590	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Mold Steel	~0.006	★ 330-590	-	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Stainless Steel	~0.006	☆ 390-660	-	~Ø12mm	0.059	0.157 x 0.079
				Ø14mm~	0.079	0.236 x 0.079
Cast Iron	~0.008	-	★ 260-490	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118
Non-ferrous Metals	~0.008	-	★ 330-980	~Ø12mm	0.079	0.236 x 0.079
				Ø14mm~	0.118	0.354 x 0.118

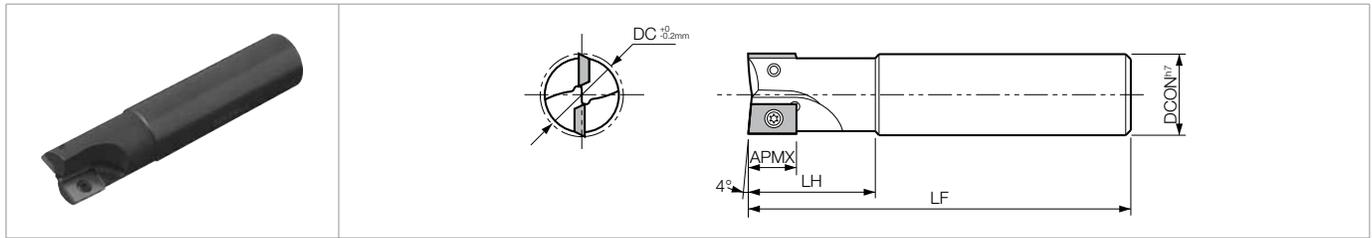
Use DMC800 with Max. D.O.C. = 0.236" for shouldering.

★ : 1st Recommendation ☆ : 2nd Recommendation

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**



DMC-H End Mill (High Rake)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)					Rake Angle (°)		Spare Parts	
			DC	DCON	LF	LH	APMX	A.R.	R.R.	Clamp Screw	Wrench
DMC 316H	●	1	16	16	90	30	14.0	+5°	-3.5°	SB-4060TR	FT-15
320H	●		20	20	110			+6°	-2°		
325H	●		25	25	120			+8°	0°		
332H	●	2	32	32	40	SB-4065TR					
340H	●		40					150			

Applicable Inserts

Part Number	Applicable Inserts M24			Applicable PCD Inserts M30
	DMC 316H			
320H	NDMM 321ER-SP NDMM 322ER-SP	NDCT 322TRX	NDCW 322TRX NDCW 322FRX	NDCW 3205FRX-NE NDCW 3205FRX (PCD)
325H				
332H				
340H				

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

◆ DMC-H Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ppt)	Recommended Insert Grade (Vc sfm)				Max. D.O.C. (in)		
		Cermet	Carbide	PCD		Cutting Dia. (DC)	Slotting (D.O.C.)	Shouldering (D.O.C. x ae)
		TN100M	KW10	KPD230 (KPD001)	KPD010			
Carbon Steel	~0.008	★ 390-660	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.551 x 0.236
Alloy Steel	~0.008	★ 330-590	-	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.315	0.512 x 0.236
Mold Steel	~0.006	★ 330-590	-	-	-	~Ø20mm	0.118	0.197 x 0.079
						Ø25mm~	0.236	0.394 x 0.118
Stainless Steel	~0.006	☆ 390-660	-	-	-	~Ø20mm	0.118	0.236 x 0.079
						Ø25mm~	0.236	0.512 x 0.118
Cast Iron	~0.008	-	★ 260-490	-	-	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236
Non-ferrous Metals	~0.008	-	★ 330-980	★ 980-1640	☆ 980-1640	~Ø20mm	0.157	0.315 x 0.157
						Ø25mm~	0.236	0.551 x 0.236

★ : 1st Recommendation ☆ : 2nd Recommendation

• Above inserts are also applicable to DMC○○○SX type, but the conventional NDCW1503○○TR type insert is not applicable for this end mill.

Toolholder Part Number	Insert Part Number	DMC-H		DMC-SX	
		No Interference of Relieve Surface	Less Relief (D.O.C. Must be Under 0.197")	No Interference of Relieve Surface	No Interference of Relieve Surface
NDC...TRX NDCW...(T/F)RX				NDC...TRX NDCW...(T/F)RX	
NDC...TR NDCT...(T/F)R				NDC...TR NDCW...(T/F)RX	

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFAH

Milling Cutter for Finishing Aluminum

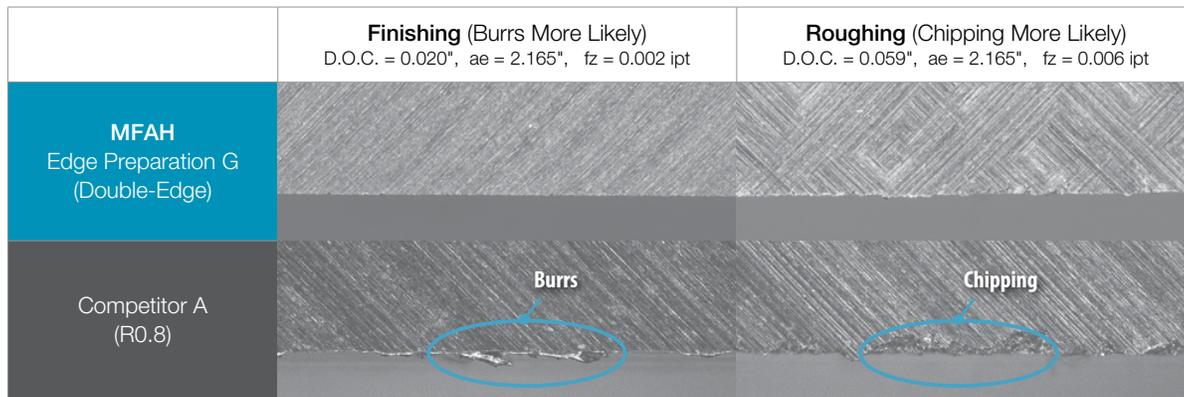
Low Cutting Forces Minimize Burrs for High Quality Machining Results

Easily Adjustable Blade Runout with 2 Body Types and 3 Inserts for a Variety of Milling Applications

1 Minimizes Burrs for High Quality Machining Results

Large True Rake Angle and Double-edge Insert Designs

Burr and Chipping Comparison (Internal Evaluation)

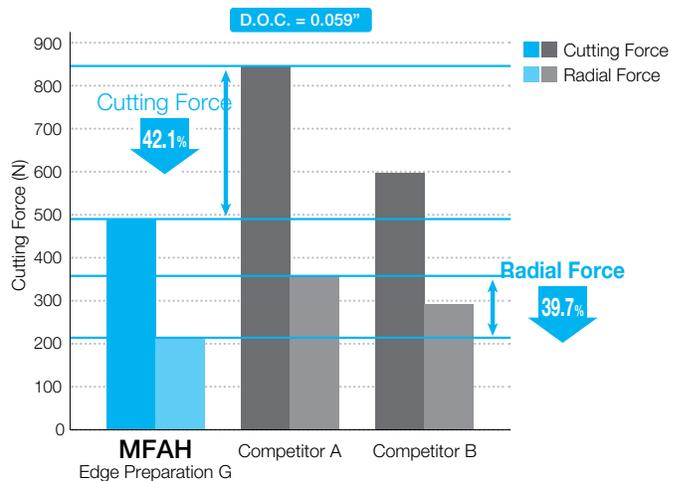
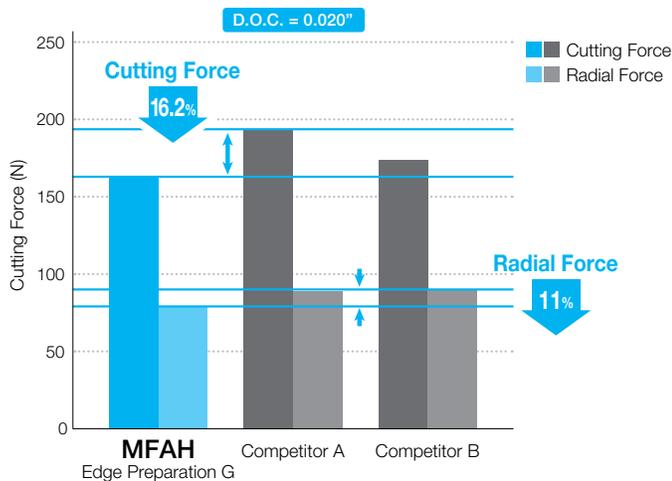


Cutting Conditions: Vc = 8,200 sfm, Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF, ENET0905PAER-G KPD001
Workpiece: 383.0 Aluminum

2 Low Cutting Force Design

Low Cutting Force, Reduced Chattering and High Efficiency Machining

Cutting Force Comparison (Internal Evaluation)



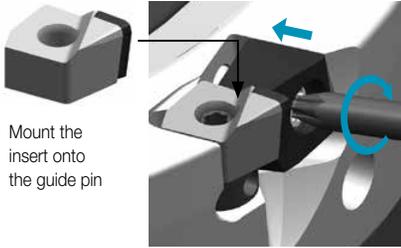
Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", fz = 0.004 ipt Wet, Cutting Dia. Ø80mm
MFAH080RS-10T-SF ENET0905PAER-G KPD001 Workpiece: 383.0 Aluminum

3 Adjustable Blade Runout

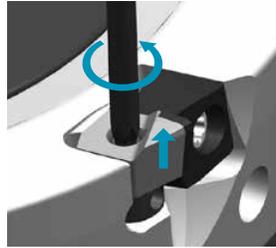
Easily Install Inserts and Adjust Blade Runout

Burr and Chipping Comparison (Internal Evaluation)

Easy Insert Installment
Guide Pin Allows for Easier Positioning

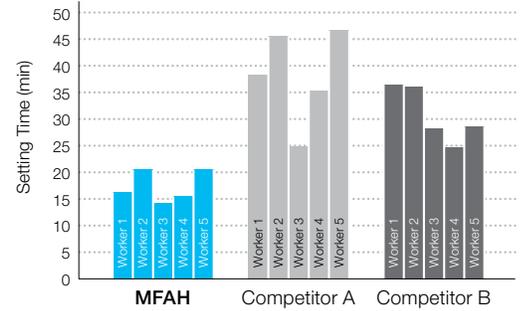


Easily Adjust Blade Runout
Adjustable from Both the Front and Outer Periphery



Blade Runout Setting Time Comparison (Internal Evaluation)

*Operation time of 5 workers



The MFAH can drastically shorten insert setting time

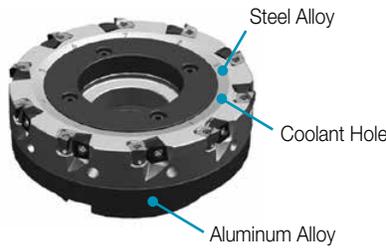
4 Large Tooling Lineup

Steel Body and Light-weight Hybrid Body with Internal Coolant Available 3 Different Edge Designs Offer a Variety of Machining Applications

Cutter Body

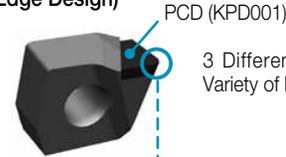


Steel Body
Ø50mm – Ø125mm

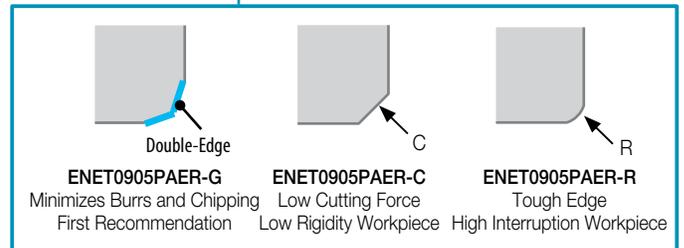


Light-weight Hybrid Body
Ø80mm – Ø315mm

Insert (Edge Design)

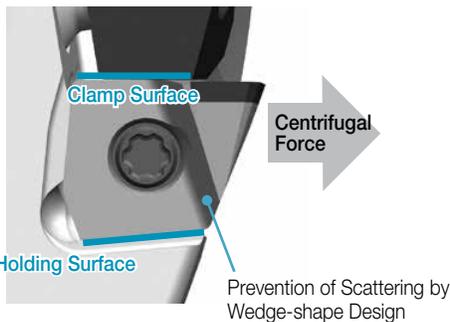


3 Different Edge Designs Offer a Variety of Machining Applications

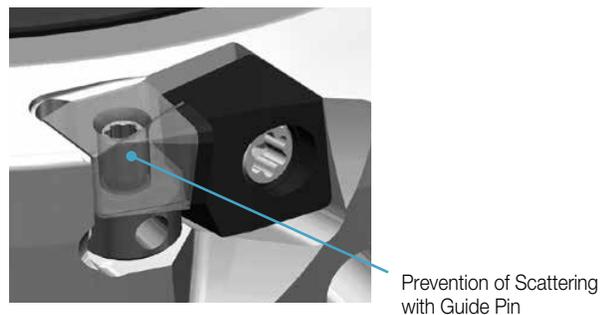


5 Safety Enhancements During High-Speed Revolution

1 Prevention of Scattering by Wedge-shape Design
New wedge-shape feature holds insert firmly in place and reduces chattering

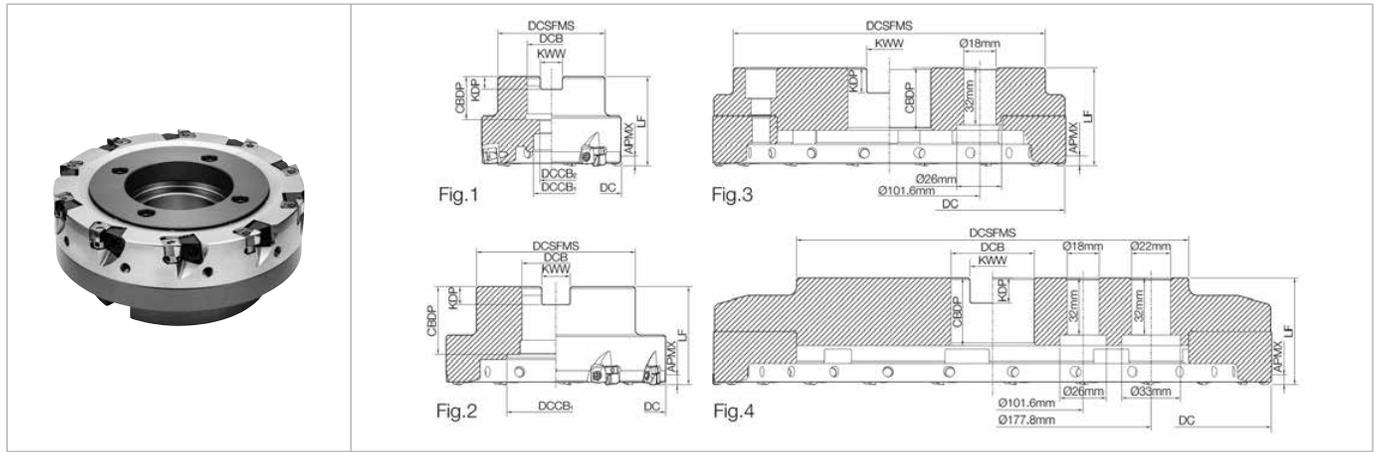


2 Prevention of Scattering with Guide Pin
Guide pins improve safety during high-speed rotation



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFAH Face Mill (Light-Weight Hybrid Body)



Toolholder Dimensions

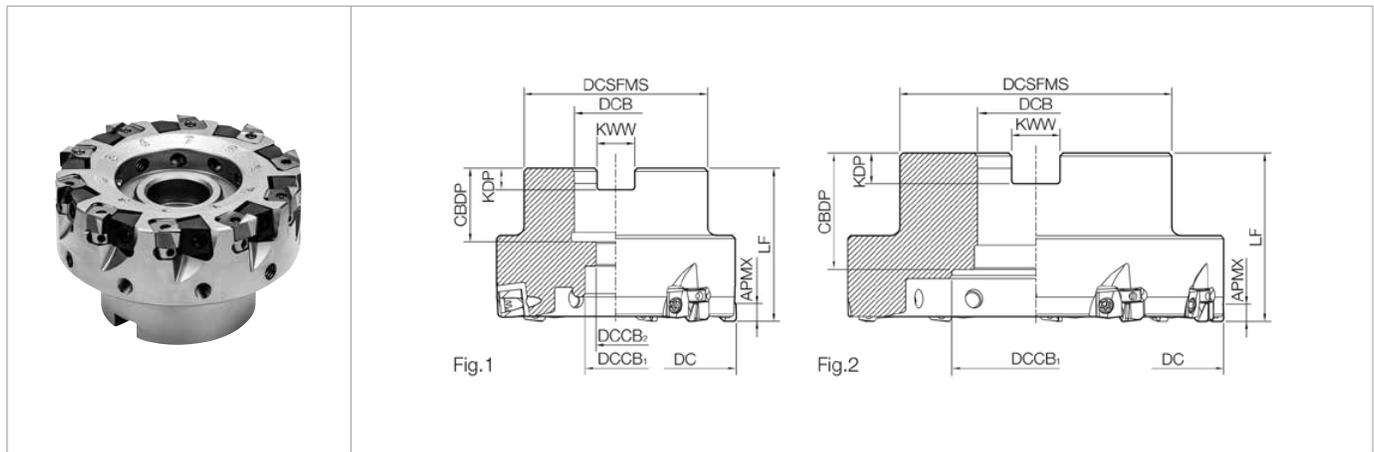
Part Number	Stock	No. of Inserts	Dimensions (mm)										Coolant Hole	Drawing	Max. RPM	Weight (kg)	Coolant Through Arbor Bolt (Included if Listed)	Coolant Cover (Included if Listed)	Coolant Cover (Optional / Sold Separately)	
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW	APMX								
Inch Bore Dia.	MFAH 080RA-6T-SF	●	6	80	62	1.000"	20	13	50	1.063"	0.236"	0.375"	4.6	Yes	Fig.1	14,600	0.83	HH12X35HC		
	080RA-10T-SF	●	10														0.78			
	100RA-8T-254-SF	●	8	100	85	1.250"	42	-	50	0.945"	0.315"	0.500"	Fig.2	13,000	1.21	HF16X44HC				
	100RA-12T-254-SF	●	12												1.16					
	100RA-8T-SF	●	8	125	60	1.000"	20	13	55	0.945"	0.236"	0.375"	Fig.1	11,400	1.8	HH12X35H	CC-125-MFAH			
	125RA-10T-254-SF	●	10												1.74					
	125RA-16T-254-SF	●	16	160	89	1.500"	55	70	55	1.496"	0.394"	0.625"	Fig.2	8,000	2	HF20X53HA	CC-160-MFAH			
	125RA-10T-SF	●	10												1.95					
	160RA-12T-SF	●	12	200	130	2.000"	126	-	55	1.496"	0.433"	0.750"	Fig.3	5,600	3.4	HF24X60HA	CC-200-MFAH			
	160RA-20T-SF	●	20												3.3					
	200RA-16T-SF	□	16	250	175	-	126	-	55	1.378"	0.551"	1.000"	Fig.4	4,500	4.9	-	-	CC-250-MFAH		
	200RA-24T-SF	□	24												4.8					
	250RA-20T-SF	□	20	315	140	1.875"	165	-	60	1.378"	0.551"	1.000"	Fig.4	3,500	7	-	-	CC-315-MFAH		
	250RA-32T-SF	□	32												6.9					
315RA-24T-SF	□	24	315	220	220	-	60	60	1.496"	-	-	Fig.4	3,500	11.7	-	-	CC-315-MFAH			
315RA-40T-SF	□	40												11.5						
Metric Bore Dia.	MFAH 080RA-6T-M-SF	●	6	80	62	27	20	13	50	27	7	12.4	4.6	Yes	Fig.1	14,600	0.82	HH12X35HC		
	080RA-10T-M-SF	●	10														0.78			
	100RA-8T-M27-SF	●	8	100	85	32	42	-	50	24	8	14.4	Fig.2	13,000	1.2	HF16X48HC				
	100RA-12T-M27-SF	●	12												1.15					
	100RA-8T-M-SF	●	8	125	60	27	20	13	55	30	8	14.4	Fig.1	11,400	1.32	HH12X35H	CC-125-MFAH			
	100RA-12T-M-SF	●	12												1.27					
	125RA-10T-M27-SF	●	10	160	94	40	55	70	55	24	7	12.4	Fig.2	8,000	1.8	HF20X53HA	CC-160-MFAH			
	125RA-16T-M27-SF	●	16												2.1					
	125RA-10T-M-SF	●	10	200	125	40	57	-	55	33	9	16.4	Fig.3	5,600	2.1	HF24X60HA	CC-200-MFAH			
	125RA-16T-M-SF	●	16												2.1					
	160RA-12T-M-SF	●	12	250	175	126	-	-	55	1.496"	0.433"	0.750"	Fig.4	4,500	3.5	-	-	CC-250-MFAH		
	160RA-20T-M-SF	●	20												3.4					
	200RA-16T-M-SF	□	16	315	200	175	126	-	60	1.378"	0.551"	1.000"	Fig.4	3,500	4.7	-	-	CC-315-MFAH		
	200RA-24T-M-SF	□	24												4.6					
250RA-20T-M-SF	□	20	315	250	140	60	165	-	60	14	25.7	Fig.4	4,500	6.9	-	-	CC-315-MFAH			
250RA-32T-M-SF	□	32												6.8						
315RA-24T-M-SF	□	24	315	220	220	-	60	60	1.496"	-	-	Fig.4	3,500	11.7	-	-	CC-315-MFAH			
315RA-40T-M-SF	□	40												11.5						

* Confirm the total weight of the cutter and the arbor is within the machine's acceptable range

Recommended Cutting Conditions **M146**

Applicable Inserts **M146**

MFAH Face Mill (Steel Body)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)									Coolant Hole	Drawing	Max. RPM	Weight (kg)	Arbor Bolt (Included)		
			DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW						APMX	
Inch Bore Dia.	MFAH 080RS-6T-SF	●	6	80	50	1.000"	20	13	50	1.063"	0.236"	0.375"	4.6	No	Fig.1	14,600	1	HH12X35
	080RS-10T-SF	●	10														0.98	
	100RS-8T-SF	●	8	100	70	1.250"	45	-	55	1.339"	0.315"	0.500"			Fig.2	13,000	2	-
	100RS-12T-SF	●	12														1.55	
	125RS-10T-SF	●	10	125	89	1.500"	55	-	55	1.496"	0.394"	0.625"			11,400	2.63	-	
	125RS-16T-SF	●	16													2.63		
Metric Bore Dia.	MFAH 050RS-4T-M-SF	●	4	50	48	16	13.6	9	40	19	5.6	8.4	4.6	No	Fig.1	19,200	0	HH8X25
	050RS-5T-M-SF	●	5														0.43	
	063RS-5T-M-SF	●	5	63	61	22	23	11	50	21	6.3	10.4			Fig.1	16,800	0.69	HH10X30
	063RS-6T-M-SF	●	6														0.68	
	080RS-6T-M-SF	●	6	80	60	27	20	13	50	24	7	12.4			Fig.1	14,600	1	HH12X35
	080RS-10T-M-SF	●	10														1.11	
	100RS-8T-M-SF	●	8	100	70	32	45	-	55	30	8	14.4	Fig.2	13,000	2	-		
	100RS-12T-M-SF	●	12												1.51			
	125RS-10T-M-SF	●	10	125	89	40	55	-	55	33	9	16.4	Fig.2	11,400	3	-		
	125RS-16T-M-SF	●	16												2.5			

* Confirm the total weight of the cutter and the arbor is within the machine's acceptable range

Recommended Cutting Conditions **M146**

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts							Applicable Inserts ➔ M146
	Clamp	Clamp Screw	Wrench	Adjustment Screw	Wrench	Balance Screw	Anti-seize Compound	
Light-Weight Hybrid Body MFAH080RA-... ~ MFAH315RA-...								ENET0905...
Steel Body MFAH050RS-... ~ MFAH125RS-...	C08R	W5X13L	TTW-15	AJ-4170	DTPM-8	HS6X4	P-37	

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

● Applicable Inserts

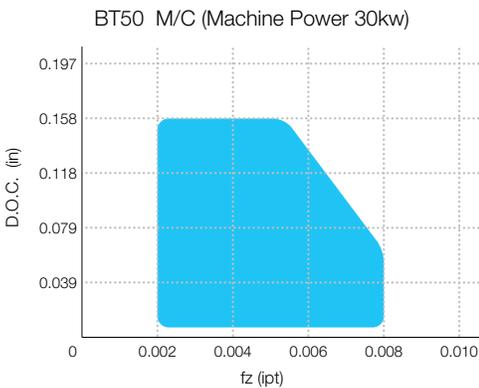
Insert			Part Number	Dimensions (mm)					PCD
				W1	S	L	BS	LE	KPD001
			ENET 0905PAER-G	9.61	7.9	6.02	2.6	5.6	●
			ENET 0905PAER-C	9.61	7.9	6.02	3.0	5.6	●
			ENET 0905PAER-R	9.61	7.9	6.02	3.1	5.6	●

◆ Recommended Cutting Conditions

Workpiece Material	Property	Cutting Speed Vc (sfm)	Feed Rate fz (ipt)	Recommended Grade
Aluminum Alloy	Si Ratio ≤ 12.5%	3,280~8,200~9,840	0.002~0.004~0.008	KPD001
	Si Ratio ≥ 12.5%	1,310~1,970~2,630	0.002~0.004~0.008	

Recommended cutting conditions are reference values
 Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity
 Do not use the cutter at speeds exceeding the maximum cutting speed limit

● Cutting Performance



Cutting Conditions: Vc = 8,200 sfm, ae = 2.165", Wet, Cutting Dia. Ø80mm
 MFAH080RS-10T-SF, ENET0905PAER-G KPD001, Workpiece: 383.0 Aluminum

● Max. Revolution and Max. Cutting Speed for Each Cutting Diameter

Cutting Diameter DC (mm)	Cutter RPM	Max. Cutting Speed Vc max (sfm)
Ø50	19,200	9,990
Ø63	16,800	10,910
Ø80	14,600	12,040
Ø100	13,000	13,400
Ø125	11,400	14,690
Ø160	8,000	13,190
Ø200	5,600	11,550
Ø250	4,500	11,590
Ø315	3,500	11,370

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications
- M** MILLING

● **Cautions**

While in Use

Caution

Only use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body

- Inserts or cutter body may be damaged due to centrifugal force and cutting load

Please do not use under the following conditions:

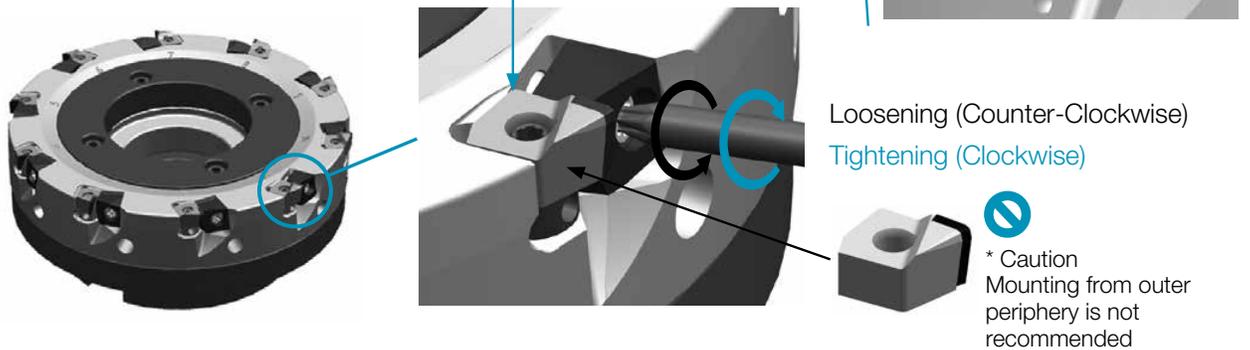
- When cutter is not fully loaded with inserts
- If the body and/or clamp is damaged
- If a clamp or clamp screw is removed
- If inserts that have different regrind amounts are mounted

Please wear protective equipment such as protective glove when changing inserts or adjusting edge fluctuation

- Injury can occur when touching the cutting edge

● **How to Mount Inserts**

- 1 Adjust the clearance between adjustment screw for cutting edge and the surface of insert to be 0.5mm
- 2 Mount insert on guide pin
(Be sure to install from the head)
(Mounting from outer periphery is not recommended)
- 3 Tighten the clamp screw while lightly pressing the insert against the holding surface
(Recommended Torque 4.2 Nm)
- 4 Make sure that there is no clearance between the insert and the mounting surface



Dynamic Balance

Balance adjustment on the cutter is completed before shipping
Balance adjustment has been made with special high precision inserts to be ISO balance grade (ISO1940/1) G2.5

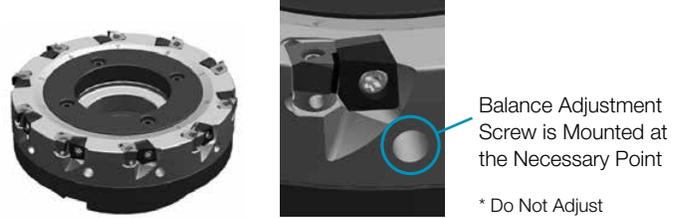
* See **M146** for Recommended Cutting Conditions at Max. Revolution

Do not adjust the balance screw

⇒ This could lead to improper dynamic balance

Do not completely remove clamp and clamp screw from cutter

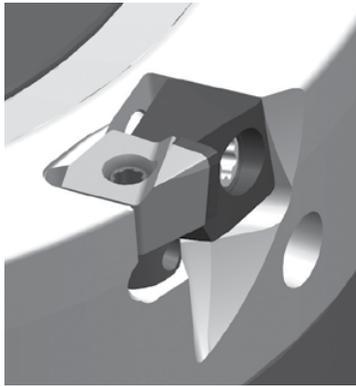
⇒ This requires additional balance adjustment



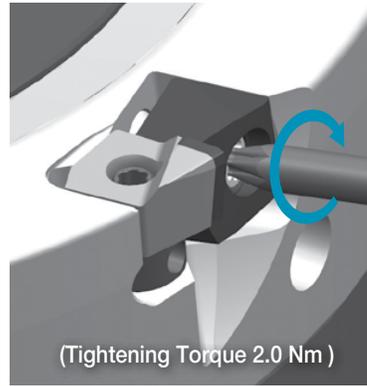
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● How to Adjust Blade Runout

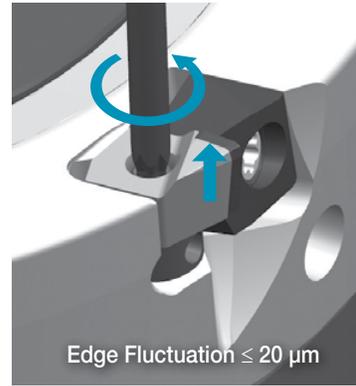
1 Install an Insert



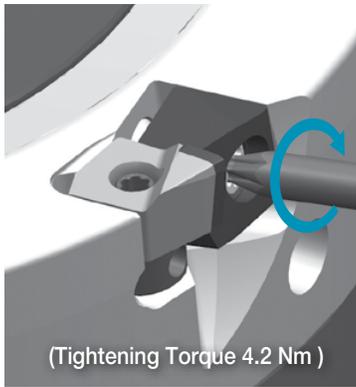
2 Partially Tighten



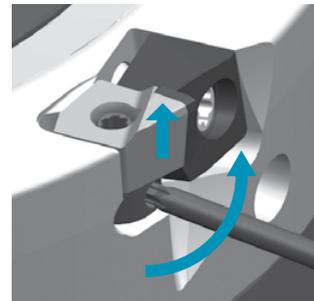
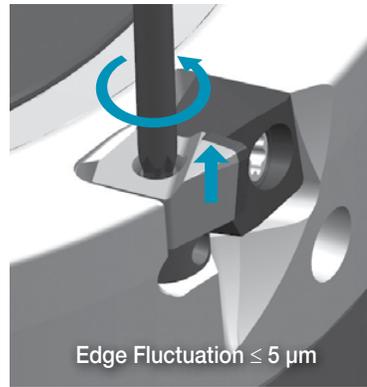
3 Adjustable Blade Runout



4 Fully Tighten



5 Adjustable Blade Runout



1 Install inserts into all pockets

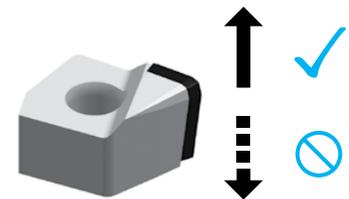
2 Partially tighten the clamp screw
(Recommended Torque 2.0 Nm)

3 Turn the screw with the wrench to adjust and make sure that all screw heights are within 20 μm of each other (Recommended)

4 Fully tighten the clamp screw with tightening torque of 4.2 Nm

5 Slightly adjust position of cutting edge
(Recommended Position Difference: $\leq 5 \mu\text{m}$)

*All inserts should be fine-tuned



Adjustment must conclude with insert moving upward as shown above

Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications
M MILLING

Replacing the Insert Clamp

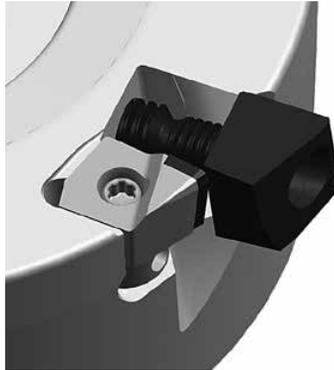
● Correct Mounting Procedure for Clamp and Clamp Screw

1 Assembly



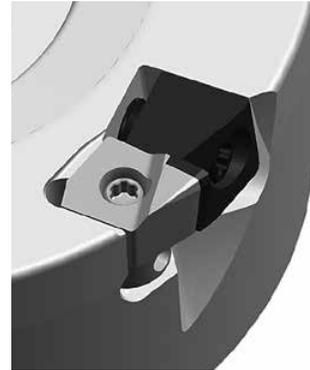
Screw the clamp screw into the clamp
(About one revolution)

2 Installation



Attach to holder

3 Tightening



Tighten with recommended torque
(Installation complete)

● Mounting Position of Clamp Screw

✓ **Correct Positioning**
(There is no protruding head of the screw)



⊘ **Wrong Positioning**
(The screw head is protruding outside the clamp)



After tightening the clamp screw with the recommended torque, please check the protrusion of the clamp screw.
If it is protruding outside the clamp, please reinstall

When clamp screws need to be replaced and completely removed, a balance adjustment is necessary after installation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
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GROOVING	G
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THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MEAS

High Efficiency Milling Cutters for Aluminum Machining

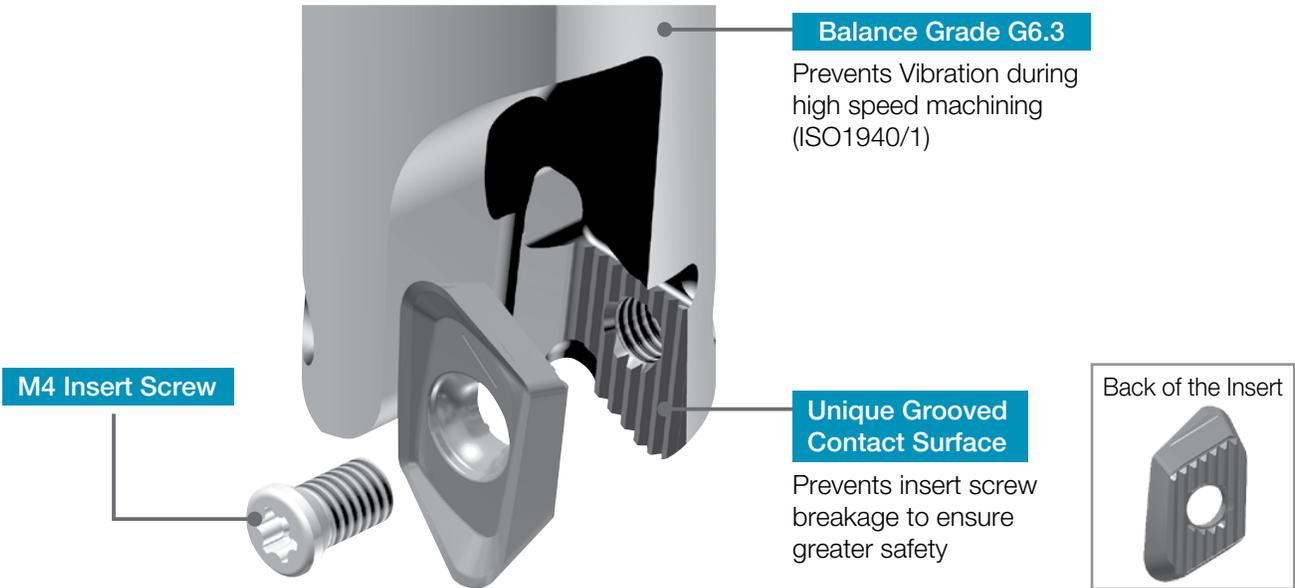
Excellent Scatter Prevention to Ensure Stable, High Speed Aluminum Machining
 Simultaneous 3-axis with Large Ramping Angle for a Wide Range of Machining Applications

1 Reliable High Efficiency Machining

Grooved Connection Between the Insert and Holder for High Speed Aluminum Machining
 (Ø1.250" / Ø32mm: Recommended Max. Cutting Speed Vc = 9,842 sfm)

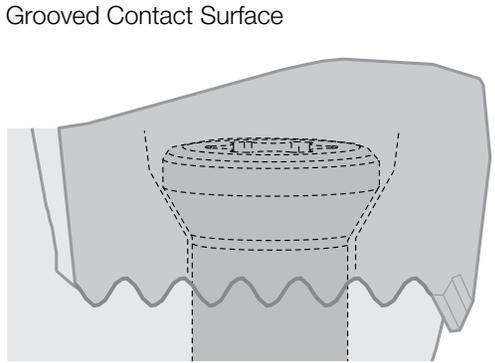
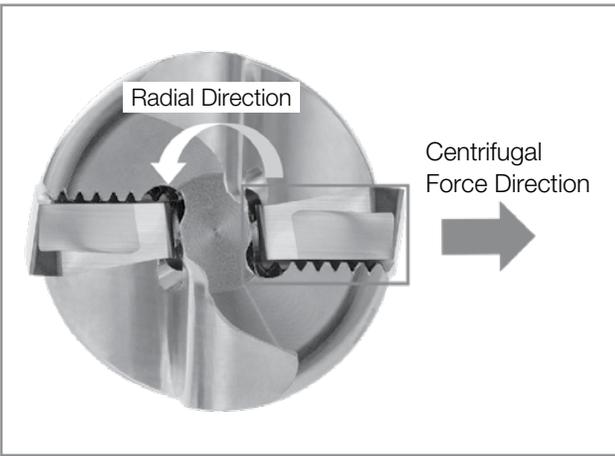
Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING



Grooved Insert Pocket

Centrifugal force is applied across the grooved surface to reduce pressure on the insert screw and to prevent insert screw breakage and safely secure the insert during high-speed revolutions

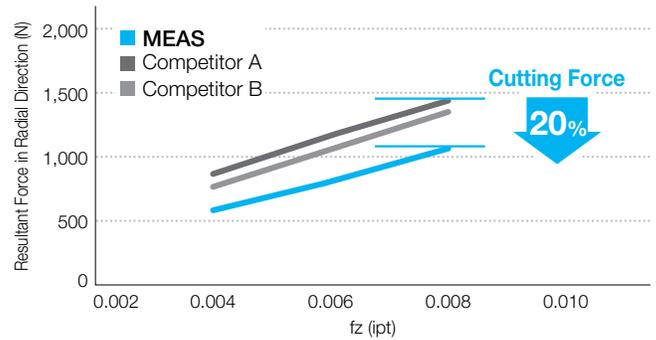


2 Low Cutting Force with Sharp Cutting Edge

True Rake Angle Max. 20°
 Low Cutting Force and Excellent Chattering Resistance



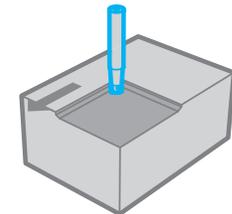
Cutting Force Comparison (Internal Evaluation)



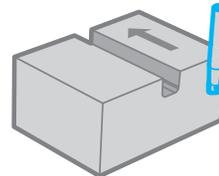
Cutting Conditions: $V_c = 1280$ sfm, D.O.C. \times ae = $0.315'' \times 0.197''$, Dry
 Cutter Diameter: $\varnothing 1.000''$ (2 Inserts) Workpiece: 7075

3 Machining for a Wide Variety of Applications

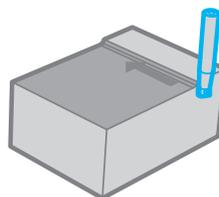
Max. Ramping Angle 20° ($\varnothing 1.000''$ / $\varnothing 25$ mm)
 The MEAS can be used for shouldering, slotting, ramping, and helical milling applications



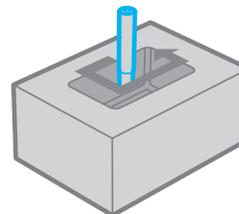
Face Milling & Shouldering



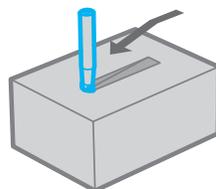
Slotting



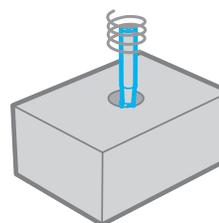
Contouring



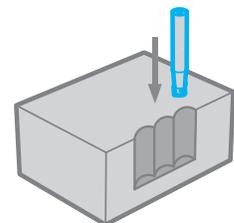
Pocketing



Ramping



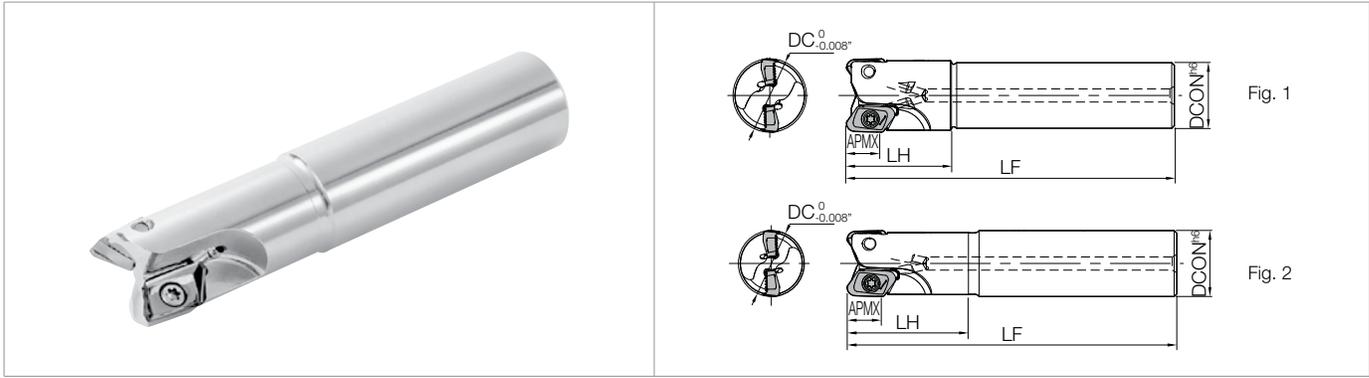
Helical Milling



Plunging

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MEAS End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle		Coolant Hole	Drawing	Spare Parts			Weight (kg)	Max RPM	
				DC	DCON	LF	LH	APMX	A.R. (Max.)	R.R.			Clamp Screw	Wrench	Anti-seize Compound			
Cylindrical Shank	Standard	inch	2	MEAS 1000-S1000-13-2T	●	1.000	1.000	5.000	2.000	0.472	+10°	14°	Fig.2	SB-4075TRP	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.4	59,000
				MEAS 1250-S1250-13-2T	●	1.250	1.250	6.000	2.750	0.472	+10°	13°	Fig.2	SB-4090TRP			0.8	49,000
				MEAS 1500-S1250-13-3T	●	1.500	1.250	6.000	2.000	0.472	+10°	12°	Fig.1	SB-4075TRP			0.9	42,000
	Long	inch	2	MEAS 1000S1000132T675	●	1.000	1.000	6.750	3.550	0.472	+10°	14°	Fig.2	SB-4075TRP	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.6	49,000
				MEAS 1250S1250132T800	●	1.250	1.250	8.000	4.800	0.472	+10°	13°	Fig.2	SB-4090TRP			1.1	39,000
	Standard	mm	2	MEAS 25-S25-13-2T	●	25	25	125	49	12	+10°	-14°	Fig.2	SB-4075TRP	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.4	59,000
				MEAS 28-S25-13-2T	●	28	25	125	40	12	+10°	-13°	Fig.1	SB-4090TRP			0.4	54,000
				MEAS 32-S32-13-2T	●	32	32	150	69	12	+10°	-13°	Fig.2				0.8	49,000
				MEAS 35-S32-13-2T	●	35	32	150	50	12	+10°	-13°	Fig.1	0.9			46,000	
				MEAS 40-S32-13-3T	●	3	40	32	150	50	12	+10°	-12°	Fig.1			0.9	42,000
Long				mm	2	MEAS 25-S25-13-2T-170	●	25	25	170	89	12	+10°	-14°			Fig.2	SB-4075TRP	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.5	49,000
	MEAS 32-S32-13-2T-200	●	32			32	200	119	12	+10°	-13°	Fig.2	SB-4090TRP	1.1	39,000			

When using inserts with a corner-R (RE) of 1/8" (3.2mm). or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary (If corner-radius is 0.118" (3.0mm) or smaller, additional modifications are not needed)
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is mounted.

MEAS Face Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions								Rake Angle		Coolant Hole	Spare Parts				Weight (kg)	Max RPM		
				DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CDBP	KDP	KWW/APMX	A.R. (Max.)		R.R.	Clamp Screw	Arbor Bolt	Wrench			Anti-seize Compound	
MEAS 2000R-13-4T	●	inch	4	2.000	1.750	0.750	0.669	0.433	1.969	0.750	0.187	0.313	0.472	+10°	-10°	Yes	SB-4090TRP	HH3/8-1.25	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.4	36,000
MEAS 050R-13-4T-M	●	mm	4	50	45	22	18	11	50	21	6.3	10.4	12	+10°	-11°	Yes	SB-4090TRP	HH10X30H	DTPM-15 Recommended Torque for Insert Screw 3.5 Nm	P-37	0.4	36,000

When using inserts with a corner-R (RE) of 1/8" (3.2mm). or larger, additional modifications (R0.138" (3.5mm) or larger) on the corner of cutter body is necessary (If corner-radius is 0.118" (3.0mm) or smaller, additional modifications are not needed)
Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is mounted.

● **Applicable Inserts**

Insert	Part Number	Dimensions (in)					DLC Coating
		W1	S	D1	L	RE	PDL025
	KCGT 130504FR-AL	0.390	0.201	0.173	0.555	1/64	●
	130508FR-AL				0.547	1/32	●
	130512FR-AL				0.543	3/64	●
	130516FR-AL				0.524	1/16	●
	130520FR-AL					5/64	●
	130524FR-AL					3/32	●
	130530FR-AL				0.504	0.118	●
	130532FR-AL					1/8	●
	130540FR-AL					0.157	●
	130550FR-AL				0.197	●	

◆ **Recommended Cutting Conditions**

Workpiece	Property	Cutting Speed Vc (sfm)	Feed fz (ipt)
Aluminum Alloy	Si Ratio ≤ 12.5%	660 ~ 3,280 ~ 9,840	0.002" ~ 0.006" ~ 0.010"
	Si Ratio ≥ 12.5%	660 ~ 980 ~ 1,310	0.002" ~ 0.004" ~ 0.008"

- Recommended cutting conditions are reference values. Please adjust cutting speed and feed rate according to actual machining conditions taking into account machine and workpiece rigidity
- Do not exceed the maximum cutting speed limit (see page 6)
- Regularly changing the insert screw is recommended
Use appropriate safety covers to protect from tool breakage and chip scattering
- When using at a higher revolution (10,000 RPM or over), refer to the table below to adjust the balance of the MEAS and arbor

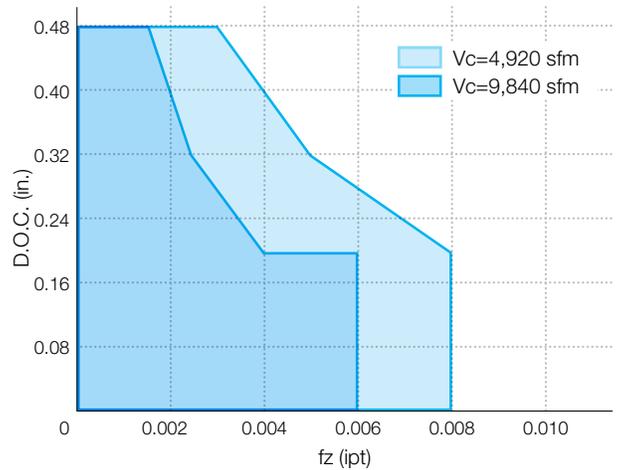
Spindle Revolution (RPM)	ISO Balance Grade ISO 1940-1/8821 (B0905)
~ 20,000	G16
~ 30,000	G6.3
30,000 ~	G2.5

Max. Revolution for Each Cutting Diameter

Cutting Diameter ØDC (mm)	Cutter Max. Revolutions (RPM)
Ø1.000" Ø25mm	59,000 (Long Shank: 49,000)
Ø28mm	54,000
Ø1.250" Ø32mm	49,000
Ø35mm	46,000 (Long Shank: 39,000)
Ø1.500" Ø40mm	42,000
Ø2.000" Ø50mm	36,000

MEAS Cutting Performance

ø50mm (4 Inserts) Shouldering ae = 0.984" Workpiece: 7175



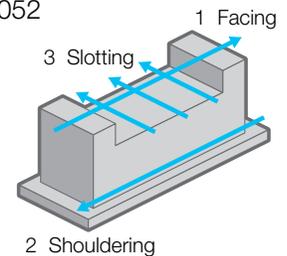
- Reduce the feed rate when machining at high speeds

Case Study

Industrial Machine Parts 5052

- Vc = 4920 sfm (n = 9,550 rpm)
- 1. D.O.C. x ae = 0.118" x 1.575"
fz = 0.008 ipt (Vf = 300 ipm)
- 2. D.O.C. x ae = 0.315" x 0.197"
fz = 0.008 ipt (Vf = 300 ipm)
- 3. D.O.C. x ae = 0.079" x ~ 1.97"
fz = 0.006 ipt (Vf = 225 ipm)

Wet
MEAS050R-13-4T-M
KCGT130504FR-AL PDL025



Cutting Time

MEAS ø50-4T

190 Sec

Cutting Time

↓ 50%

Competitor C ø50-3T

430 Sec

MEAS showed 50% faster cycle time or more compared to Competitor C (User Evaluation)

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SMALL TOOLS **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

DRILLING **K**

MILLING **M**

QUICK CHANGE TOOLING **N**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

Ramping Reference Data

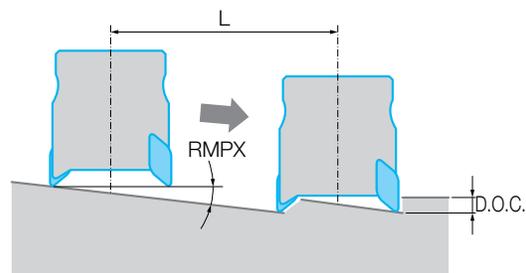
Cutting Dia. DC	1.000"	1.250"	1.500"	2.000"	25mm	28mm	32mm	35mm	40mm	50mm
Max. Ramping Angle RMPX	20°	12.5°	8.5°	6°	20°	16°	12.5°	11°	8.5°	6°
tan RMPX	0.363	0.221	0.149	0.105	0.363	0.287	0.221	0.194	0.149	0.105

Ramping Tips

Recommended ramping angle is \leq RMPX
 (see chart above for recommended ramp angle)
 Reduce recommended feed rate by 50%

Formula for Max. Cutting max Length (L) at Max. Ramping Angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$



Plunging Tips

* Reduce feed rate to $fz \leq 0.004$ ipt when plunging

Insert	Maximum Width of Cut (ae)
KCGT13...	0.315"

Helical Milling Tips

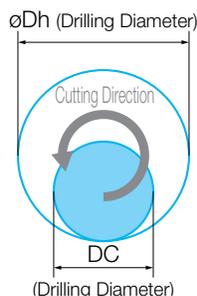
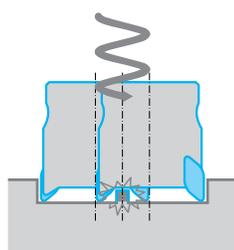
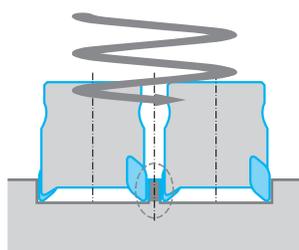
For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

Exceeding Max. Machining Dia.

Under Min. Machining Dia.

Center Core Remains After Machining

Center Core Hits Holder Body



Cutter	Min. Drilling Dia.	Max. Drilling Dia.	Maximum Ramping Depth per Cycle
MEAS...-13-...	$2 \times DC - 0.630"$	$2 \times DC - 0.118"$	0.138"

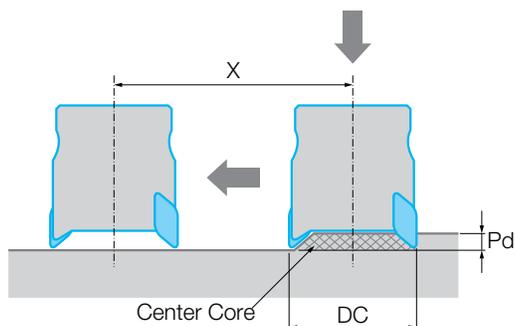
Unit: inch

- Use climb milling. (Refer to detail on right above)
- Feed rates should be reduced to 50% of recommended cutting conditions
- Use caution to eliminate incidences caused by producing long chips

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

Drilling Tips



Drilling Depth

Please refer to the figure on the left (Pd: Max. Drilling depth)

Traversing after Drilling

1. It is recommended to reduce feed by $f_z = 0.006$ ipt or less until the center core is removed
2. Axial feed rate recommendation per revolution is $f = 0.004$ ipr or less

Cutter	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MEAS...-13-...	0.138"	DC - 0.630"

Unit: inch

How to Mount Inserts

1. Completely eliminate chips and dust from the insert mounting side
2. Insert Screw
 - Coat anti-seize compound (P-37) thinly on portion of taper and thread
 - Attach screw to the magnetized wrench tip and tighten while gently pressing the outside edge of the insert toward the insert pocket surface (grooved surface) (see picture on the right) (Recommended Torque 3.5Nm)



Cautions

While in Use



Please use within recommended cutting conditions

Do not run the cutter at revolutions exceeding the printed maximum revolution limit of the cutter body

- Inserts may be damaged due to the centrifugal force and cutting load

Please do not use under the following conditions:

- When cutter is not fully loaded with inserts
- If the body is damaged

Please wear protective equipment such as gloves when changing inserts

- Injury can occur when touching the cutting edge

Dynamic Balance

Balance adjustment on the cutter is completed before shipping

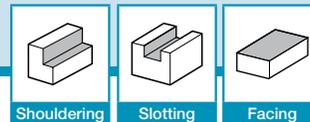
Balance adjustment has been made with special high precision inserts to be ISO balance grade (ISO1940/1) G6.3

When using at a higher revolution (10,000 RPM or above), refer to the table below to adjust the balance of MEAS and arbor

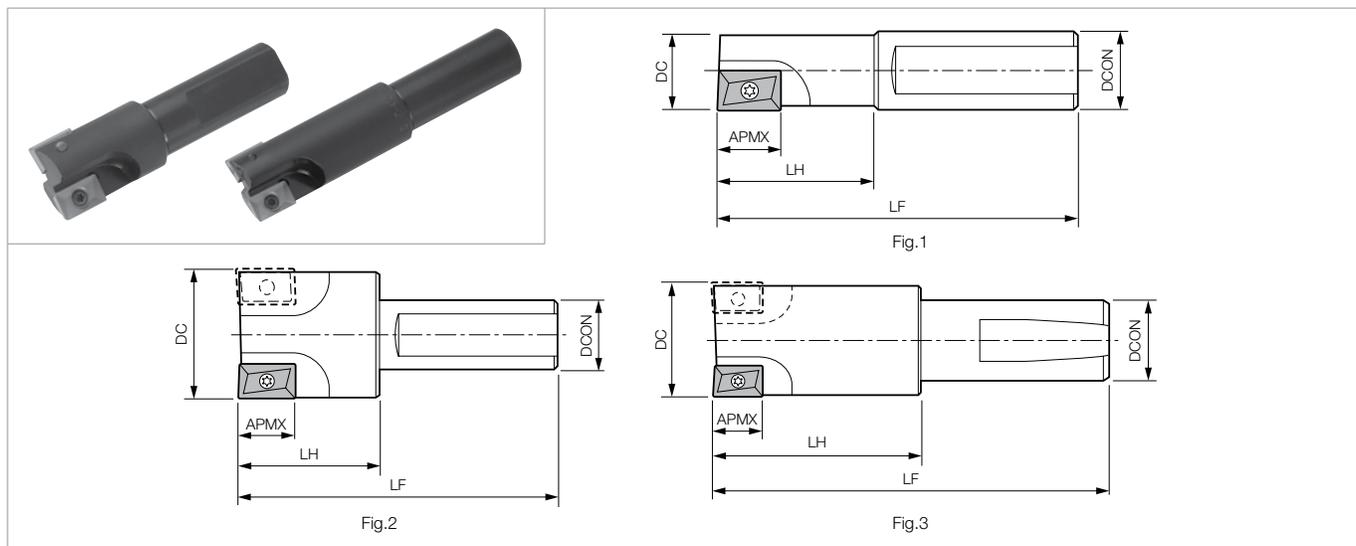
Do not operate the balance adjustment screw on the outer periphery of the cutter. This could lead to improper dynamic balance.

Spindle Revolution (RPM)	ISO Balance Grade ISO 1940-1/8821 (B0905)
~ 20,000	G16
~ 30,000	G6.3
30,000 ~	G2.5

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**



EM End Mill / Extended Length End Mill



Toolholder Dimensions

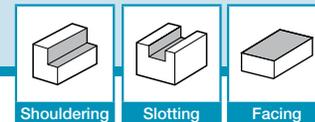
Inserts	Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Drawing	Max. Ramping Angle (°)	Spare Parts		
				DC	DCON	LF	LH	APMX	A.R.	R.R.			Clamp Screw	Wrench	
45°~70° Lead Angle	EM 0437-09	●	1	7/16	1/2	2.78	1.00	0.37	-11°	Fig.1	3°	SCR-04	T7		
75° Lead Angle	0500-09	●		1/2					3°					-9°	
90°/88° Lead Angle	0562-09	●		9/16					5°					-7°	
High Feed Milling	0625-09	●	2	5/8	5/8	2.90	1.00	0.37	-6°	Fig.2	8°	SCR-01	T7		
	0688-09	●		11/16					3°					-5°	
Finish Milling	0750-09	●	3	3/4	3/4	3.03	1.00	0.37	-2°	Fig.2	8°	SCR-01	T7		
	0875-09	●		7/8					5°					-4°	
Multi-Function	1000-09-3F	●	3	1					3°						
Slot Mill	EM 0625	●	1	5/8	3/4	2.90	1.00	0.60	-14°	Fig.1	3°	SCR-16	T10		
	0688	●		11/16					5°					-12°	
Ball-Nose Radius	0750	●	2	3/4	3/4	3.40	1.50	0.60	-10°	Fig.2	8°	SCR-30	T10		
	0813	●		13/16					5°					-8°	
Other Applications	0875	●	3	7/8	3/4	3.40	1.50	0.60	-7°	Fig.2	8°	SCR-30	T10		
	0938	●		15/16					5°					-5°	
	1000	●	2	1	1	3.78	1.50	0.60	-5°	Fig.2	8°	SCR-30	T10		
	1000-100S	●		1					5°					-5°	
	1125	●	3	1-1/8	3/4	3.40	1.50	0.60	-4°	Fig.2	8°	SCR-30	T10		
	1250	●		3/4					5°					-4°	
	1250-3F	●	2	1-1/4	1	3.78	1.50	0.60	-3°	Fig.2	8°	SCR-30	T10		
	1375	●		1-3/8					5°					-3°	
	1500	●	3	1-3/8	3/4	3.40	1.50	0.60	-2°	Fig.2	8°	SCR-30	T10		
	1500-3F	●		1-1/2					5°					-2°	
EM 1000-2.5	●	2	1	3/4	4.40	2.50	0.60	5°	-5°	Fig.3	8°	SCR-16	T10		
1000-3.5	●			1					5.78					3.50	-5°
1250-2.5	●			1-1/4					1					4.78	2.50	-3°

Applicable Inserts

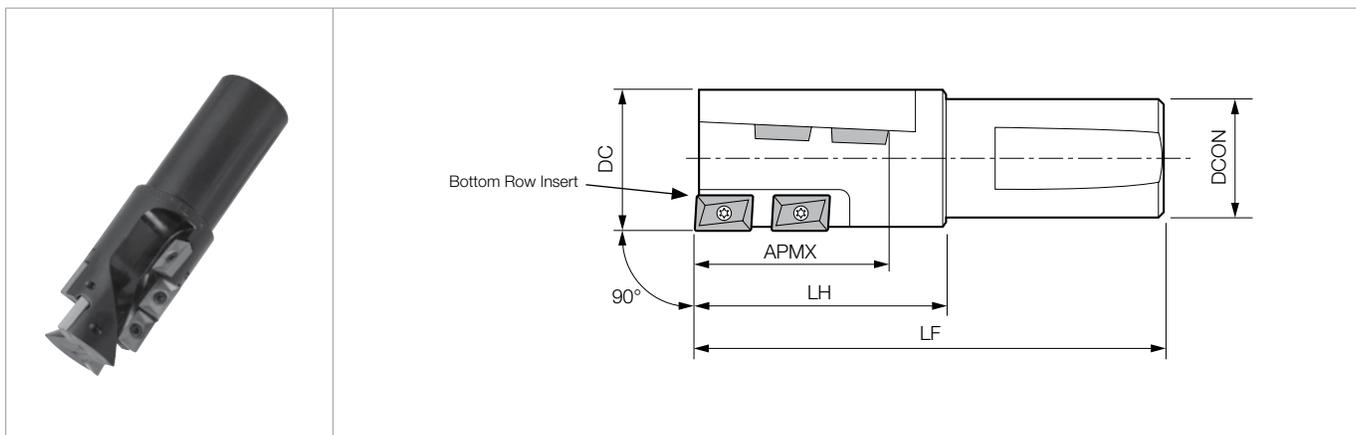
Part Number	Applicable Inserts M29
EM ○○○○-09(-3F)	XPMT 0902..
EM ○○○○ ○○○○-100S ○○○○-3F	*XPMT 15T3..
EM ○○○○-2.5	



*Toolholder modifications are necessary if using larger corner radius **XPMT15T324**, **XPMT15T331**, and **XPMT15T364** inserts due to interference between the holder and workpiece.



EM-LE Long Edge End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	No. of Flutes	Dimensions (in)					Rake Angle (°)		Spare Parts	
				DC	DCON	LF	LH	APMX	A.R.	R.R.	Clamp Screw	Wrench
EM 1250-1500-LE	●	6	2	1-1/4	1	4.41	2.13	1.50	5°	-3°	SCR-16	T10
1500-2000-LE	●	8		1-1/2	1-1/4	4.91	2.63	2.00	5°	-2°	SCR-30	
2000-2775-LE	●	10		2	1-1/2	6.25	3.50	2.77	5°	0		

Applicable Inserts

Part Number	Applicable Inserts M29	
	EM ...-LE	*XPMT 15T3.. (Bottom Row)	XPMT 15T308 (Side Row)



*Toolholder modifications are necessary if using larger corner radius **XPMT15T324**, **XPMT15T331**, and **XPMT15T364** inserts due to interference between the holder and workpiece.

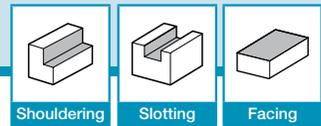
Recommended Cutting Conditions (EM, EM-LE, FM, FM-AL, EM-AL)

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)									
		Cermet		MEGACOAT NANO			CVD Coated Carbide	PVD Coated Carbide			Carbide
		TN100M	TC60	PR1535	PR1525	PR1510	CA6535	PR930	PR905	PR830	KW10
Low Carbon Steel	0.003-0.006	☆ 800-1400	★ 800-1400	★ 400-800	★ 400-800	-	-	☆ 350-750	-	-	-
Carbon Steel	0.003-0.006	☆ 600-1200	★ 600-1200	★ 300-700	★ 300-700	-	-	☆ 250-650	-	-	-
Mold Steel	0.003-0.006	☆ 400-700	★ 400-700	★ 250-600	★ 250-600	-	-	☆ 250-600	-	-	-
Stainless Steel	0.002-0.006	☆ 300-800	☆ 300-800	★ 300-600	☆ 300-600	-	★ 550-950	☆ 300-500	-	☆ 300-800	-
Cast Iron	0.003-0.008	☆ 400-1200	★ 400-1200	-	-	★ 400-800	-	-	★ 400-800	-	☆ 300-500
Non-ferrous Metals	0.005-0.007	☆ 1500-1800	☆ 1500-1800	-	-	-	-	-	-	-	★ 2000-4000
Heat-resistant Alloy	0.002-0.005	-	-	☆ 70-160	-	-	★ 70-160	-	-	-	-
Titanium Alloy	0.002-0.005	-	-	★ 130-260	-	☆ 100-230	-	-	-	-	-

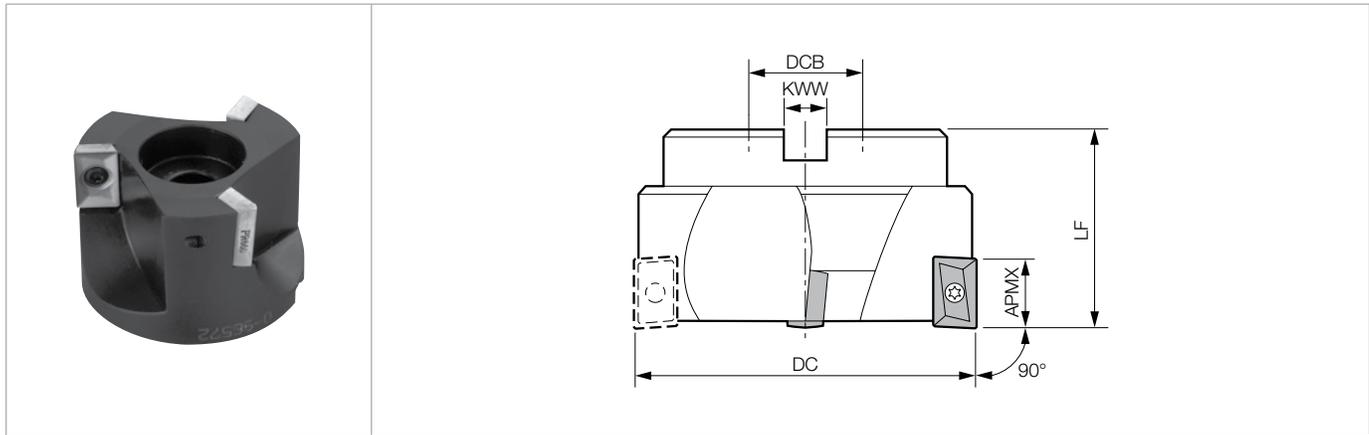
* Apply sufficient amount of coolant

★: 1st Recommendation ☆: 2nd Recommendation

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX



FM-90 Fixed Pocket Face Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Spare Parts	
			DC	DCB	LF	KWW	APMX	A.R.	R.R.	Clamp Screw	Wrench
FM 2000-90RH	●	3	2.0	3/4	1-13/32	5/16	0.6	+5°	+3°	SCR-30	T10
3000-90RH	●	4	3.0	1	1-25/32	3/8		+5°	+5°		

Applicable Inserts

Part Number	Applicable Inserts M29
FM 2000-90-RH 3000-90-RH	*XPMT 15T3..



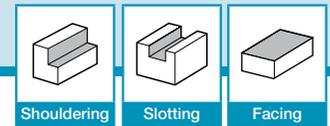
*Toolholder modifications are necessary if using larger corner radius **XPMT15T324**, **XPMT15T331**, and **XPMT15T364** inserts due to interference between the holder and workpiece.

Recommended Cutting Conditions (EM, EM-LE, FM, FM-AL, EM-AL)

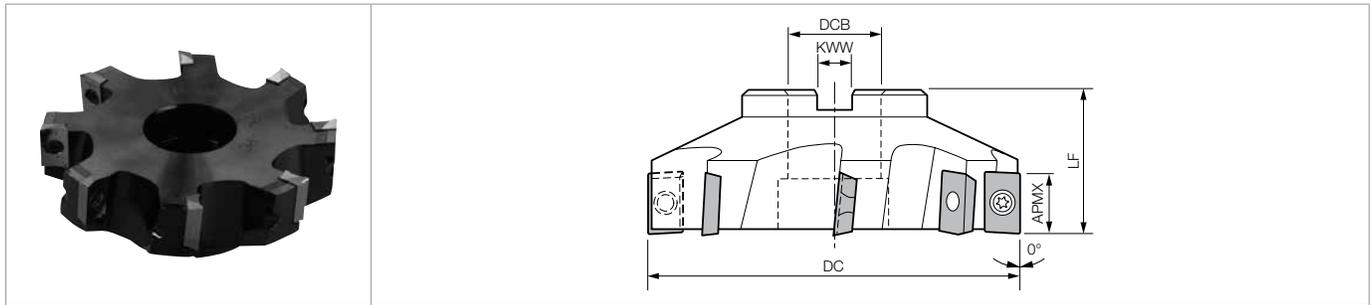
Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)									
		Cermet		MEGACOAT NANO			CVD Coated Carbide	PVD Coated Carbide			Carbide
		TN100M	TC60	PR1535	PR1525	PR1510	CA6535	PR930	PR905	PR830	KW10
Low Carbon Steel	0.003~0.006	☆ 800~1400	★ 800~1400	★ 400~800	★ 400~800	-	-	☆ 350~750	-	-	-
Carbon Steel	0.003~0.006	☆ 600~1200	★ 600~1200	★ 300~700	★ 300~700	-	-	☆ 250~650	-	-	-
Mold Steel	0.003~0.006	☆ 400~700	★ 400~700	★ 250~600	★ 250~600	-	-	☆ 250~600	-	-	-
Stainless Steel	0.002~0.006	☆ 300~800	☆ 300~800	★ 300~600	☆ 300~600	-	★ 550~950	☆ 300~500	-	☆ 300~800	-
Cast Iron	0.003~0.008	☆ 400~1200	★ 400~1200	-	-	★ 400~800	-	-	★ 400~800	-	☆ 300~500
Non-ferrous Metals	0.005~0.007	☆ 1500~1800	☆ 1500~1800	-	-	-	-	-	-	-	★ 2000~4000
Heat-resistant Alloy	0.002~0.005	-	-	☆ 70~160	-	-	★ 70~160	-	-	-	-
Titanium Alloy	0.002~0.005	-	-	★ 130~260	-	☆ 100~230	-	-	-	-	-

* Apply sufficient amount of coolant

★ : 1st Recommendation ☆ : 2nd Recommendation



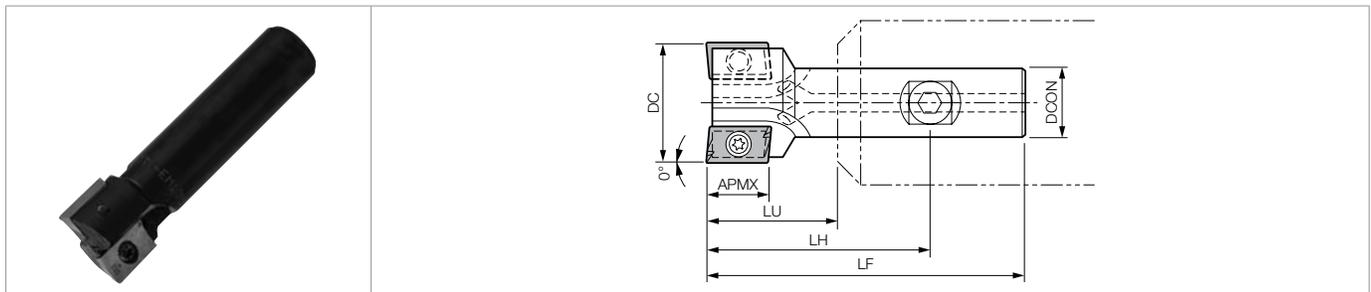
FM-AL Fixed Pocket Face Mill (Aluminum Machining)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Max. Ramping Angle (°)	Spare Parts	
			DC	DCB	LF	KWW	APMX	A.R.	R.R.		Clamp Screw	Wrench
FM AL-2500-90-3	●	3	2-1/2	3/4	1.570	3/8	0.64	+5°	-3°	8°	SCR-02	T15
3000-90-AL	●	6	3	1				+5°	+0°			
4000-90-AL	●	8	4	1-1/4								
4000-90-AL-125	●	5	4	1	1/2	3/8	+5°	+0°	8°	SCR-02	T15	
AL-4000-90-5	●	10	5	1-1/2	5/8							

EM-AL Fixed Pocket End Mill (Aluminum Machining)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Max. Ramping Angle (°)	Spare Parts		
			DC	DCON	LF	LH	LU	APMX	A.R.		R.R.	Clamp Screw	Wrench
EM 0750-AL	●	2	3/4	3/4	3.360	2.351	1.350	0.30	+5°	-8°	8°	SCR-01	T7
0875-AL	●		7/8		3.380	2.365	1.360	0.64		-5°			
1000-AL	●		1							-10°			
1250-AL	●		1-1/4	-7°									
1500-AL	●		1-1/2	-5°									
EM 2000-AL	●	3	2	1	4.000	2.864	1.740	0.64	-5°	8°	SCR-02	T15	
EM 1000-2.75-AL	●	2	1	3/4	4.250	3.110	1.990	0.64	-2°				
EM 1000-3.75-AL	●		1	3/4	4.780	3.780	2.750		-10°				
EM 1250-2.125-AL	●		1-1/4	1	6.015	4.875	3.750			0.64	-7°		

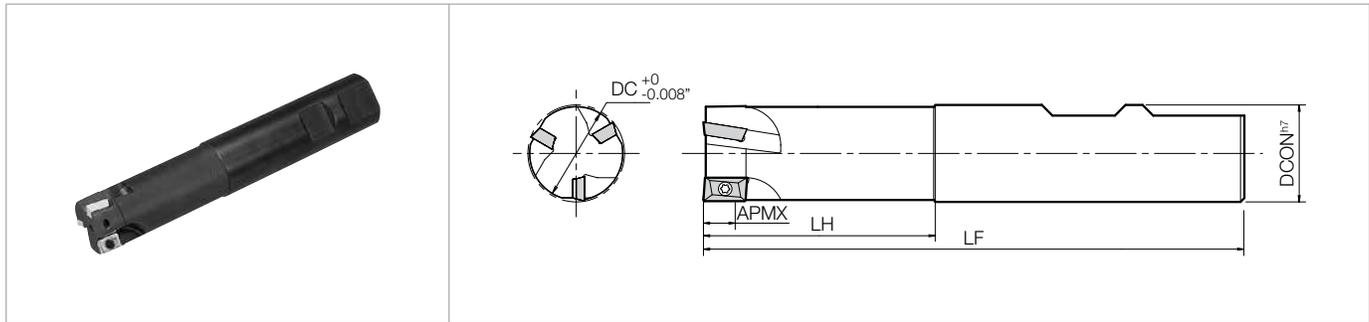
Applicable Inserts

Part Number	Applicable Inserts M29
FM AL-... ...-AL	APET 1604..
EM 0750-AL 0875-AL	-
EM ...-AL	APET 1604..

For Chamfering End Mills CM-AL for Aluminum Cutting, See Page [M247](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MAP End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Spare Parts	
			DC	DCON	LF	LH	APMX	A.R.	R.R.	Clamp Screw	Wrench
MAP 100R10-S100	●	3	1.000	1.000	3.78	1.417	0.354	+9°	+10°		
100R16-S100	●	2					0.590	+9°	+13°	SB-2560TR	DT-8
										SB-4085TR	DT-15

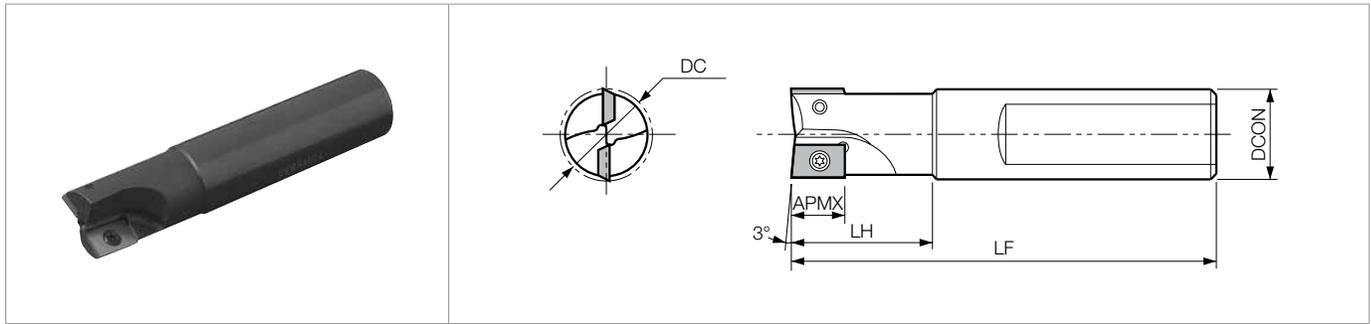
Applicable Inserts

Part Number	Applicable Inserts
	
MAP 100R10-S100	APKT 1003..
100R16-S100	APKT 1604..

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING

CEM End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)					Rake Angle (°)		Spare Parts		
			DC	DCON	LF	LH	APMX	A.R.	R.R.	Clamp Screw	Wrench	
												
CEM 0375-1W	●	1	0.375	0.375	3.08	0.75	0.374	+3°	-6°	SB-2545TR	FT-8	
0500-1W	●	1	0.500	0.500		1.00						-5°
0625-1W	●	1	0.625	0.625		1.18							-4°
0750-1W	●	1	0.750	0.750	3.21	0.591	-3°	SB-4STR	FT-15			
CEM 0625-2W	●	2	0.625	0.625	3.08	1.18		0.374	+8°	-4°	SB-2545TR	FT-8
0750-2W	●	2	0.750	0.750	3.21	0.500	-3°						SB-3060TR	FT-10
1000-2W	●	2	1.000	1.000	3.85	1.57		0.591	+3°	-2°	SB-4STR	FT-15
1000-2W-7.5	●	2			7.50							
CEM 1000-3W	●	3	1.000	1.000	3.85	1.57	0.500	+8°	-5°	SB-3060TR	FT-10	
1250-3W	●	3	1.250	1.250			0.591					+3°	-3°	SB-4STR	FT-15
CEM 1500-4W	●	4	1.500	1.250	3.85	1.57	0.591	+6°	0°	SB-4STR	FT-15	

Applicable Inserts

Part Number	Applicable Inserts  M24		
			
CEM 0375-1W	NDCT 831FR 831R-B 832R-B	-	NDMM 831ER-SP
0500-1W			
0625-2W			
CEM 0750-2W	NDCT 032TR 032FR	NDCW 032TR	NDMM 031ER-SP 032ER-SP
1000-3W			
CEM 0625-1W	NDCT 322FR 322FR-B	NDCW 322TRX 322FRX	NDMM 321ER-SP 322ER-SP
0750-1W			
1000-2W			
1000-2W-7.5			
1250-3W			
1500-4W			

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

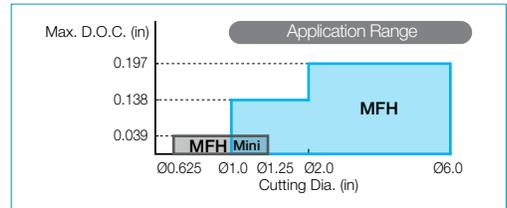
NEW ITEMS!

MFH-RAPTOR HIGH FEED MILLING



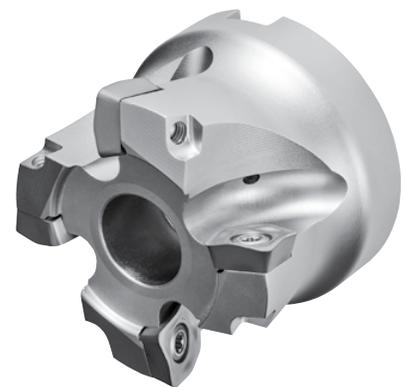
(Cutter Dia. Ø1.000" ~ Ø6.000")
(Cutter Dia. Ø25mm ~ Ø160mm)

Anti-vibration Design for Increased Chip Evacuation and Shortened Cutting Times



1 4 Different Insert Designs Offer a Variety of Machining Options

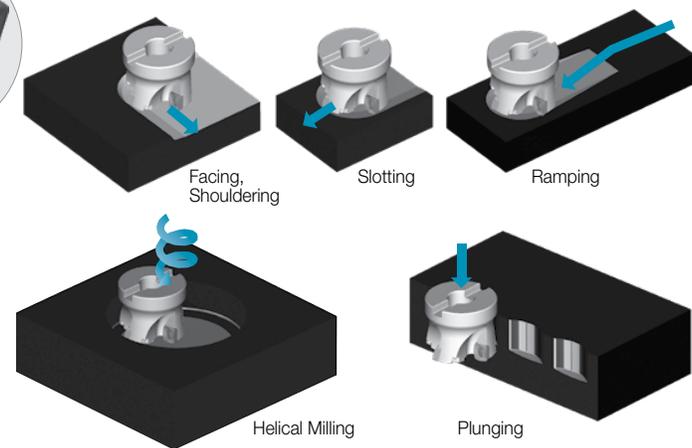
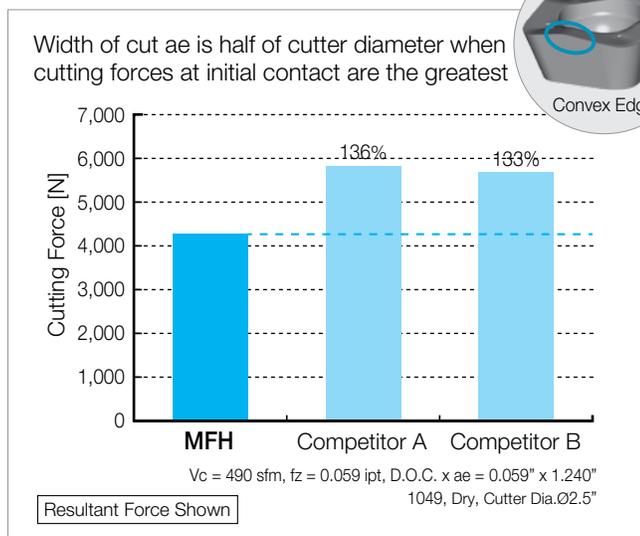
	GM (General Milling)	GH (Tough Edge)	LD (Large D.O.C.)	FL (Wiper Edge)
Shape				
Applications	1st Choice for General Purpose Multiple Metalworking Processes	Heavy Milling Excellent fracture resistance	1st Choice for Large D.O.C. MAX D.O.C. = 0.197" (SOMT14) MAX D.O.C. = 0.138" (SOMT10) Available for Scale Removal	Wiper Edge Roughing and Finishing Even in Low Horsepower Machining Centers



2 Reduced Chattering with Convex Cutting Edge Design

Reduces Cutting Forces at Initial Impact with a Convex Helical Edge Design

3 Wide Application Range for Multiple Metalworking Processes



* GM chipbreaker is available for all of the above applications.
* LD and FL chipbreakers are not available for helical milling, plunging and contouring of rising wall. (Refer to Page M174)

PR1535

MEGACOAT NANO

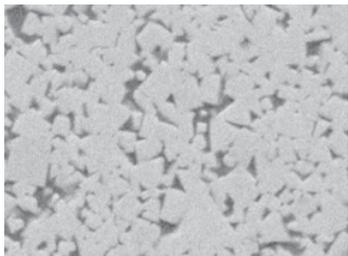
MEGACOAT NANO Grade PR1535 for stable machining of difficult-to-cut materials such as heat-resistant alloy, titanium alloy and precipitation hardened stainless steel

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

1 23% Improved Fracture Toughness

An increase in cobalt content yields a substrate with greater toughness. Fracture toughness values are improved by 23% over previous grades.

High Toughness Carbide Base Material

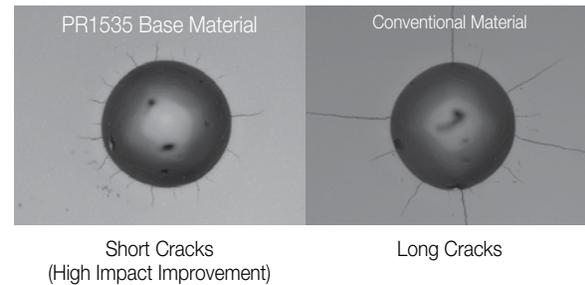


23%
Fracture
Toughness

2 Stability Improvement

The coarse grain structure and uniform particle size correspond to improved heat resistance, with conductivity values decreased by 11%. The uniform structure also reduces crack propagation.

Cracking Comparison by Diamond Indenter (In-house Evaluation)



Shock Resistance

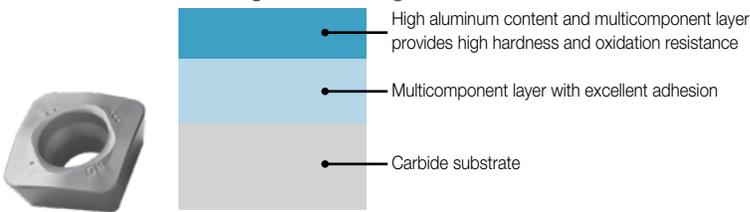
PR015S ^{NEW}

MEGACOAT HARD

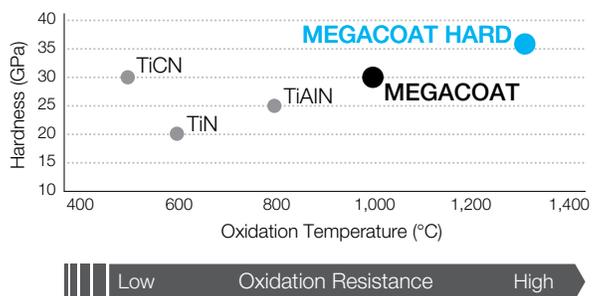
Thermal property of the substrate reduces cracks and notch wear with a high hardness and heat-resistant coating for improved wear resistance when machining in hardened materials

MEGACOAT HARD Improves Wear Resistance with High Hardness and High Heat-resistant PVD Layer

Coating Pattern Diagram

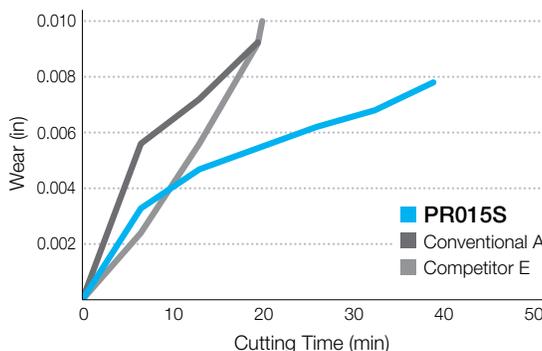


Coating Properties (Internal Evaluation)



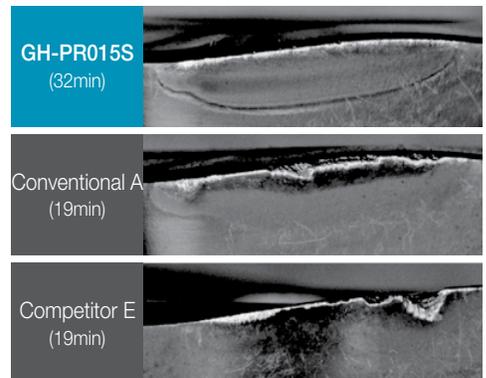
Combining GH chipbreaker and grade PR015S reduces heat cracking and improves fracture resistance for stable machining in hardened material

Cutting Performance Comparison (Internal Evaluation)



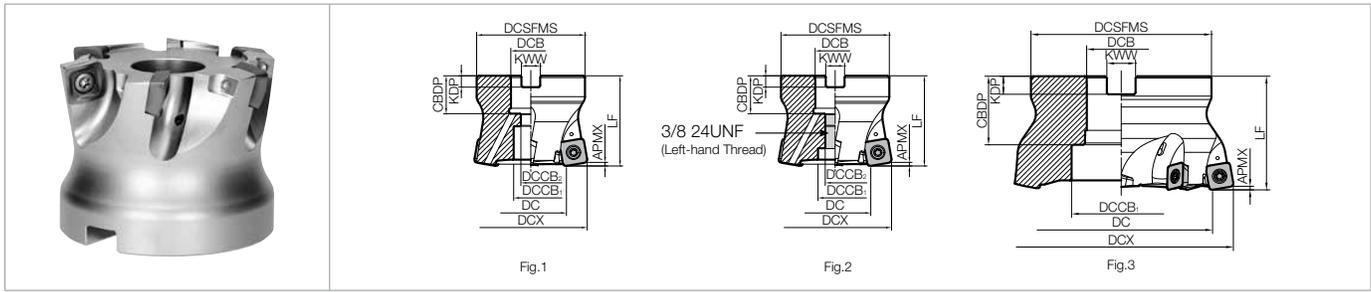
Cutting Conditions:
 Vc = 165 sfm,
 fz = 0.008ipt,
 D.O.C. = 0.039" x 1.240",
 Wet
 SOMT140520ER-GH
 Competitor Tough Edge Chipbreaker
 (Flat type)
 Workpiece: D2 (55HRC)

Cutting Edge



MFH-RAPTOR

MFH Face Mill (Inch Size)



Toolholder Dimensions with SOMT10 Inserts (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)													Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM			
			DCX	DC			DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	*APMX ₂	A.R.					R.R.		
MFH 2000R-10-4T	●	4	2.000	1.331	1.510	1.469	1.750	0.750	0.669	0.433	1.969	0.947	0.187	0.313	0.059 *(0.138)	0.047	+10°	-5°	Yes	Fig.1	0.4	10,000		
2000R-10-5T	●	5	2.000	1.331	1.510	1.469	1.750	0.750	0.669	0.433	1.969	0.947	0.187	0.313			+10°	-5°					0.4	10,000
2500R-10-5T	●	5	2.500	1.831	2.010	1.969	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313			+10°	-4°					0.7	8,800
2500R-10-6T	●	6	2.500	1.831	2.010	1.969	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313			+10°	-4°					0.7	8,800
3000R-10-7T	●	7	3.000	2.331	2.510	2.469	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382			+10°	-4°					1.3	7,600

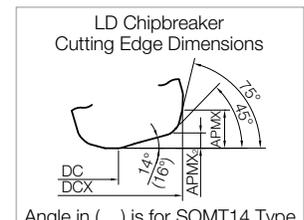
Toolholder Dimensions with SOMT14 Inserts (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)													Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM			
			DCX	DC			DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	*APMX ₂	A.R.					R.R.		
MFH 2000R-14-4T	●	4	2.000	1.094	1.330	1.291	1.750	0.750	0.500	3/8 24UNF	1.969	0.827	0.187	0.313	0.079 *(0.197)	0.079	+10°	-10°	Yes	Fig.2	0.4	8,800		
NEW 2000R-14-5T	●	5	2.000	1.094	1.330	1.291	1.750	0.750	0.500		1.969	0.827	0.187	0.313			+10°	-10°					0.4	8,800
2500R-14-4T	●	4	2.500	1.594	1.830	1.791	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313			+10°	-10°					0.6	7,400
2500R-14-5T	●	5	2.500	1.594	1.830	1.791	2.250	0.750	0.669	0.433	1.969	0.750	0.187	0.313			+10°	-10°					0.6	7,400
NEW 2500R-14-5T-1000	●	5	2.500	1.594	1.830	1.791	2.251	1.000	0.866	0.551	2.480	1.063	0.236	0.382			+10°	-10°					0.7	7,400
3000R-14-5T	●	5	3.000	2.094	2.330	2.291	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382	+10°	-9°	1.2	6,400						
3000R-14-6T	●	6	3.000	2.094	2.330	2.291	2.750	1.000	0.866	0.551	2.480	1.063	0.236	0.382	+10°	-9°	1.2	6,400						
NEW 3000R-14-6T-1250	●	6	3.000	2.094	2.330	2.291	2.750	1.250	1.000	0.657	2.480	1.063	0.280	0.504	+10°	-9°	1.3	6,400						
4000R-14-6T	●	6	4.000	3.094	3.330	3.291	3.750	1.500	1.299	0.866	2.480	1.181	0.394	0.626	+10°	-7°	2.3	5,600						
4000R-14-7T	●	7	4.000	3.094	3.330	3.291	3.750	1.500	1.299	0.866	2.480	1.181	0.394	0.626	+10°	-7°	2.3	5,600						
5000R-14-7T	●	7	5.000	4.094	4.330	4.291	3.750	1.500	2.047	-	2.480	1.496	0.394	0.626	+10°	-7°	2.9	4,800						
6000R-14-8T	●	8	6.000	5.094	5.330	5.291	4.880	2.000	2.835	-	2.480	1.496	0.433	0.752	+10°	-6°	4.5	4,200						

Spare Parts and Applicable Inserts (Inch Size)

*1 Refer to LD dimensions in figure below *2 Dimension in () is when mounting LD

Part Number	Spare Parts						Applicable Inserts ● M20, M171					
	Clamp Screw	Wrench		Anti-seize Compound	Mounting Bolt	Mounting Screw						
MFH 2000R-10-4T 2000R-10-5T 2500R-10-5T 2500R-10-6T 3000R-10-7T	SB-4090TRPN	DTPM	TTP	P-37	HH3/8-1.25(H) HH3/8-1.25(H) HH3/8-1.25(H) HH3/8-1.25(H) HH1/2-1.25(H)	-	SOMT100420ER-GM SOMT100420ER-GH SOMT100420ER-LD SOMT100420ER-FL					
MFH 2000R-14-4T 2000R-14-5T 2500R-14-4T 2500R-14-5T 2500R-14-5T-1000 3000R-14-5T 3000R-14-6T 3000R-14-6T-1250 4000R-14-6T 4000R-14-7T 5000R-14-7T 6000R-14-8T		SB-50120TRP	TTP-20					P-37	XNS610 ¹	-	SOMT140520ER-GM SOMT140520ER-GH SOMT140520ER-LD SOMT140514ER-FL	



Angle in () is for SOMT14 Type

Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

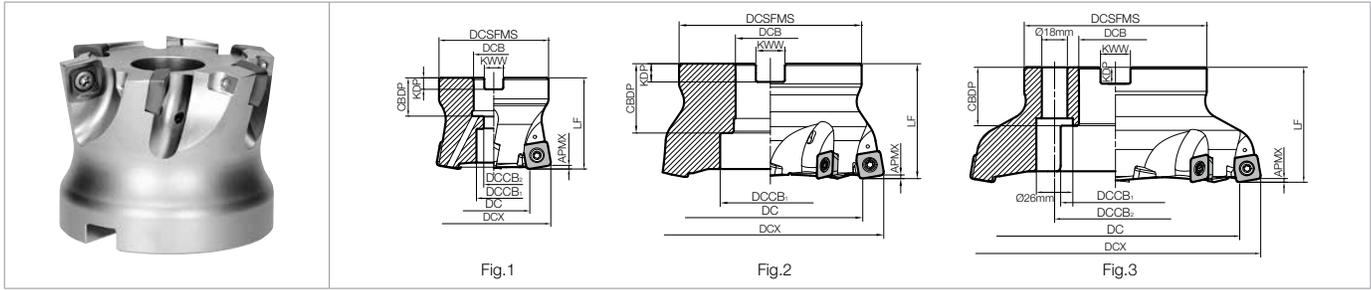
● **Coat Anti-Seize Compound (P-37)** thinly on portion of taper and thread prior to installation.

*1 Differential screw (3/8-24UNF)

(H) Optional coolant thru bolt available.

Recommended Cutting Conditions ● **M172-M173**

MFH Face Mill (Metric Size)



Toolholder Dimensions with SOMT10 Inserts (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)														Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM	
			DCX	DC			DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	*APMX ₂	A.R.	R.R.					
Inch Bore Dia.	MFH 050R-10-4T	●	4	50	33	37.5	36.5	47	0.875"	19	11	50	0.748"	0.197"	0.331"	1.5 +2(3.5)	1.2	+10°	-5°	Yes	Fig.1	0.4	10,000
	050R-10-5T	●	5	50	33	37.5	36.5	47	0.875"	19	11	50	0.748"	0.197"	0.331"			+10°	-5°			0.4	10,000
	063R-10-5T	●	5	63	46	50.5	49.5	60	0.875"	19	11	50	0.748"	0.197"	0.331"			+10°	-4°			0.7	8,800
	063R-10-6T	●	6	63	46	50.5	49.5	60	0.875"	19	11	50	0.748"	0.197"	0.331"			+10°	-4°			0.7	8,800
	080R-10-7T	●	7	80	63	67.5	66.5	76	1.250"	26	17	63	1.260"	0.315"	0.500"			+10°	-4°			1.3	7,600
Metric Bore Dia.	MFH 050R-10-4T-M	●	4	50	33	37.5	36.5	47	22	19	11	50	21	6.3	10.4	1.5 +2(3.5)	1.2	+10°	-5°	Yes	Fig.1	0.4	10,000
	050R-10-5T-M	●	5	50	33	37.5	36.5	47	22	19	11	50	21	6.3	10.4			+10°	-5°			0.4	10,000
	063R-10-5T-22M	●	5	63	46	50.5	49.5	60	22	19	11	50	21	6.3	10.4			+10°	-4°			0.7	8,800
	063R-10-6T-22M	●	6	63	46	50.5	49.5	60	22	19	11	50	21	6.3	10.4			+10°	-4°			0.7	8,800
	063R-10-5T-27M	●	5	63	46	50.5	49.5	60	27	20	13	50	24	7.0	12.4			+10°	-4°			0.7	8,800
	063R-10-6T-27M	●	6	63	46	50.5	49.5	60	27	20	13	50	24	7.0	12.4			+10°	-4°			0.7	8,800
080R-10-7T-M	●	7	80	63	67.5	66.5	76	27	20	13	63	24	7.0	12.4	+10°	-4°	1.6	7,600					

Toolholder Dimensions with SOMT14 Inserts (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)														Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM	
			DCX	DC			DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	*APMX ₂	A.R.	R.R.					
Inch Bore Dia.	NEW MFH 050R-14-4T	●	4	50	27	33	32	47	0.875"	12	-	50	0.748"	0.197"	0.331"	2 +2(5)	2	+10°	-10°	Yes	Fig.1	0.4	8,800
	063R-14-4T	●	4	63	40	46	45	60	0.875"	19	11	50	0.748"	0.197"	0.331"			+10°	-10°			0.6	7,400
	063R-14-5T	●	5	63	40	46	45	60	0.875"	19	11	50	0.748"	0.197"	0.331"			+10°	-10°			0.6	7,400
	080R-14-5T	●	5	80	57	63	62	76	1.250"	26	17	63	1.260"	0.315"	0.500"			+10°	-8°			1.3	6,400
	080R-14-6T	●	6	80	57	63	62	76	1.250"	26	17	63	1.260"	0.315"	0.500"			+10°	-8°			1.3	6,400
	100R-14-6T	●	6	100	77	83	82	96	1.250"	26	17	63	1.260"	0.315"	0.500"			+10°	-7°			2.4	5,600
	100R-14-7T	●	7	100	77	83	82	96	1.250"	26	17	63	1.260"	0.315"	0.500"			+10°	-7°			2.4	5,600
	125R-14-7T	●	7	125	102	108	107	100	1.500"	55	-	63	1.496"	0.394"	0.625"			+10°	-7°			2.9	4,800
	160R-14-8T	●	8	160	137	143	142	100	2.000"	72	-	63	1.496"	0.433"	0.750"			+10°	-6°			3.9	4,200
Metric Bore Dia.	NEW MFH 050R-14-4T-M	●	4	50	27	33	32	47	22	12	-	50	21	6.3	10.4	2 +2(5)	2	+10°	-10°	Yes	Fig.1	0.4	8,800
	063R-14-4T-22M	●	4	63	40	46	45	60	22	19	11.0	50	21	6.3	10.4			+10°	-10°			0.6	7,400
	063R-14-5T-22M	●	5	63	40	46	45	60	22	19	11.0	50	21	6.3	10.4			+10°	-10°			0.6	7,400
	063R-14-4T-27M	●	4	63	40	46	45	60	27	20	13.0	50	24	7	12.4			+10°	-10°			0.6	7,400
	063R-14-5T-27M	●	5	63	40	46	45	60	27	20	13.0	50	24	7	12.4			+10°	-10°			0.6	7,400
	080R-14-5T-M	●	5	80	57	63	62	76	27	20	13.0	63	24	7	12.4			+10°	-8°			1.4	6,400
	080R-14-6T-M	●	6	80	57	63	62	76	27	20	13.0	63	24	7	12.4			+10°	-8°			1.4	6,400
	100R-14-6T-M	●	6	100	77	83	82	96	32	26	17.0	63	28	8	14.4			+10°	-7°			2.4	5,600
	100R-14-7T-M	●	7	100	77	83	82	96	32	26	17.0	63	28	8	14.4			+10°	-7°			2.4	5,600
125R-14-7T-M	●	7	125	102	108	107	100	40	55	-	63	33	9	16.4	+10°	-7°	2.8	4,800					
160R-14-8T-M	●	8	160	137	143	142	100	40	68	66.7	63	32	9	16.4	+10°	-6°	3.7	4,200					

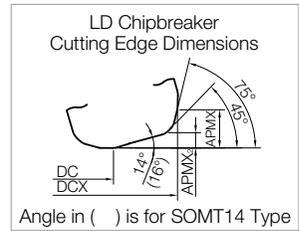
*1 Refer to LD cutting edge dimensions in figure on page M166
*2 Dimension in () is when mounting LD

Spare Parts and Applicable Inserts M166

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts				Applicable Inserts
	Clamp Screw	Wrench		Anti-seize Compound		Arbor Bolt
MFH 050R-10-...(-M)					HH10×30
063R-10-...(-22M)	SB-4090TRPN	DTPM-15	-	P-37	HH10×30
063R-10-...-27M	Recommended Torque for Insert Clamp 3.5 Nm				HH12×35
080R-10-...					HH16×40
080R-10-...-M					HH12×35
050R-14-...(-M)				P-37	W10×30
063R-14-...(-22M)					HH10×30
063R-14-...-27M					HH12×35
080R-14-...	SB-50120TRPN	-	TTP-20		HH16×40
080R-14-...-M	Recommended Torque for Insert Clamp 4.5 Nm				HH12×35
100R-14-...					HH16×40
100R-14-...-M					-
125R-14-...				-	
160R-14-...				-	



Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

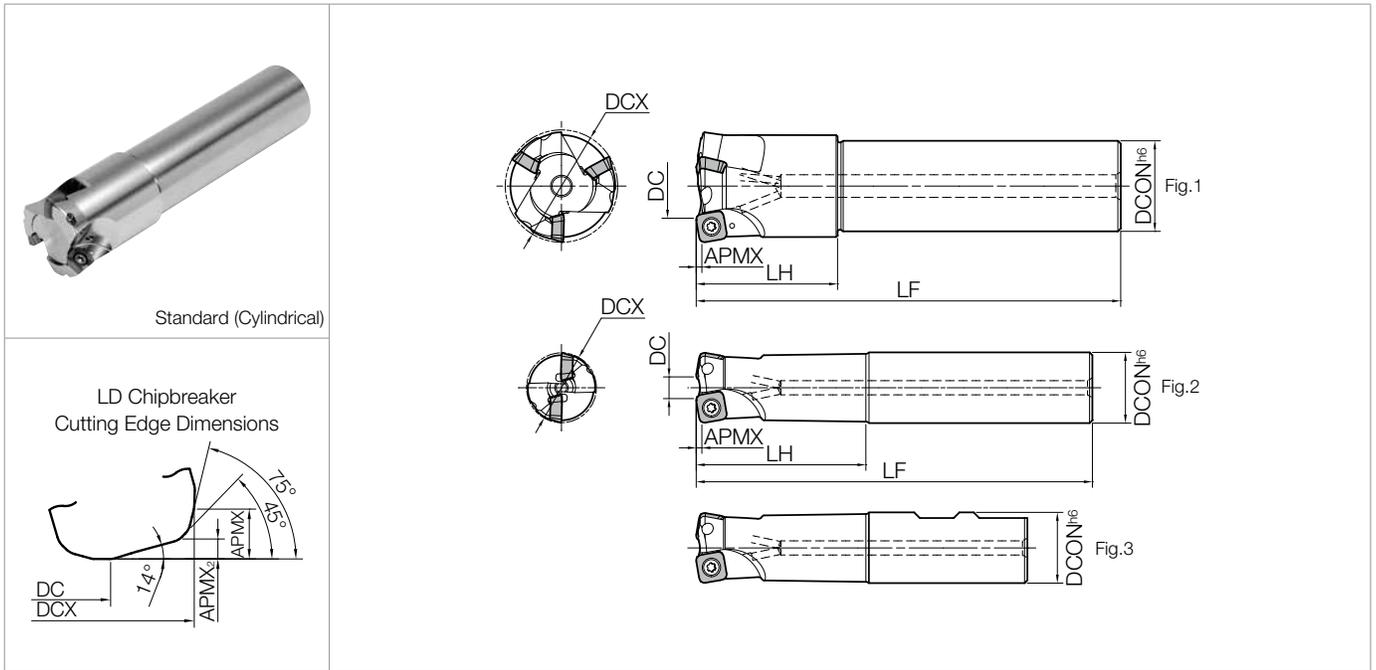
Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ● **M172-M173**
Holders on Page ● **M165**

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING

MFH End Mill (Inch Size)



Toolholder Dimensions with SOMT10 Inserts (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)										Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM
			DCX	DC			DCON	LF	LH	APMX	APMX ₂	A.R.	R.R.					
GM/GH	LD	FL																
Standard Shank (Weldon)	MFH 1000-W100-10-2T	●	2	1.000	0.331	0.508	0.469	1.000	5.500	3.173			+10°	-5°			0.4	17,000
	1250-W125-10-2T	●	2	1.250	0.581	0.758	0.719	1.250	6.000	2.750			+10°	-5°			0.8	14,000
	1250-W125-10-3T	●	3	1.250	0.581	0.758	0.719	1.250	6.000	2.750	0.059 *(0.138)	0.047	+10°	-5°	Yes	Fig.3	0.8	14,000
	1500-W150-10-3T	●	3	1.500	0.831	1.008	0.969	1.500	6.000	2.000			+10°	-5°			0.8	11,500
	1500-W150-10-4T	●	4	1.500	0.831	1.008	0.969	1.500	6.000	2.000			+10°	-5°			0.8	11,500
Long Shank (Cylindrical)	MFH 1000-S100-10-2T-8	●	2	1.000	0.331	0.508	0.469	1.000	8.000	4.750			+10°	-5°			0.8	17,000
	1250-S125-10-2T-8	●	2	1.250	0.581	0.758	0.719	1.250	8.000	4.750	0.059 *(0.138)	0.047	+10°	-5°	Yes	Fig.2	0.8	14,000
	1500-S125-10-4T10	●	4	1.500	0.831	1.008	0.969	1.250	10.000	2.000			+10°	-5°		Fig.1	0.8	11,500

* Dimension in () is when mounting LD

Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts			Applicable Inserts
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-10-...	SB-4075TRP 	DTPM-15 	P-37 	SOMT100420ER-GM SOMT100420ER-GH SOMT100420ER-LD SOMT100420ER-FL

Caution with Max. Revolution

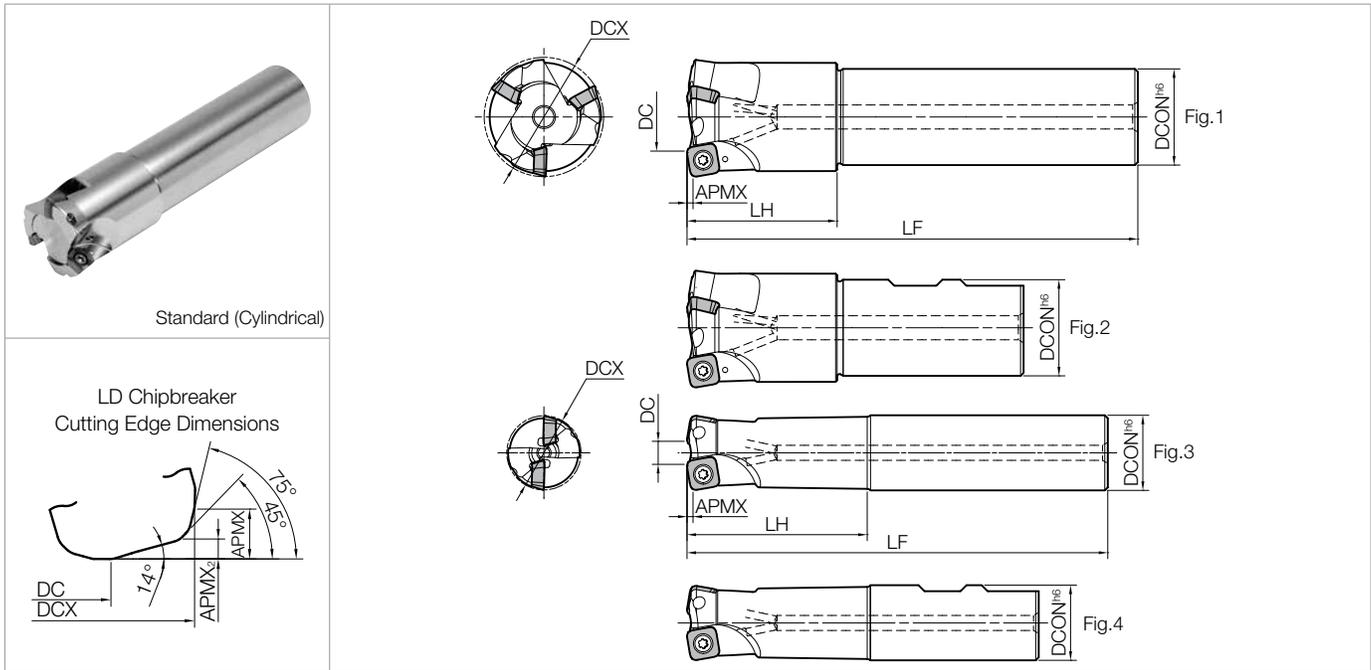
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions M172-M173

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH End Mill (Metric Size)



Toolholder Dimensions with SOMT10 Inserts (Metric Size)

Inserts	Part Number	Stock	No. of Inserts	Dimensions (mm)										Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM
				DCX	DC			DCON	LF	LH	APMX	APMX ₂	A.R.	R.R.					
					GM/GH	LD	FL												
45°-70° Lead Angle	Standard Shank (Cylindrical)	●	2	25	8	12.5	11.5	25	140	60	1.5 *(3.5)	1.2	+10°	-5°	Yes	Fig.3	0.4	17,000	
75° Lead Angle				28	11	15.5	14.5	25	140	40						Fig.1	0.5	15,500	
90°/88° Lead Angle				32	15	19.5	18.5	32	150	70						Fig.3	0.8	14,000	
High Feed Milling				32	15	19.5	18.5	32	150	70						Fig.3	0.8	14,000	
Finish Milling				35	18	22.5	21.5	32	150	50						Fig.1	0.8	13,000	
Multi-Function				35	18	22.5	21.5	32	150	50						Fig.1	0.8	13,000	
Slot Mill				40	23	27.5	26.5	32	150	50						Fig.1	0.9	11,500	
Ball-Nose Radius				40	23	27.5	26.5	32	150	50						Fig.1	0.9	11,500	
Other Applications				Standard Shank (Weldon)	●	2	25	8	12.5	11.5						25	117	60	1.5 *(3.5)	1.2	+10°	-5°	Yes	Fig.4	0.4	17,000
	32	15	19.5				18.5	32	131	70	Fig.4	0.7	14,000						
	40	23	27.5				26.5	32	112	50	Fig.2	0.7	11,500						
	40	23	27.5				26.5	32	112	50	Fig.2	0.7	11,500						
MILLING	Long Shank (Cylindrical)	●	2	25	8	12.5	11.5	25	200	120	1.5 *(3.5)	1.2	+10°	-5°	Yes	Fig.3	0.6	17,000	
				28	11	15.5	14.5	25	200	40						Fig.1	0.7	15,500	
				32	15	19.5	18.5	32	200	120						Fig.3	1.0	14,000	
				35	18	22.5	21.5	32	200	50						Fig.1	1.4	13,000	
				40	23	27.5	26.5	32	250	50						Fig.1	1.5	11,500	
	Extra Long Shank (Cylindrical)	●	2	2	25	8	12.5	11.5	25	300	180	1.5 *(3.5)	1.2	+10°	-5°	Yes	Fig.3	1.0	17,000
					28	11	15.5	14.5	25	300	40						Fig.1	1.1	15,500
					32	15	19.5	18.5	32	300	180						Fig.3	1.6	14,000
					35	18	22.5	21.5	32	300	50						Fig.1	1.7	13,000
					40	23	27.5	26.5	32	300	50						Fig.1	1.8	11,500

* Dimension in () is when mounting LD

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts			Applicable Inserts ➔ M20, M171
	Clamp Screw 	Wrench 	Anti-Seize Compound 	
MFH...-10-...	SB-4075TRP Recommended Torque for Insert Clamp 3.5 Nm	DTPM-15	P-37	SOMT100420ER-GM SOMT100420ER-GH SOMT100420ER-LD SOMT100420ER-FL

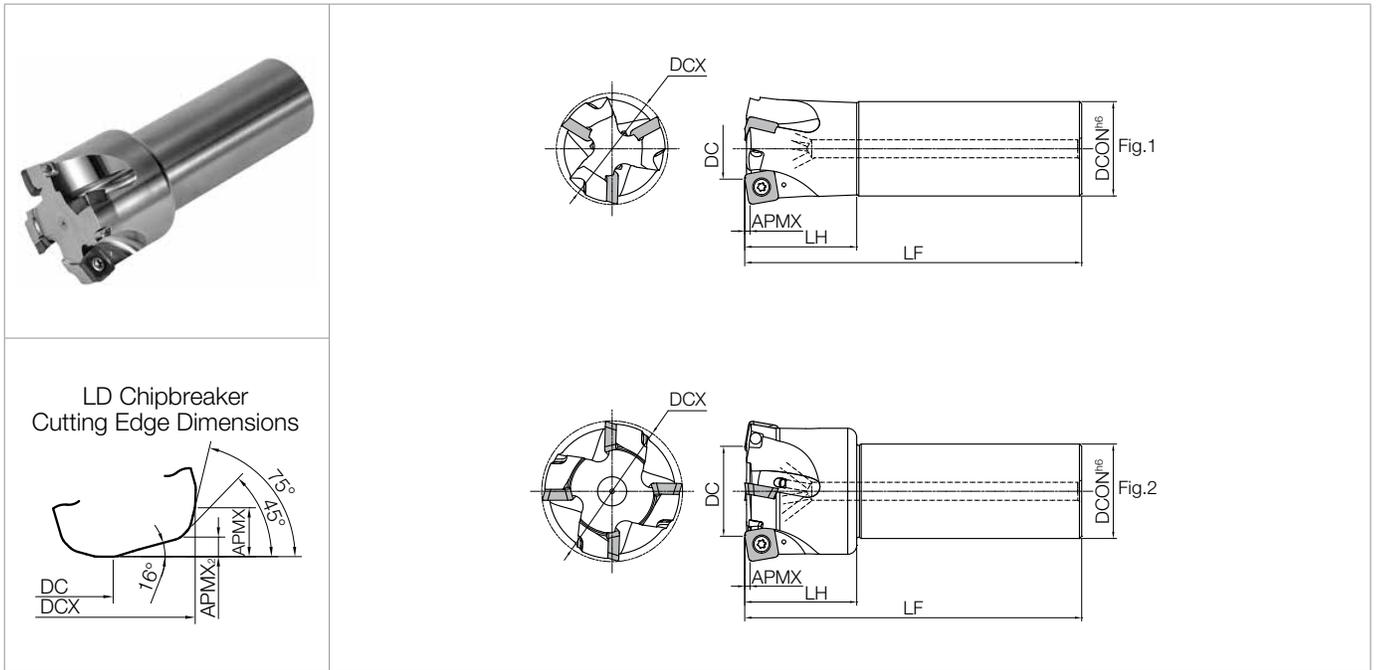
Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ➔ M172-M173

MFH End Mill (Metric Size)



Toolholder Dimensions with SOMT14 Inserts (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)									Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM
			DCX	DC			DCON	LF	LH	APMX	APMX ₂	A.R.	R.R.				
MFH 50-S42-14-3T	●	3		50	27	33								32	42	150	50	2 *(5)	2	+10°	-10°	Yes	Fig.1	1.4	8,800
63-S42-14-4T	●	4	63	40	46	45	42	150	50	+10°	-10°	Fig.2	1.7	7,400			
80-S42-14-5T	●	5	80	57	63	62	42	150	50	+10°	-8°	Fig.2	2.3	6,400			

* Dimension in () is when mounting LD

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts			Applicable Inserts
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-14-...	 SB-50120TRP Recommended Torque for Insert Clamp 4.5 N·m	 TTP-20	 P-37	SOMT140520ER-GM SOMT140520ER-GH SOMT140520ER-LD SOMT140514ER-FL

Caution with Max. Revolution

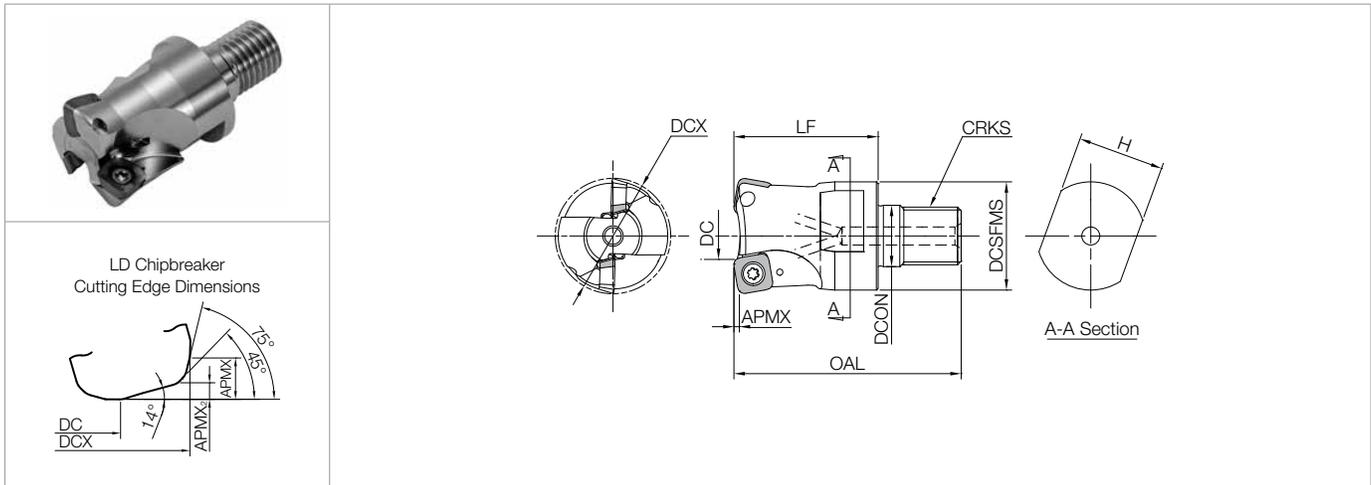
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions M172-M173

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH Modular End Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Rake Angle (°)		Coolant Hole	Max RPM	
			DCX	DC			DCSFMS	DCON	OAL	LF	CRKS	H	APMX	APMX ₂	A.R.			R.R.
MFH 25-M12-10-2T	●	2	25	8	12.5	11.5	23	12.5	57	35	M12xP1.75	19	1.5 *(3.5)	1.2	+10°	-5°	Yes	17,000
28-M12-10-2T	●	2	28	11	15.5	14.5	23	12.5	57	35	M12xP1.75	19						15,500
32-M16-10-2T	●	2	32	15	19.5	18.5	30	17.0	63	40	M16xP2.0	24						14,000
32-M16-10-3T	●	3	32	15	19.5	18.5	30	17.0	63	40	M16xP2.0	24						14,000
35-M16-10-2T	●	2	35	18	22.5	21.5	30	17.0	63	40	M16xP2.0	24						13,000
35-M16-10-3T	●	3	35	18	22.5	21.5	30	17.0	63	40	M16xP2.0	24						13,000
40-M16-10-3T	●	3	40	23	27.5	26.5	30	17.0	63	40	M16xP2.0	24						11,500
40-M16-10-4T	●	4	40	23	27.5	26.5	30	17.0	63	40	M16xP2.0	24						11,500

* Dimension in () is when mounting LD

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts			Applicable Inserts
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-10-...	 SB-4075TRP Recommended Torque for Insert Clamp 3.5 Nm	 DTPM-15	 P-37	● M20, M171 SOMT100420ER-GM SOMT100420ER-GH SOMT100420ER-LD SOMT100420ER-FL

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ● **M172-M173**

M

MILLING

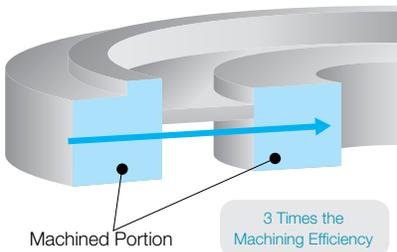
● Applicable Inserts (M20)

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)	MEGACOAT NANO			NEW	CVD Coated Carbide	
		IC	S	D1	BS	RE		PR1535	PR1525	PR1510	PR015S		CA6535
 General Purpose	SOMT 100420ER-GM	0.406	0.180	0.181			0.079	16°	●	●	●		●
	140520ER-GM	0.557	0.219	0.228					●	●	●		●
 Large D.O.C.	SOMT 100420ER-LD	0.411	0.180	0.181	0.035		0.079	16°	●	●	●		●
	140520ER-LD	0.581	0.219	0.228	0.063				●	●	●		●
 Wiper Edge	SOMT 100420ER-FL	0.411	0.180	0.181	0.055	0.079	0.079	16°	●	●	●		●
	140514ER-FL	0.574	0.219	0.228	0.122	0.055			●	●	●		●
 Tough Edge	SOMT 100420ER-GH	0.411	0.180	0.179			0.079	16°	●	●	●	●	
	140520ER-GH	0.558	0.219	0.228					●	●	●	●	

■ Case Studies

SFVAF22B
(Forged Alloy Steel)

- Turbine Parts
- Vc = 520 sfm
- fz = 0.0461 ipt
- D.O.C. x ae = 0.059" x max. 6.299"
- Dry
- MFH160R-14-8T (8 inserts)
- SOMT140520ER-GM (PR1525)



Machined Portion

3 Times the Machining Efficiency

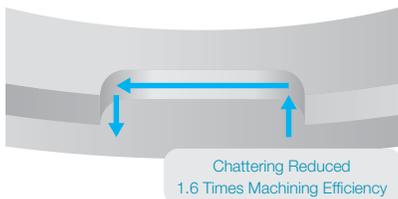
PR1525	Chip Removal = 43.94in ³ /min
Competitor G	Chip Removal = 14.65in ³ /min

Small machining noise even at 3 times higher feed rate.
Good edge condition without chipping and stable machining.

(User Evaluation)

304
(Stainless Steel)

- Clutch
- Vc = 390 sfm
- fz = 0.0472 ipt
- D.O.C. x ae = 0.039" x 0.787"
- Dry
- MFH32-S32-10-2T (2 inserts)
- SOMT100420ER-GM (PR1535)



Chattering Reduced

1.6 Times Machining Efficiency

PR1535	Chip Removal = 3.54in ³ /min
Competitor H	Chip Removal = 2.20in ³ /min

Competitor H caused chattering but MFH realized stable machining.
Good edge condition and long tool life.

(User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO			MEGACOAT HARD	CVD Coated Carbide
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH...R-10	MFH...-14	PR1535	PR1525	PR1510	PR015S	CA6535
GM GH	Carbon Steel	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		☆ 390-590-820	★ 390-590-820	-	-	-
	Alloy Steel	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		☆ 330-520-720	★ 330-520-720	-	-	-
	~ 40HRc	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		☆ 260-460-590	☆ 260-460-590	-	GH ★ 260-460-590	-
	40-50HRc	① 0.006-0.012-0.020 ② 0.006-0.008-0.010	① 0.008-0.020-0.032 ② 0.008-0.012-0.018	① 0.008-0.024-0.035 ② 0.008-0.020-0.028	0.008-0.028-0.039		☆ 200-330-430	☆ 200-330-430	-	GH ★ 200-330-430	-
	50-55HRc	① 0.006-0.010-0.016	① 0.006-0.014-0.024	① 0.006-0.010-0.028	0.008-0.020-0.031		-	☆ 200-330-430	-	GH ★ 160-230-330	-
	55-60HRc	① 0.0004-0.0024-0.0039 (Recommended only with GH chipbreaker)					-	-	-	GH ★ 160-200-230	-
	Austenitic Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		GM ☆ 330-520-660	GM ☆ 330-520-660	-	-	-
	Martensitic Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		☆ 490-660-820	-	-	-	★ 590-790-980
	Precipitation Hardened Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		★ 300-390-490	-	-	-	-
	Gray Cast Iron	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		-	-	★ 390-590-820	-	-
	Nodular Cast Iron	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		-	-	★ 330-490-660	-	-
	Ni-base Heat Resistant Alloy	① 0.008-0.016-0.024 ② 0.006-0.008-0.012	① 0.008-0.020-0.035 ② 0.008-0.016-0.024	① 0.008-0.024-0.039 ② 0.008-0.020-0.032	0.008-0.032-0.047		☆ 70-100-160	-	-	-	★ 70-100-160
	Titanium Alloy	① 0.008-0.016-0.024 ② 0.006-0.008-0.012	① 0.008-0.020-0.035 ② 0.008-0.016-0.024	① 0.008-0.024-0.039 ② 0.008-0.020-0.032	0.008-0.032-0.047		GM ★ 130-200-260	-	GM ☆ 100-160-230	-	-
LD	Carbon Steel	① 0.020-0.032-0.039 ③ 0.002-0.004-0.008	① 0.020-0.039-0.059 ③ 0.002-0.006-0.012	① 0.020-0.047-0.071 ③ 0.002-0.008-0.012	① 0.020-0.059-0.079 ③ 0.002-0.008-0.012	④ 0.020-0.059-0.079 ⑤ 0.002-0.008-0.016	☆ 390-590-820	★ 390-590-820	-	-	-
	Alloy Steel	① 0.020-0.032-0.039 ③ 0.002-0.004-0.008	① 0.020-0.039-0.059 ③ 0.002-0.006-0.012	① 0.020-0.047-0.071 ③ 0.002-0.008-0.012	① 0.020-0.059-0.079 ③ 0.002-0.008-0.012	④ 0.020-0.059-0.079 ⑤ 0.002-0.008-0.016	☆ 330-520-720	★ 330-520-720	-	-	-
	Mold Steel (~40HRc)	① 0.020-0.028-0.032 ③ 0.002-0.003-0.006	① 0.020-0.032-0.047 ③ 0.002-0.004-0.008	① 0.020-0.039-0.063 ③ 0.002-0.006-0.008	① 0.020-0.047-0.071 ③ 0.002-0.006-0.008	④ 0.020-0.047-0.071 ⑤ 0.002-0.006-0.012	☆ 260-460-590	★ 260-460-590	-	-	-
	Mold Steel (40-50HRc)	① 0.008-0.012-0.020 ③ 0.001-0.002-0.004	① 0.008-0.020-0.032 ③ 0.001-0.003-0.006	① 0.008-0.024-0.035 ③ 0.001-0.004-0.006	① 0.008-0.028-0.039 ③ 0.001-0.004-0.006	④ 0.008-0.028-0.039 ⑤ 0.001-0.004-0.008	☆ 200-330-430	★ 200-330-430	-	-	-
	Austenitic Stainless Steel	① 0.020-0.028-0.032 ③ 0.002-0.003-0.006	① 0.020-0.032-0.047 ③ 0.002-0.004-0.008	① 0.020-0.039-0.063 ③ 0.002-0.006-0.008	① 0.020-0.047-0.071 ③ 0.002-0.006-0.008	④ 0.020-0.047-0.071 ⑤ 0.002-0.006-0.012	★ 330-520-660	☆ 330-520-660	-	-	-
	Martensitic Stainless Steel	① 0.020-0.028-0.032 ③ 0.002-0.003-0.006	① 0.020-0.032-0.047 ③ 0.002-0.004-0.008	① 0.020-0.039-0.063 ③ 0.002-0.006-0.008	① 0.020-0.047-0.071 ③ 0.002-0.006-0.008	④ 0.020-0.047-0.071 ⑤ 0.002-0.006-0.012	☆ 490-660-820	-	-	-	★ 590-790-980
	Precipitation Hardened Stainless Steel	① 0.020-0.028-0.032 ③ 0.002-0.003-0.006	① 0.020-0.032-0.047 ③ 0.002-0.004-0.008	① 0.020-0.039-0.063 ③ 0.002-0.006-0.008	① 0.020-0.047-0.071 ③ 0.002-0.006-0.008	④ 0.020-0.047-0.071 ⑤ 0.002-0.006-0.012	★ 300-390-490	-	-	-	-
	Gray Cast Iron	① 0.020-0.032-0.039 ③ 0.002-0.004-0.008	① 0.020-0.039-0.059 ③ 0.002-0.006-0.012	① 0.020-0.047-0.071 ③ 0.002-0.008-0.012	① 0.020-0.059-0.079 ③ 0.002-0.008-0.012	④ 0.020-0.059-0.079 ⑤ 0.002-0.008-0.016	-	-	★ 390-590-820	-	-
	Nodular Cast Iron	① 0.020-0.028-0.032 ③ 0.002-0.003-0.006	① 0.020-0.032-0.047 ③ 0.002-0.004-0.008	① 0.020-0.039-0.063 ③ 0.002-0.006-0.008	① 0.020-0.047-0.071 ③ 0.002-0.006-0.008	④ 0.020-0.047-0.071 ⑤ 0.002-0.006-0.012	-	-	★ 330-490-660	-	-
	Ni-base Heat Resistant Alloy	① 0.008-0.016-0.024 ③ 0.001-0.002-0.004	① 0.008-0.020-0.035 ③ 0.001-0.003-0.006	① 0.008-0.024-0.039 ③ 0.001-0.004-0.006	① 0.008-0.032-0.047 ③ 0.001-0.004-0.006	④ 0.008-0.032-0.047 ⑤ 0.001-0.004-0.008	☆ 70-100-160	-	-	-	★ 70-100-160
Titanium Alloy	① 0.008-0.016-0.024 ③ 0.001-0.002-0.004	① 0.008-0.020-0.035 ③ 0.001-0.003-0.006	① 0.008-0.024-0.039 ③ 0.001-0.004-0.006	① 0.008-0.032-0.047 ③ 0.001-0.004-0.006	④ 0.008-0.032-0.047 ⑤ 0.001-0.004-0.008	★ 130-200-260	-	☆ 100-160-230	-	-	

- ① For D.O.C. ≤ 0.039*
 - ② For D.O.C. 0.040 - 0.059*
 - ③ For D.O.C. 0.040 - 0.138*
 - ④ For D.O.C. ≤ 0.079*
 - ⑤ For D.O.C. 0.080 - 0.197*
- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
 - The middle values are recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
 - Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
 - Internal coolant is recommended for slotting applications
 - For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

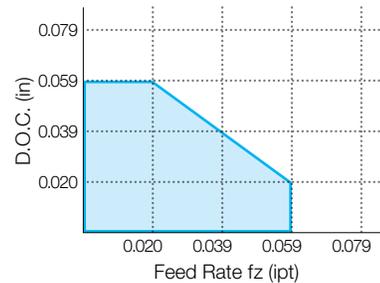
Recommended Cutting Conditions

Chipbreaker	Workpiece	Holder Part Number and Feed Rate (fz: ipt)					Recommended Insert Grade (Vc: sfm)				
		End Mill Feed Rates			Face Mill Feed Rates		MEGACOAT NANO			MEGACOAT HARD	CVD Coated Carbide
		MFH1000 MFH25-	MFH1250 MFH32-	MFH1500 MFH40-	MFH...R-10	MFH...-14	PR1535	PR1525	PR1510	PR015S	CA6535
FL	Carbon Steel	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		☆ 390-590-820	★ 390-590-820	-	-	-
	Alloy Steel	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		☆ 330-520-720	★ 330-520-720	-	-	-
	Mold Steel (~40HRc)	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		☆ 260-460-590	★ 260-460-590	-	-	-
	Mold Steel (40-50HRc)	① 0.006-0.012-0.020 ② 0.006-0.008-0.010	① 0.008-0.020-0.032 ② 0.008-0.012-0.018	① 0.008-0.024-0.035 ② 0.008-0.020-0.028	0.008-0.028-0.039		☆ 200-330-430	★ 200-330-430	-	-	-
	Austenitic Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		★ 330-520-660	☆ 330-520-660	-	-	-
	Martensitic Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		☆ 490-660-820	-	-	-	★ 590-790-980
	Precipitation Hardened Stainless Steel	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		★ 300-390-490	-	-	-	-
	Gray Cast Iron	① 0.020-0.032-0.039 ② 0.008-0.016-0.020	① 0.020-0.039-0.059 ② 0.012-0.028-0.039	① 0.020-0.047-0.071 ② 0.016-0.039-0.059	0.020-0.059-0.079		-	-	★ 390-590-820	-	-
	Nodular Cast Iron	① 0.020-0.028-0.032 ② 0.008-0.012-0.016	① 0.020-0.032-0.047 ② 0.012-0.024-0.032	① 0.020-0.039-0.063 ② 0.016-0.032-0.047	0.020-0.047-0.071		-	-	★ 330-490-660	-	-
	Ni-base Heat Resistant Alloy	① 0.008-0.016-0.024 ② 0.006-0.008-0.012	① 0.008-0.020-0.035 ② 0.008-0.016-0.024	① 0.008-0.024-0.039 ② 0.008-0.020-0.032	0.008-0.032-0.047		☆ 70-100-160	-	-	-	★ 70-100-160
	Titanium Alloy	① 0.008-0.016-0.024 ② 0.006-0.008-0.012	① 0.008-0.020-0.035 ② 0.008-0.016-0.024	① 0.008-0.024-0.039 ② 0.008-0.020-0.032	0.008-0.032-0.047		★ 130-200-260	-	☆ 100-160-230	-	-

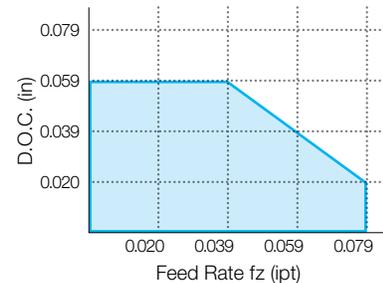
- ① For D.O.C. ≤ 0.039"
 - ② For D.O.C. 0.040 - 0.059"
 - ③ For D.O.C. 0.040 - 0.138"
 - ④ For D.O.C. ≤ 0.079"
 - ⑤ For D.O.C. 0.080 - 0.197"
- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
 - The middle values are recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
 - Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
 - Internal coolant is recommended for slotting applications
 - For finishing, maximum recommended feed is f = 0.059 ipt for **SOMT14-LD** type, f = 0.035 ipt for **SOMT10-LD** type, f = 0.118 ipt for **SOMT14-FL** type, f = 0.055 ipt for **SOMT10-FL** type

MFH-RAPTOR Cutting Performance (GM, GH, FL Chipbreaker)

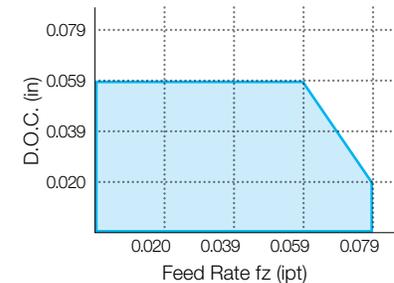
MFH1000-W100-10-2T
MFH25-S25-10-2T



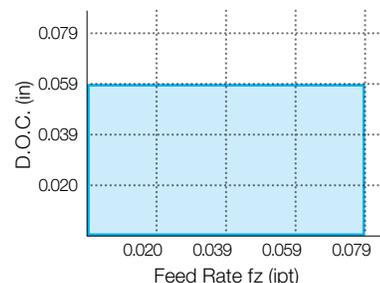
MFH1250-W125-10-○ T
MFH32-S32-10-○ T



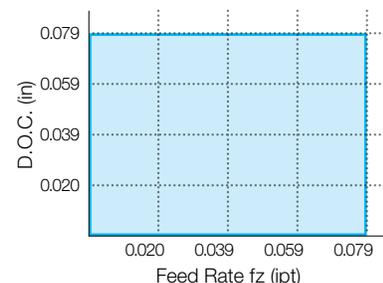
MFH1500-W150-10-○ T
MFH40-S32-10-○ T



MFH2000R ~ 3000R-10-○ T
MFH050R ~ 080R-10-○ T



MFH...-14-○ T



LD Chipbreaker:
MAX D.O.C. for LD chipbreaker is 0.197" (0.138" for SOMT10)
Please refer to [M172](#) for feed rate

End Mill:
Please refer to the application map above

Face Mill:
MAX feed rate (inches per tooth) fz = 0.079ipt

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

● Approximate Programming Radius Adjustment

Shape	Holder	Chipbreaker	Cutting Edge Angle γ (°)	Programmable R (in) Recommended	Max. Non-machined Portion K (in)	Side Wall Max. Inclination Angle (°)
	MFH...-10-...	GM / GH	10°	0.118	0.034	90°
		LD	14°	0.148	0.027	65°
		FL	14°	0.118	0.035	80°
	MFH...-14-...	GM / GH	10°	0.148	0.054	90°
		LD	16°	0.197	0.042	65°
		FL	13°	0.118	0.054	80°

● Ramping Reference Data

MFH...-10-...

Cutter Dia. DCX (in)	1.00"	-	1.25"	-	1.50"	2.00"	2.50"	3.00"
Cutter Dia. DCX (mm)	25mm	28mm	32mm	35mm	40mm	50mm	63mm	80mm
Max. Ramping Angle RMPX (°)	5°	4.5°	4°	3.5°	3°	2.5°	2°	1°
tan RMPX	0.087	0.078	0.070	0.061	0.052	0.043	0.035	0.017

MFH...-14-...

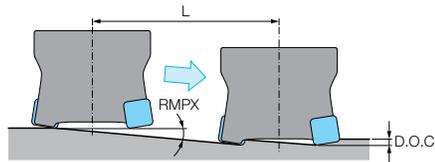
Cutter Dia. DCX (in)	2.00"	2.50"	3.00"	4.00"	5.00"	6.00"
Cutter Dia. DCX (mm)	50mm	63mm	80mm	100mm	125mm	160mm
Max. Ramping Angle RMPX (°)	2°	1.8°	1°	0.5°	0.4°	0.2°
tan RMPX	0.035	0.031	0.017	0.009	0.007	0.003

● Ramping Guide

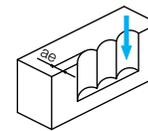
- Ramping angle should be under a max (maximum ramping angle) in the above cutting conditions
- Reduce recommended feed rate in cutting conditions above by 70%

Formula for Max. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{\text{D.O.C.}}{\tan \text{RMPX}}$$



● Plunging



Insert Description	Maximum Width of Cut (ae)
SOMT10 Type	0.315"
SOMT14 Type	0.453"

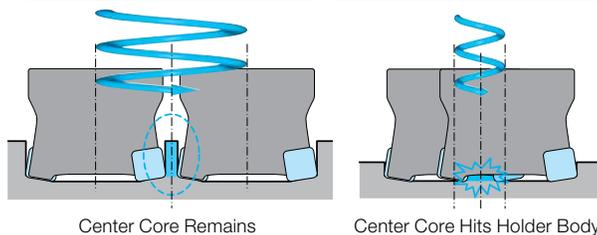
- LD and FL chipbreakers are not available for plunging
- Reduce feed rate to $f_z \leq 0.008 \text{ ipr}$ when plunging

● Helical Milling

- For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

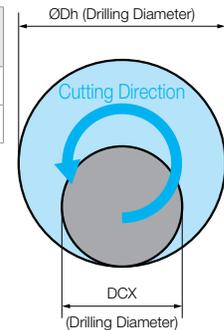
Exceeding Max. Machining Dia.

Under Min. Machining Dia.

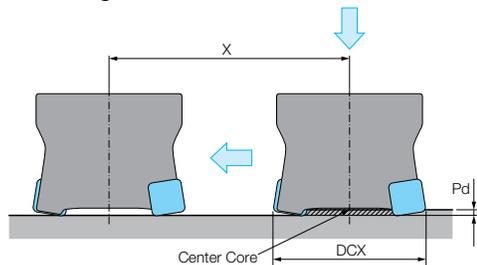


Holder	Min. Drilling Dia. $\varnothing D_{h1}$	Max. Drilling Dia. $\varnothing D_{h2}$	Max. Ramping Depth per Cycle
MFH...-10-...	$2 \times \text{DCX} - 0.709"$	$2 \times \text{DCX} - 0.079"$	GM = 0.059"
MFH...-14-...	$2 \times \text{DCX} - 0.984"$	$2 \times \text{DCX} - 0.079"$	GM = 0.079"

- Keep machine depth per rotation less than max D.O.C. (APMX) in the cutter dimensions chart
- Use climb milling. (Refer to detail on right)
- Feed rates should be reduced to 50% of recommended cutting condition (Page [M172-M173](#))
- Use caution to eliminate incidences caused by producing long chips



● Drilling



● 3D Machining

Chipbreaker	Ramping	Contouring (Rising Wall Angle)	Plunging	Helical Milling	Pocketing
GM / GH	✓	✓ (90°)	✓	✓	✓
LD	✓	Limit (65°)	X	X	X
FL	✓	Limit (80°)	X	X	X

- Some applications are not available depending on chipbreaker.
- For FL and LD type, there is a limit of rising wall angle during contouring.

Holder	GM / GH		LD		FL	
	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MFH...-10-...	0.059"	$\text{DCX} - 0.709"$	0.059"	$\text{DCX} - 0.551"$	0.059"	$\text{DCX} - 0.591"$
MFH...-14-...	0.079"	$\text{DCX} - 0.945"$	0.079"	$\text{DCX} - 0.709"$	0.079"	$\text{DCX} - 0.748"$

[Drilling Depth]

See Max. Drilling Depth (Pd) in the above cutting conditions

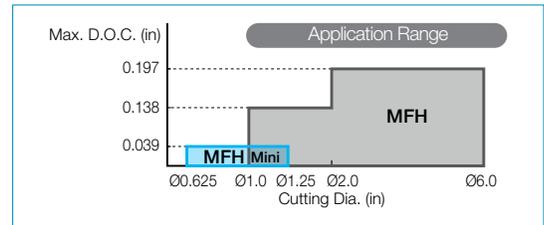
Traversing after Drilling

- It is recommended to reduce feed by 25% of recommendation on Page [M172-M173](#) until Center Core is removed
- Axial feed rate recommendation per revolution is 0.008 ipr while drilling

MFH-RAPTOR MINI

(Cutter Dia. $\varnothing 0.625'' \sim \varnothing 2.000''$)
(Cutter Dia. $\varnothing 16\text{mm} \sim \varnothing 32\text{mm}$)

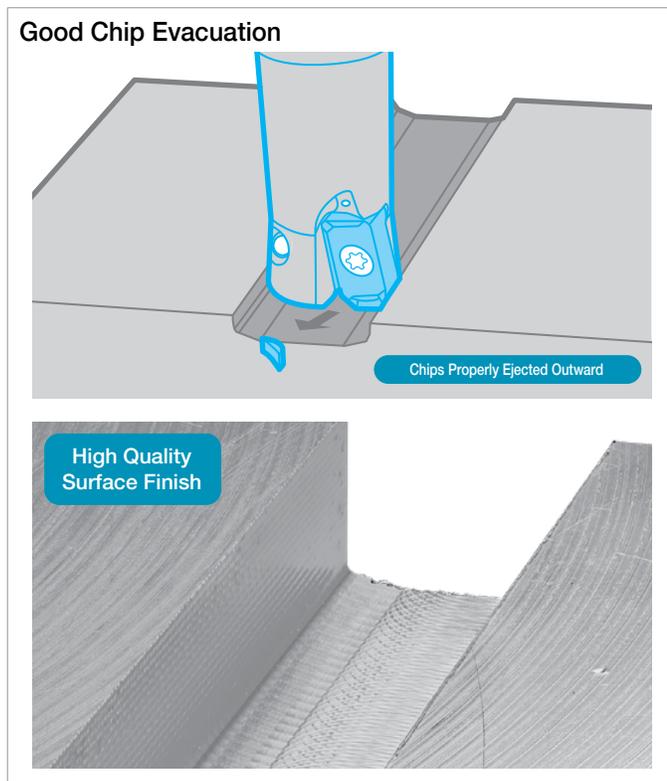
Economical Inserts with 4 Cutting Edges
High Feed Milling for Small Diameters and
Small Machining Centers



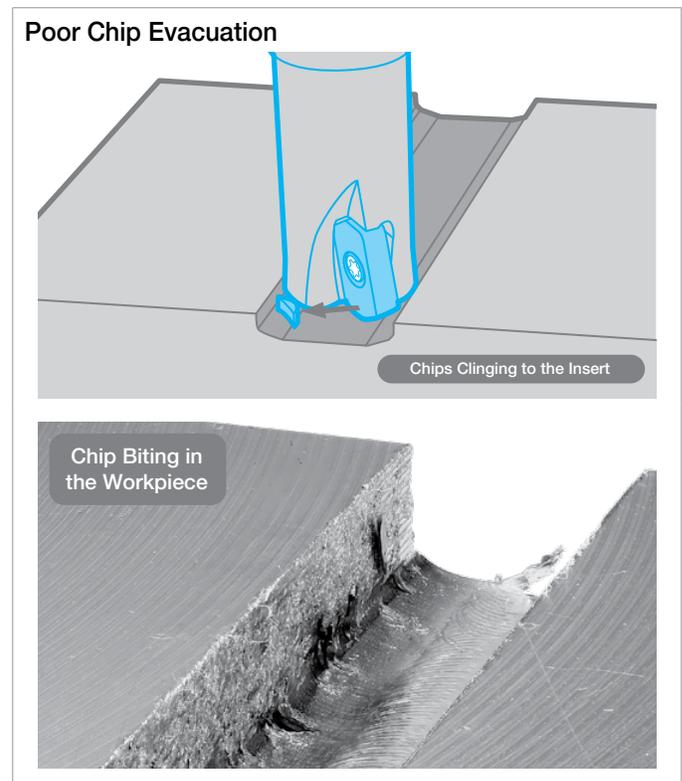
1 Good Chip Evacuation

MFH Mini Controls Chip Biting with Convex Cutting Edge

MFH Mini



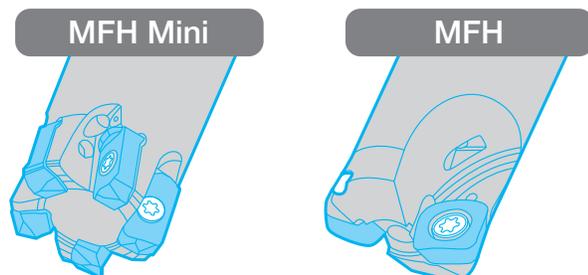
Competitor High Feed Cutter



Cutting Conditions: Cutter Dia. $D_c = \varnothing 0.625''$, $V_c = 490 \text{ sfm}$, $f_z = 0.024 \text{ ipt}$, $D.O.C. = 0.020''$ (20 Passes): Total $0.394'' \times 0.630''$, Dry Workpiece: Stainless Steel

2 Fine Pitch for Efficient Machining

Cutter Dia. 1.000" Type



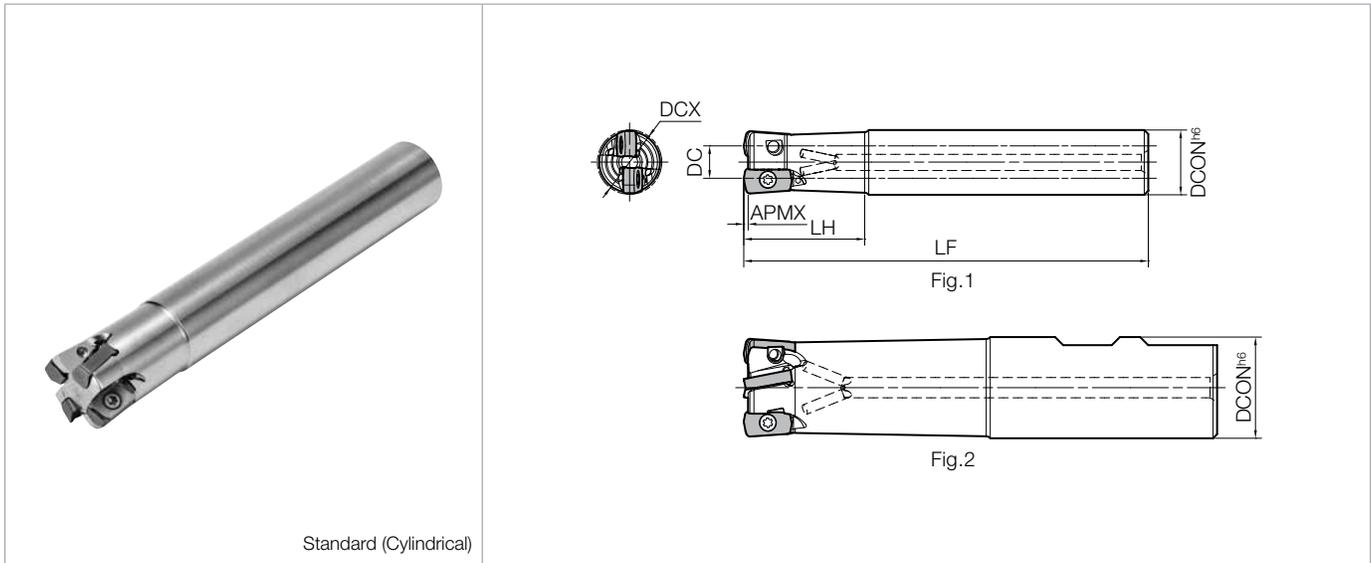
5 Inserts
MFH1000-W100-03-5T47

2 Inserts
MFH1000-W100-10-2T

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH-RAPTOR MINI

MFH Mini End Mill (Inch Size)



Toolholder Dimensions (Inch Size)

Inserts	Part Number	Stock	No. of Inserts	Dimensions (in)							Max. Ramping Angle	Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM
				DCX	DC	DCON	LF	LH	APMX	RMPX		A.R.	R.R.				
45°-70° Lead Angle	Standard Shank (Weldon)	MFH 0625-W625-03-2T-3	●	2	0.625	0.310	0.625	3.196	1.250	0.039	2.8°	-10°	-15°	Yes	Fig.2	0.1	18,800
75° Lead Angle		0750-W750-03-3T-4	●	3	0.750	0.435	0.750	4.070	2.000	0.039	1.7°					0.2	15,700
90°/88° Lead Angle		1000-W100-03-4T47	●	4	1.000	0.685	1.000	4.820	2.500	0.039	1.2°					0.4	13,400
High Feed Milling		1000-W100-03-5T47	●	5	1.000	0.685	1.000	4.820	2.500	0.039	1.2°					0.4	13,400
Finish Milling		1250-W125-03-5T-5	●	5	1.250	0.935	1.250	5.070	2.750	0.039	0.8°					0.7	11,400
Multi-Function		1250-W125-03-6T-5	●	6	1.250	0.935	1.250	5.070	2.750	0.039	0.8°					0.7	11,400
Slot Mill																	
Ball-Nose Radius	Long Shank (Cylindrical)	MFH 0625-S625-03-2T-6	●	2	0.625	0.310	0.625	6.000	2.000	0.039	2.8°	-10°	-15°	Yes	Fig.1	0.2	18,800
Other Applications		NEW 0750-S750-03-3T55	●	3	0.750	0.435	0.750	5.500	2.000	0.039	1.7°					0.3	15,700
MILLING		0750-S750-03-3T65	●	3	0.750	0.435	0.750	6.500	3.000	0.039	1.7°					0.3	15,700
		NEW 0875-S750-03-3T55	●	3	0.875	0.560	0.750	5.500	2.000	0.039	1.3°					0.3	14,700
		NEW 1000-S100-03-4T55	●	4	1.000	0.685	1.000	5.500	2.500	0.039	1.2°					0.5	13,400
		1000-S100-03-4T-7	●	4	1.000	0.685	1.000	7.000	4.000	0.039	1.2°					0.6	13,400
		NEW 1250-S125-03-5T62	●	5	1.250	0.935	1.250	6.250	3.000	0.039	0.8°					0.8	11,400
	1250-S125-03-5T-8	●	5	1.250	0.935	1.250	8.000	4.750	0.039	0.8°	1.1	11,400					

Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts			Applicable Inserts ● M15, M179
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-03-...	SB-3065TRP 	DTPM-8 	P-37 	LOGU030310ER-GM LOGU030310ER-GH

Recommended Torque for Insert Clamp 1.2 N·m

Recommended Cutting Conditions ● M180

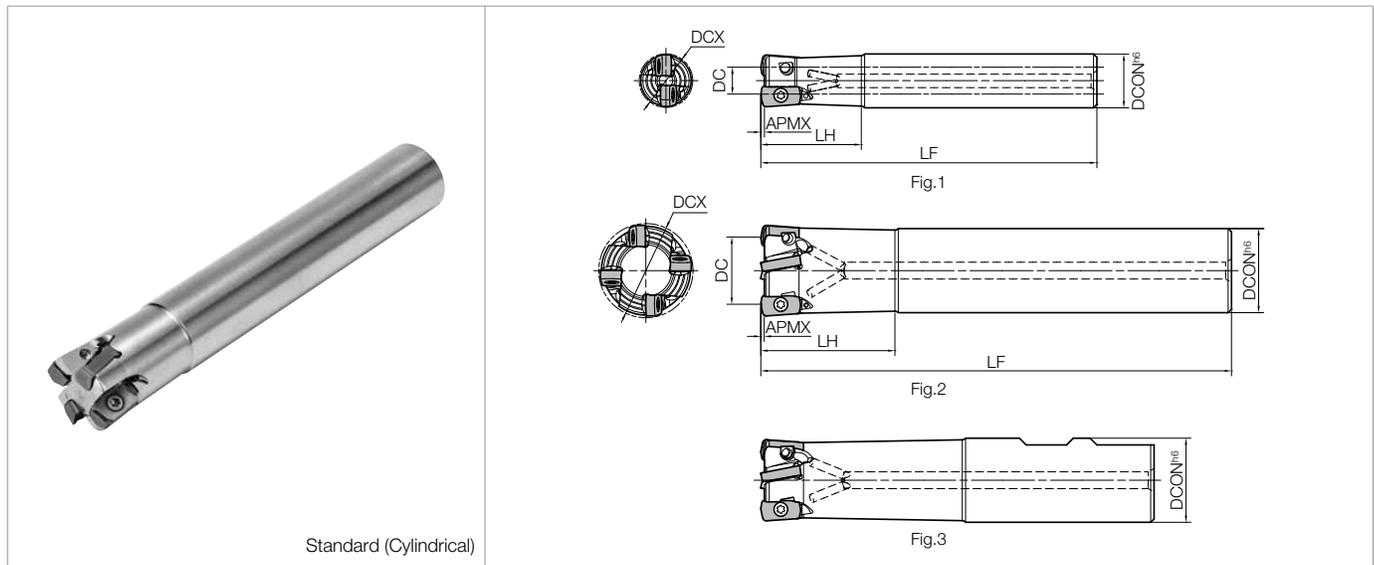
Additional Ramping Information ● M181

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MFH Mini End Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)							Max. Ramping Angle	Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max RPM
			DCX	DC	DCON	LF	LH	APMX	RMPX		A.R.	R.R.				
Standard Shank (Cylindrical)	MFH 16-S16-03-2T	●	2	16	8	16	100	30	1	2.8°	-10°	-15°	Yes	Fig.1	0.1	18,800
	17-S16-03-2T	●	2	17	9	16	100	20	1	2.5°				Fig.2	0.1	17,900
	18-S16-03-2T	●	2	18	10	16	100	20	1	2.1°					0.1	17,000
	20-S20-03-3T	●	3	20	12	20	130	50	1	1.7°				Fig.1	0.3	15,700
	20-S20-03-4T	●	4	20	12	20	130	50	1	1.7°					0.3	15,700
	22-S20-03-3T	●	3	22	14	20	130	30	1	1.4°				Fig.2	0.3	14,700
	22-S20-03-4T	●	4	22	14	20	130	30	1	1.4°					0.3	14,700
	25-S25-03-4T	●	4	25	17	25	140	60	1	1.2°				Fig.1	0.5	13,400
	25-S25-03-5T	●	5	25	17	25	140	60	1	1.2°					0.5	13,400
	28-S25-03-4T	●	4	28	20	25	140	40	1	1.0°				Fig.2	0.5	12,400
	28-S25-03-5T	●	5	28	20	25	140	40	1	1.0°					0.5	12,400
	32-S32-03-5T	●	5	32	24	32	150	70	1	0.8°				Fig.1	0.8	11,400
32-S32-03-6T	●	6	32	24	32	150	70	1	0.8°		0.8	11,400				
Standard Shank (Weldon)	MFH 16-W16-03-2T	●	2	16	8	16	79	30	1	2.8°	-10°	-15°	Yes		0.1	18,800
	20-W20-03-3T	●	3	20	12	20	101	50	1	1.7°					0.2	15,700
	20-W20-03-4T	●	4	20	12	20	101	50	1	1.7°					0.2	15,700
	25-W25-03-4T	●	4	25	17	25	117	60	1	1.2°				Fig.3	0.4	13,400
	25-W25-03-5T	●	5	25	17	25	117	60	1	1.2°					0.4	13,400
	32-W32-03-5T	●	5	32	24	32	131	70	1	0.8°					0.7	11,400
	32-W32-03-6T	●	6	32	24	32	131	70	1	0.8°					0.7	11,400
Long Shank (Cylindrical)	MFH 16-S16-03-2T-150	●	2	16	8	16	150	50	1	2.8°	-10°	-15°	Yes		0.2	18,800
	20-S20-03-3T-160	●	3	20	12	20	160	80	1	1.7°				Fig.1	0.3	15,700
	25-S25-03-4T-180	●	4	25	17	25	180	100	1	1.2°					0.6	13,400
	32-S32-03-5T-200	●	5	32	24	32	200	120	1	0.8°					1.1	11,400

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts			Applicable Inserts ● M15, M179
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-03-...	SB-3065TRP 	DTPM-8 	P-37 	LOGU030310ER-GM LOGU030310ER-GH

Additional Ramping Information ● M181

Caution with Max. Revolution

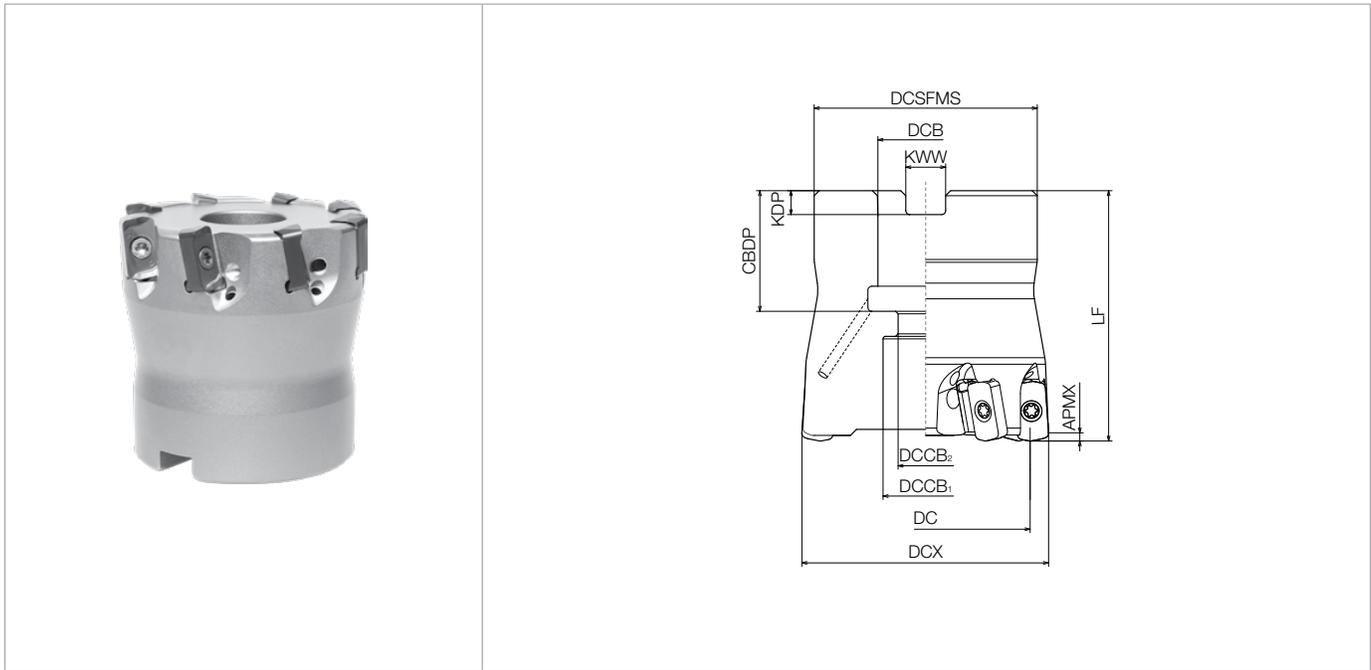
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ● M180

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH Mini Face Mill (Inch Size)



- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)											Rake Angle (°)		Coolant Hole	Weight (kg)	Max RPM
			DCX	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	A.R.	R.R.			
MFH 1500R-03-5T	●	5	1.500	1.185	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.039	-10°	-15°	Yes	0.2	10,200
1500R-03-6T	●	6	1.500	1.185	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.039	-10°	-15°	Yes	0.2	10,200
2000R-03-8T	●	8	2.000	1.685	1.750	0.750	0.669	0.433	1.968	0.947	0.188	0.312	0.039	-10°	-15°	Yes	0.5	8,600

Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Rake Angle (°)		Coolant Hole	Weight (kg)	Max RPM
			DCX	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	A.R.	R.R.			
MFH 040R-03-5T-M	●	5	40	32	38	16	15	9	40	19	5.6	8.4	1	-10°	-15°	Yes	0.2	9,900
040R-03-6T-M	●	6	40	32	38	16	15	9	40	19	5.6	8.4		-10°	-15°	Yes	0.5	8,600
050R-03-8T-M	●	8	50	42	47	22	19	11	50	21	6.3	10.4	1	-10°	-15°	Yes	0.5	8,600

Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above Ø1.3" due to a danger of re-cutting chips

Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts				Applicable Inserts ➔ M15, M179
	Clamp Screw	Wrench	Anti-Seize Compound	Arbor Bolt	
MFH1500R-03-5T	SB-3065TRP	DTPM-8	P-37	HH1/4-0.75(H)	LOGU030310ER-GM LOGU030310ER-GH
MFH1500R-03-6T	Recommended Torque for Insert Clamp 1.2 N·m			HH3/8-1.25(H)	
MFH2000R-03-8T				HH3/8-1.25(H)	

(H) Optional coolant thru bolt available.

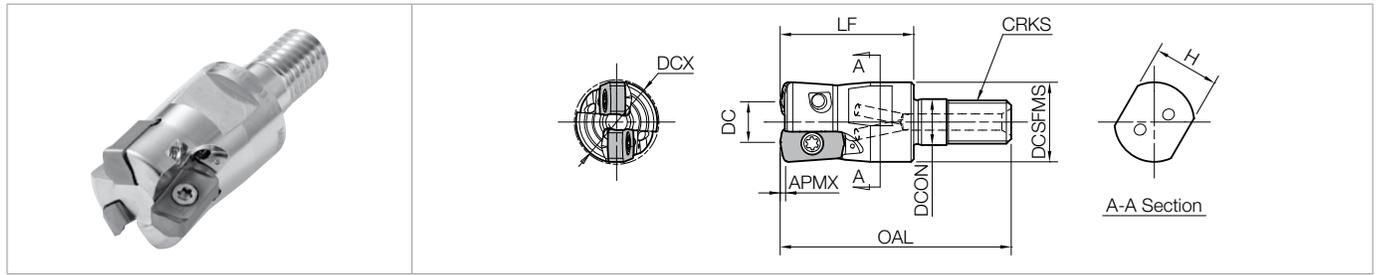
Recommended Cutting Conditions ➔ **M180**

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

🔧 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MFH Mini Modular End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions									Max. Ramping Angle	Rake Angle (°)		Coolant Hole	Max RPM
				DCX	DC	DCFSMS	DCON	OAL	LF	CRKS (mm)	H	APMX		RMPX	A.R.		
MFH 0625-M08-03-2T	●	inch	2	0.625	0.310	0.579	0.335	1.693	0.984	M8xP1.25	0.472	0.039	2.8°	-10°	-15°	Yes	18,800
0750-M10-03-3T	●		3	0.750	0.435	0.728	0.413	1.929	1.181	M10xP1.5	0.591	0.039	1.7°				15,700
1000-M12-03-4T	●		4	1.000	0.685	0.906	0.492	2.244	1.378	M12xP1.75	0.748	0.039	1.2°				13,400
1000-M12-03-5T	●		5	1.000	0.685	0.906	0.492	2.244	1.378	M12xP1.75	0.748	0.039	1.2°				13,400
1250-M16-03-5T	●		5	1.250	0.935	1.181	0.669	2.480	1.575	M16xP2	0.945	0.039	0.8°				11,400
1250-M16-03-6T	●		6	1.250	0.935	1.181	0.669	2.480	1.575	M16xP2	0.945	0.039	0.8°				11,400
1500-M16-03-6T	●		6	1.500	1.185	1.181	0.669	2.480	1.575	M16xP2	0.945	0.039	0.5°				10,200
MFH 16-M08-03-2T	●	mm	2	16	8	14.7	8.5	43	25	M8xP1.25	12	1	2.8°	-10°	-15°	Yes	18,880
17-M08-03-2T	●		2	17	9	14.7	8.5	43	25	M8xP1.25	12	1	2.5°				17,900
18-M08-03-2T	●		2	18	10	14.7	8.5	43	25	M8xP1.25	12	1	2.1°				17,000
20-M10-03-3T	●		3	20	12	18.7	10.5	49	30	M10xP1.5	15	1	1.7°				15,700
20-M10-03-4T	●		4	20	12	18.7	10.5	49	30	M10xP1.5	15	1	1.7°				15,700
22-M10-03-3T	●		3	22	14	18.7	10.5	49	30	M10xP1.5	15	1	1.4°				14,700
22-M10-03-4T	●		4	22	14	18.7	10.5	49	30	M10xP1.5	15	1	1.4°				14,700
25-M12-03-4T	●		4	25	17	23.0	12.5	57	35	M12xP1.75	19	1	1.2°				13,400
25-M12-03-5T	●		5	25	17	23.0	12.5	57	35	M12xP1.75	19	1	1.2°				13,400
28-M12-03-4T	●		4	28	20	23.0	12.5	57	35	M12xP1.75	19	1	1.0°				12,400
28-M12-03-5T	●		5	28	20	23.0	12.5	57	35	M12xP1.75	19	1	1.0°				12,400
32-M16-03-5T	●		5	32	24	30.0	17.0	63	40	M16xP2	24	1	0.8°				11,400
32-M16-03-6T	●		6	32	24	30.0	17.0	63	40	M16xP2	24	1	0.8°				11,400

Spare Parts and Applicable Inserts

Part Number	Spare Parts			Applicable Inserts Below
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-03-...	 SB-3065TRP Recommended Torque for Insert Clamp 1.2 N·m	 DTPM-8	 P-37	LOGU030310ER-GM LOGU030310ER-GH

Additional Ramping Information **M181**

* Dimension in () is when mounting LD

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

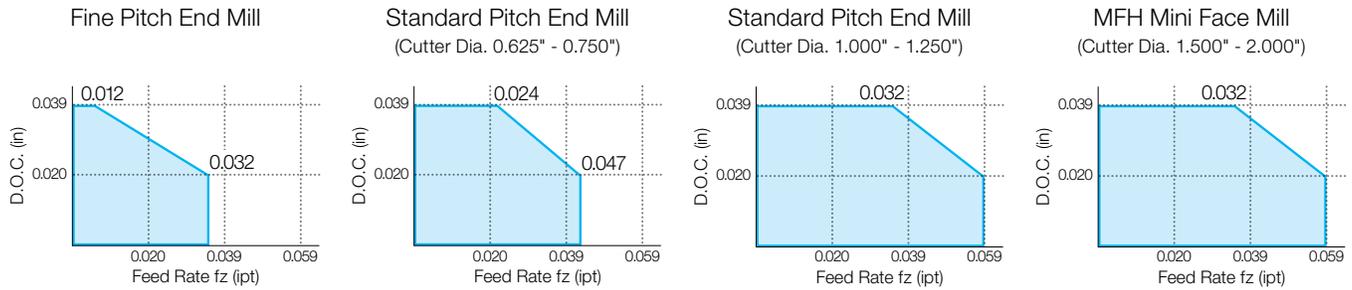
 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Applicable Inserts (M15)

Recommended Cutting Conditions **M180**

Insert	Part Number	Dimension (in)					MEGACOAT NANO			MEGACOAT HARD	CVD
		W1	S	D1	INSL	RE	PR1535	PR1525	PR1510	PR015S	CA6535
 General Purpose	LOGU 030310ER-GM	0.244	0.156	0.136	0.469	0.039	●	●	●		●
 Tough Edge	LOGU 030310ER-GH	0.244	0.156	0.136	0.469	0.039	●	●	●		●

MFH Mini Cutting Performance (GM / GH Chipbreaker)



Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Holder Part Number and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.020" Reference Value							Recommended Insert Grade (Vc: sfm)					
		MFH0625...2T (MFH16...2T)	MFH0750...3T (MFH20...3T)	(MFH20...4T)	MFH1000...4T (MFH25...4T)	MFH1000...5T (MFH25...5T)	MFH1250...5T (MFH32...5T)	MFH1250...6T (MFH32...6T)	MFH1500...5T/6T (MFH2000...8T)	MEGACOAT NANO			MEGACOAT HARD	CVD Coated Carbide
		PR1535	PR1525	PR1510	PR015S	CA6535								
GM GH	Carbon Steel	0.008-0.028-0.047	0.008-0.020-0.031	0.008-0.031-0.059	0.008-0.020-0.031	0.008-0.031-0.059	0.008-0.020-0.031	0.008-0.031-0.059	☆	★	-	-	-	
	Alloy Steel								390-590-820	330-520-720	-	-	-	
	Mold Steel	-40 HRC	0.008-0.012-0.020	0.008-0.010-0.012	0.008-0.012-0.024	0.008-0.010-0.012	0.009-0.012-0.024	0.008-0.010-0.012	0.008-0.012-0.024	☆	☆	-	GH ★	-
		40-50 HRC								260-460-590	260-460-590	-	GH ★	-
		50-55 HRC								-	☆	-	GH ★	-
		55-60 HRC								-	☆	-	GH ★	-
	0.0004-0.0024-0.0039 (Recommended only with GH chipbreaker)								-	-	-	GH ★	-	
	Austenitic Stainless Steel	-	-	-	-	-	-	-	GM ★	GM ☆	-	-	-	
	Martensitic Stainless Steel	0.008-0.020-0.035	0.008-0.016-0.024	0.008-0.024-0.047	0.008-0.016-0.024	0.008-0.024-0.047	0.008-0.016-0.024	0.008-0.024-0.047	☆	-	-	-	★	
	Precipitation Hardened Stainless Steel								490-660-820	-	-	-	590-790-980	
Gray Cast Iron	0.008-0.028-0.047	0.008-0.020-0.031	0.008-0.031-0.059	0.008-0.020-0.031	0.008-0.031-0.059	0.008-0.020-0.031	0.008-0.031-0.059	-	-	★	-	-		
Nodular Cast Iron								-	-	★	-	-		
Ni-base Heat-Resistant Alloy	0.008-0.012-0.024	0.008-0.010-0.016	0.008-0.016-0.031	0.008-0.010-0.016	0.008-0.016-0.031	0.008-0.010-0.016	0.008-0.016-0.031	☆	-	-	-	★		
Titanium Alloy								70-100-160	-	-	-	70-100-160		
								GM ★	-	GM ☆	-	-		
								130-200-260	-	100-160-230	-	-		

■ Standard Pitch End Mills ■ Fine Pitch End Mills ■ MFH Mini Face Mills ★: 1st Recommendation ☆: 2nd Recommendation

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
- The middle values are recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Machining with CAT30 or equivalent, feed rate should be reduced to 25% of recommended cutting conditions
- Internal coolant is recommended for slotting applications
- Slotting and pocketing are not recommended for face mill types

Approximate Programming Radius Adjustment

Shape	Cutter	Chipbreaker	Cutting Edge Angle γ (°)	Programmable R (in)	Maximum Over Machining of Radius (in)	Max. Non-machined Portion K (in)	Side Wall Max. Inclination Angle
	MFH...-03-...	GM / GH	12°	R0.063 (Recommended)	0	0.0154	90°
				R0.079	0.0035	0.0138	
				R0.098	0.0102	0.0102	
				R0.118	0.0181	0.0067	

Ramping

Inch Size Standard and Modular End Mills and Mini Face Mills

Holder	Cutter Dia. DCX	0.625"	0.750"	0.875"	1.000"	1.250"	1.500"	2.000"
MFH...-03-...	Max. Ramping Angle (°) RMPX	2.8°	1.7°	1.3°	1.2°	0.8°	0.5°	0.4°
	tan RMPX max	0.049	0.030	0.023	0.021	0.014	0.009	0.007

Metric Size Standard & Modular End Mills and Face Mills

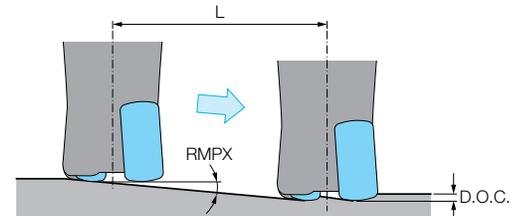
Holder	Cutter Dia. DCX	16mm	17mm	18mm	20mm	22mm	25mm	28mm	32mm	40mm	50mm
MFH...-03-...	Max. Ramping Angle (°)	2.8°	2.5°	2.1°	1.7°	1.4°	1.2°	1.0°	0.8°	0.5°	0.4°
	tan RMPX max	0.049	0.042	0.037	0.030	0.024	0.021	0.017	0.014	0.009	0.007

- Decrease ramping angle if chips become excessively long
- Recommended ramping angle is \leq RMPX (see chart above for recommended ramp angle)
- Reduce recommended feed rate by 70%

Multiple step slot milling is NOT recommended for MFH-Mini face mill diameters above $\varnothing 1.3"$ due to a danger of re-cutting chips

Formula for Max. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{D.O.C.}{\tan RMPX \max}$$

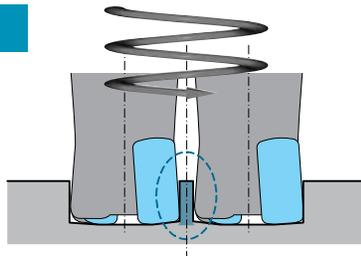


Helical Milling

- For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

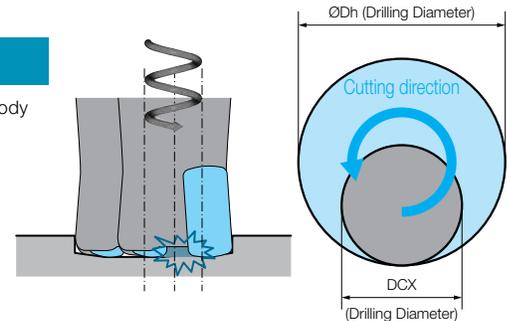
Exceeding Max. Machining Dia.

Center Core Remains



Under Min. Machining Dia.

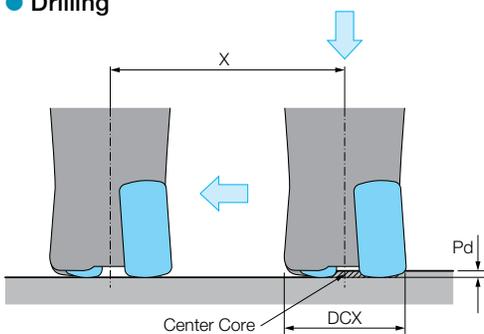
Center Core Hits Holder Body



Holder	Min. Drilling Dia.	Max. Drilling Dia.	Max. Ramping Depth per Cycle
MFH...-03-...	$2 \times DCX - 0.315"$	$2 \times DCX - 0.079"$	0.039"

- Keep machine depth per rotation less than max D.O.C. (0.039")
- Use climb milling. (Refer to detail on right)
- Feed rate should be reduced to 50% of recommended cutting condition (Page [M180](#))
- Use caution to eliminate incidences caused by producing long chips

Drilling

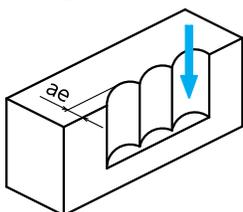


Holder	Max. Drilling Depth (Pd)	Min. Cutting Length (X) for Flat Bottom Surface
MFH...-03-...	0.039"	$DCX - 0.354"$

Plunging After Drilling

- It is recommended to reduce feed by 25% of recommendation on Page [M180](#) until Center Core is removed
- Axial feed rate recommendation per revolution is 0.008ipr while drilling

Plunging



Insert Description	Maximum Width of Cut (ae)
LOGU03...	0.138"

- Reduce feed rate to $f_z \leq 0.008$ ipt when plunging

(Cutter Dia. Ø0.375" ~ Ø0.625")
 (Cutter Dia. Ø8mm ~ Ø16mm)

MFH-RAPTOR MICRO

Durable Design Aids in Chatter Resistance
 Maximum D.O.C. 0.020". Stable High Feed Machining on a Wide Range of Applications

1 Stable Machining with Chattering Resistance

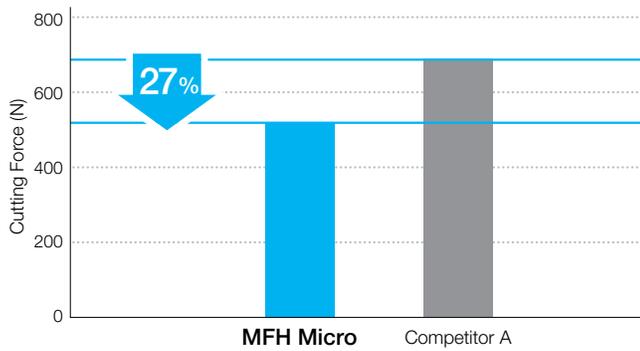
Molded Convex Cutting Edge Controls Initial Impact when Entering the Workpiece

Molded Convex Cutting Edge

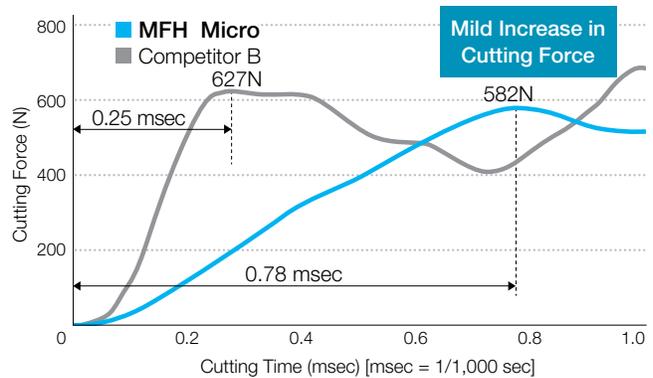


High Precision G Class Insert

Cutting Force Comparison (In-house Evaluation)



Increase in Cutting Force when Entering Work Piece (In-house Evaluation)



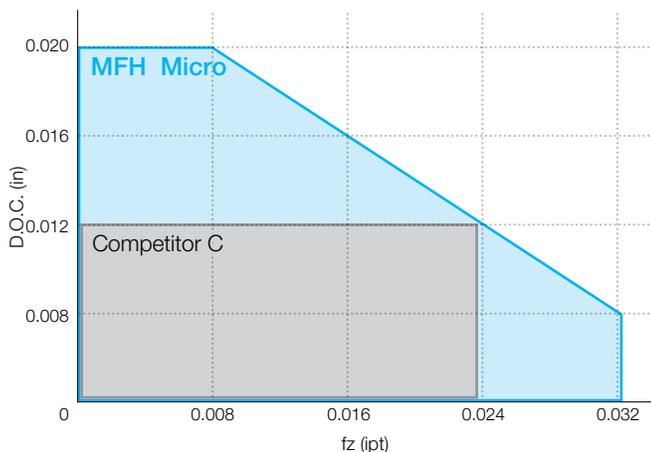
Cutting Conditions: $V_c = 390$ sfm, $f_z = 0.024$ ipt, D.O.C. = 0.016"
 Cutter Dia. Ø0.375", Slotting, Dry Workpiece: 1049

Cutting Conditions: $V_c = 390$ sfm, $f_z = 0.024$ ipt, D.O.C. $\times a_e = 0.016" \times 0.197"$
 Cutter Dia. Ø0.375", Dry Workpiece: 1049

2 Wide Range of Machining Applications

Wide Range of Machining Applications at a Maximum Depth of Cut of 0.020"
 Stable Machining Even with Small Machining Centers

Cutting Performance Map (Cutter Dia. Ø0.375")



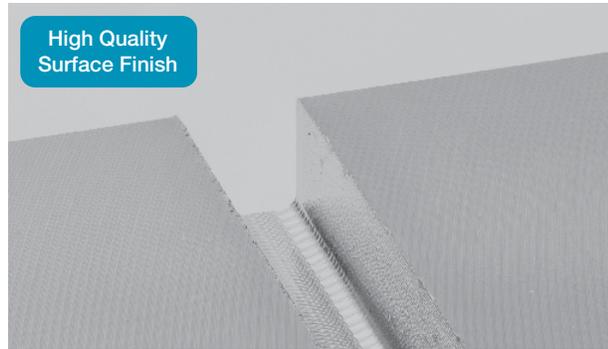
(In-house Evaluation)

M
MILLING

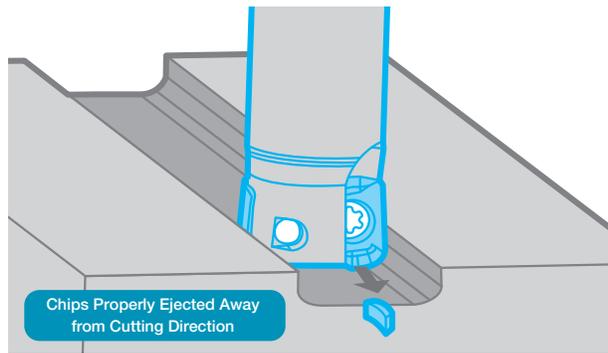
3 Good Chip Evacuation

Controls Chip Biting with Convex Cutting Edge

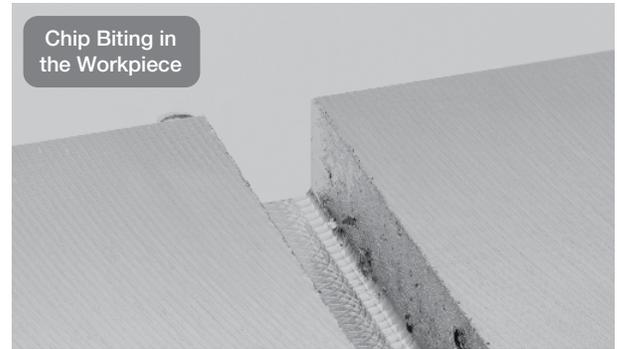
MFH Micro



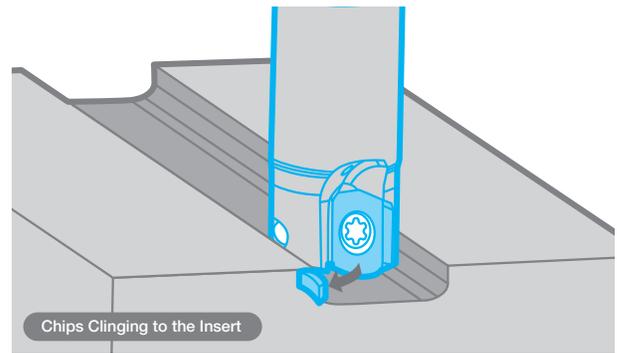
Good Chip Evacuation



Competitor F



Poor Chip Evacuation



Cutting Conditions: Cutter Dia. $D_c = \varnothing 0.375"$, $V_c = 390$ sfm, $f_z = 0.024$ ipt, D.O.C. = $0.016"$ (25 Passes) Total $0.394"$, Dry Workpiece: Structural Steel

(Internal Evaluation)

4 Replaces Solid End Mills to Reduce Machining Costs

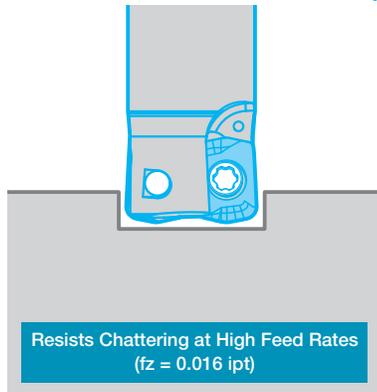
Suppresses Chattering and Increases Milling Efficiency

MFH Micro Compared to Solid End Mills

MFH Micro $Q = 0.93\text{in}^3/\text{min}$

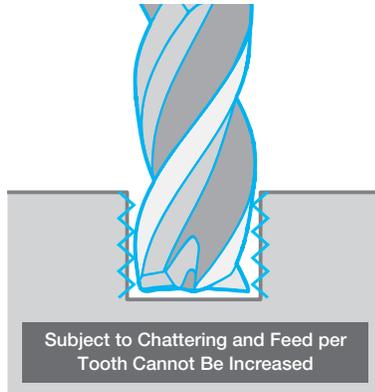
$V_c = 490$ sfm, $f_z = 0.016$ ipt
D.O.C. $\times a_e = 0.016" \times 0.394"$, Dry
MFH10-S10-01-2T (2 Inserts)
LPGT010210ER-GM (PR1525)

1.2x
Machining Efficiency



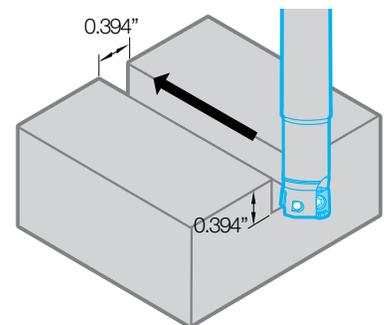
Solid End Mill $Q = 0.74\text{in}^3/\text{min}$

$V_c = 260$ sfm, $f_z = 0.002$ ipt
D.O.C. $\times a_e = 0.012" \times 0.394"$, Dry
 $\varnothing 10\text{mm}$ (4 Flute)



Mechanical Parts Slotting

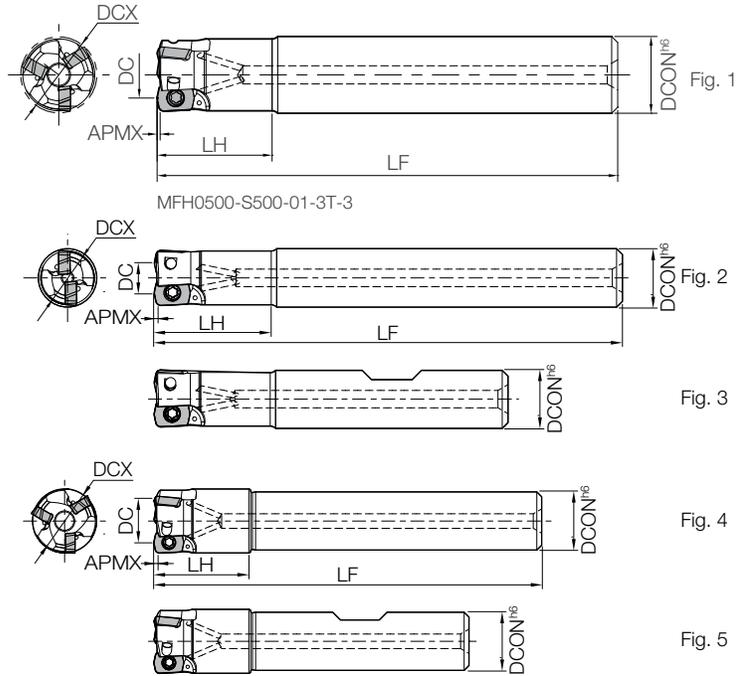
Workpiece: 1049



(User Evaluation)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFH Micro End Mill



Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)							Max. Ramping Angle	Rake Angle (°)	Coolant Hole	Drawing	Weight (kg)	Max RPM
			DCX	DC	DCON	LF	LH	APMX	RMPX						
Standard Shank (Cylindrical)	MFH 0375-S375-01-1T-3	●	1	0.375	0.225	0.375	3.000	0.750	0.020	3.0°	+5°	Yes	Fig. 1	0.04	16,200
	NEW 0394-S375-01-2T-3	●	2	10mm	0.244	0.375	3.000	0.750	0.020	3.0°				0.04	16,200
	0500-S500-01-3T-3	●	3	0.500	0.350	0.500	3.000	0.750	0.020	2.0°				0.07	14,000
	NEW 0500-S500-01-3T-5	●	3	0.500	0.350	0.500	5.000	0.750	0.020	2.0°				0.04	16,200
	0625-S625-01-4T35	●	4	0.625	0.475	0.625	3.500	1.000	0.020	1.2°				0.12	11,400

Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)							Max. Ramping Angle	Rake Angle (°)	Coolant Hole	Drawing	Weight (kg)	Max RPM
			DCX	DC	DCON	LF	LH	APMX	RMPX						
Standard Shank (Cylindrical)	MFH 08-S10-01-1T	●	1	8	4.2	10	75	16	0.5	4.0°	5°	Yes	Fig. 2	0.04	20,000
	10-S10-01-2T	●	2	10	6.2	10	80	20	0.5	3.0°				0.04	16,200
	12-S12-01-3T	●	3	12	8.2	12	80	20	0.5	2.0°				0.06	14,000
	16-S16-01-4T	●	4	16	12.2	16	90	25	0.5	1.2°				0.12	11,400
Oversize Shank (Cylindrical)	MFH 14-S12-01-3T	●	3	14	10.2	12	80	20	0.5	1.5°	5°	Yes	Fig. 4	0.07	12,500
Standard Shank (Weldon)	MFH 08-W10-01-1T	●	1	8	4.2	10	58	16	0.5	4.0°	5°	Yes	Fig. 3	0.03	20,000
	10-W10-01-2T	●	2	10	6.2	10	60	20	0.5	3.0°				0.03	16,200
	12-W12-01-3T	●	3	12	8.2	12	65	20	0.5	2.0°				0.05	14,000
	16-W16-01-4T	●	4	16	12.2	16	73	25	0.5	1.2°				0.10	11,400
Oversize (Weldon)	MFH 14-W12-01-3T	●	3	14	10.2	12	65	20	0.5	1.5°	5°	Yes	Fig. 5	0.05	12,500

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts			Applicable Inserts ➔ M16, M185
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-01-...	SB-1840TRP	FTP-6	P-37	LPGT010210ER-GM

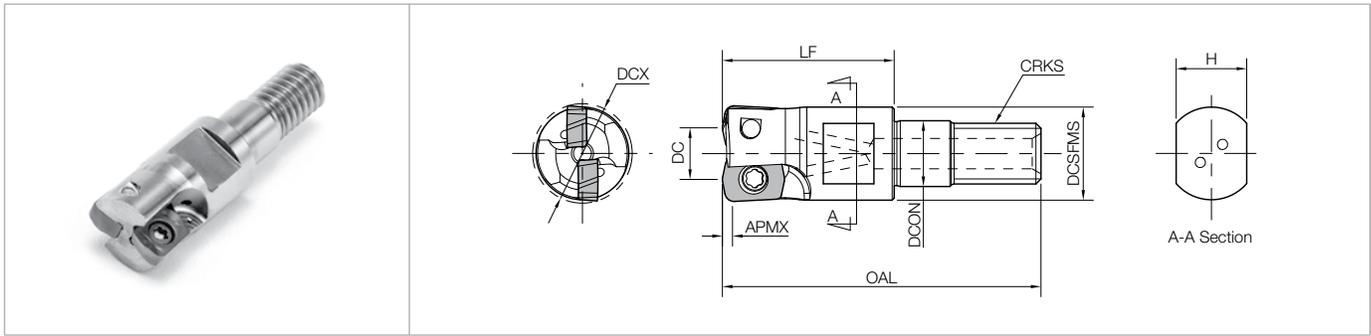
Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

➔ Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ➔ M186

MFH Micro Modular End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions									Max. Ramping Angle	Rake Angle (°)	Coolant Hole	Max RPM
				DCX	DC	DCSFMS	DCON	OAL	LF	CRKS (mm)	H	APMX					RMPX	A.R.
MFH 0500-M06-01-3T	●	inch	3	0.500	0.350	0.441	0.256	1.240	0.669	M6xP1.0	0.276	0.020	2°	+5°	Yes	14,000
0625-M08-01-4T	●		4	0.625	0.475	0.579	0.335	1.575	0.866	M8xP1.25	0.472		1.2°			11,400
MFH 08-M06-01-1T	●	mm	1	8	4.2	9.2	6.5	31.5	17	M6xP1.0	7	0.5	4°	Yes	20,000	
10-M06-01-2T	●		2	10	6.2								3°		16,200	
12-M06-01-3T	●		3	12	8.2	11.2	2°	14,000								
14-M06-01-3T	●		3	14	10.2		1.5°	12,500								
16-M08-01-4T	●	4	16	12.2	14.7	8.5	40	22	M8xP1.25	12	1.2°	11,400				

Additional Ramping Information [M187](#)

Spare Parts and Applicable Inserts

Part Number	Spare Parts			Applicable Inserts M16 , M185
	Clamp Screw	Wrench	Anti-Seize Compound	
MFH...-01-...	SB-1840TRP	FTP-6	P-37	LPGT010210ER-GM

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions [M186](#)

Actual End Mill Depth (MFH16-M080-01-4T)

	Arbor Part Number	Applicable End Mill		Actual End Mill Depth (mm)	
		Part Number	Cutting Dia. (mm)		Dimension (mm)
			DC	LF	LUX
	BT30K-M08-45	MFH16-M08-01...	Ø16	22	28.8
	BT40K-M08-55	MFH16-M08-01...	Ø16	22	28.7

Applicable Inserts [M13](#)

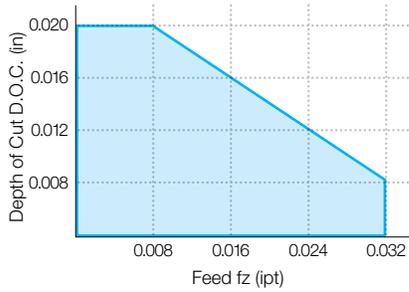
Insert	Part Number	Dimension (in)					MEGACOAT NANO		CVD
		W1	S	D1	INSL	RE	PR1535	PR1525	CA6535
 General Purpose	LPGT010210ER-GM	0.165	0.086	0.083	0.247	0.039	●	●	●

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

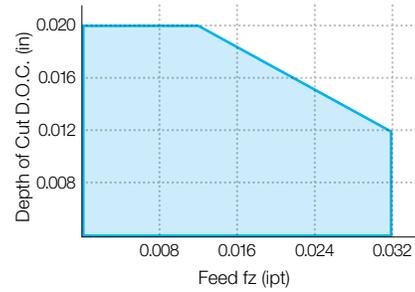
MFH-RAPTOR MICRO

● MFH Micro Cutting Performance

Cutter Dia: Ø0.375" ~ Ø0.500"
Cutter Dia: Ø8mm ~ Ø12mm



Cutter Dia: Ø0.625"
Cutter Dia: Ø14mm ~ Ø16mm



◆ Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Holder Description and Feed Rate (fz: ipt) *Recommended D.O.C. = 0.012" Reference Value					Recommended Insert Grade (Vc: sfm)		
		MFH08....-1T	MFH0375....-1T-3 MFH0394....-2T-3 MFH10....-2T	MFH0500....-3T... MFH12....-3T	MFH14....-3T	MFH0625....-4T(35) MFH16....-4T	MEGACOAT NANO		CVD
							PR1535	PR1525	CA6535
GM	Carbon Steel	0.008- 0.016 -0.024			0.008- 0.020 -0.031		☆ 390- 590 -820	★ 390- 590 -820	-
	Alloy Steel	0.008- 0.016 -0.024			0.008- 0.020 -0.031		☆ 330- 520 -720	★ 330- 520 -720	-
	Mold Steel (~40 HRC)	0.008- 0.012 -0.020			0.008- 0.016 -0.024		☆ 260- 460 -590	★ 260- 460 -590	-
	Mold Steel (40~50 HRC)	0.008- 0.010 -0.012			0.008- 0.010 -0.016		☆ 200- 330 -430	★ 200- 330 -430	-
	Austenitic Stainless Steel	0.008- 0.012 -0.020			0.008- 0.016 -0.024		★ 330- 520 -660	☆ 330- 520 -660	-
	Martensitic Stainless Steel	0.008- 0.012 -0.020			0.008- 0.016 -0.024		☆ 490- 660 -820	-	★ 590- 790 -980
	Precipitation Hardened Stainless Steel	0.008- 0.012 -0.020			0.008- 0.016 -0.024		★ 300- 390 -490	-	-
	Gray Cast Iron	0.008- 0.016 -0.024			0.008- 0.020 -0.031		-	★ 390- 590 -820	-
	Nodular Cast Iron	0.008- 0.012 -0.020			0.008- 0.016 -0.024		-	★ 330- 490 -660	-
	Ni-base Heat Resistant Alloy	0.008- 0.010 -0.012			0.008- 0.010 -0.016		☆ 70- 100 -160	-	★ 70- 100 -160
	Titanium Alloy	0.008- 0.010 -0.012			0.008- 0.010 -0.016		★ 130- 200 -260	-	-

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy
 - The number in bold font is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
 - Internal coolant is recommended for slotting applications
- ★: 1st Recommendation ☆: 2nd Recommendation

● Approximate Programming Radius Adjustment

Drawing	Programmable R (in)	Maximum Over Machining of Radius (in)	Over Machined Radius Portion (in)	Maximum Unmachined Portion (in)
	0.039	0	0	0.0083
	0.047 (Recommended)	0	0	0.0067
	0.059	0.0032	0.0032	0.0039
	0.079	0.0110	0.0110	0.0004

Cutting Edge Angle: 12°

Ramping

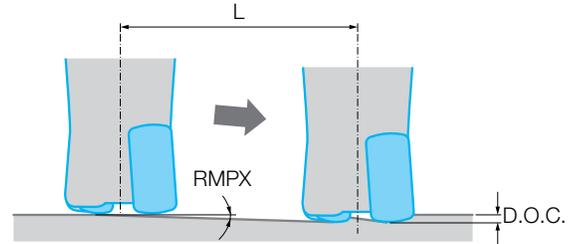
Holder	Cutter Dia. DCX	0.375"	0.500"	0.625"	8mm	10mm	12mm	14mm	16mm
MFH...-01-...	Max. Ramping Angle RMPX	3.0°	2.0°	1.2°	4.0°	3.0°	2.0°	1.5°	1.2°
	tan RMPX max	0.052	0.035	0.021	0.070	0.052	0.035	0.026	0.021

Decrease Ramping Angle if Chips Become Excessively Long

- Recommended ramping angle is \leq RMPX (see chart above for recommended ramp angle)
- Reduce recommended feed rate by 70%

Formula for Max. Cutting Length (L) at Max. Ramping Angle

$$L = \frac{D.O.C.}{\tan RMPX \max}$$

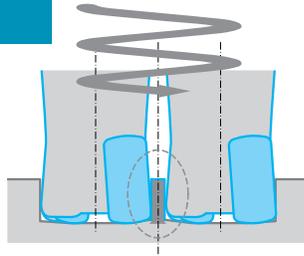


Helical Milling

- For Helical milling, use between Min. Drilling Dia. and Max. Drilling Dia.

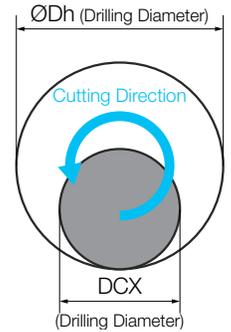
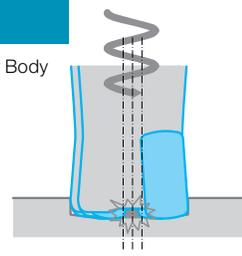
Exceeding Max. Machining Dia.

Center Core Remains



Under Min. Machining Dia.

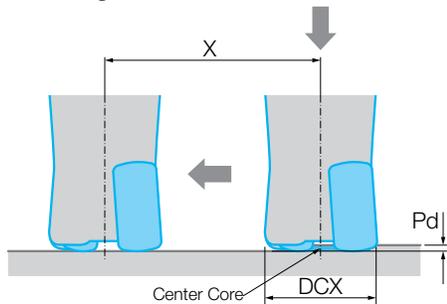
Center Core Hits Holder Body



Holder	Min. Drilling Dia.	Max. Drilling Dia.	Max. Ramping Depth per Cycle
MFH...-01-...	2xDCX-0.138"	2xDCX-0.079"	0.020"

- Keep machine depth per rotation less than max D.O.C. (0.020")
- Use climb milling. (Refer to detail on right)
- Feed rate should be reduced to 50% of recommended cutting condition (Page [M186](#))
- Use caution to eliminate incidences caused by producing long chips

Drilling

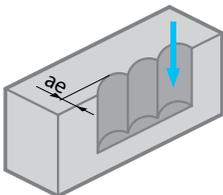


Holder	Min. Drilling Depth (Pd)	Min. Cutting Length X for Flat Bottom Surface
MFH...-01-...	0.020"	DCX-0.138"

Plunging After Drilling

- It is recommended to reduce feed by 25% of recommendation on Page [M186](#) until Center Core is removed
- Axial feed rate recommendation per revolution is 0.008ipr while drilling

Plunging



Insert Description	Maximum Width of Cut (ae)
LPGT01...	0.067"

- Reduce feed rate to $fz \leq 0.008$ ipr when plunging

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MFF

High-Precision Cutter for Finishing Applications

Cutter Body Design Provides Excellent Reliability
Molded Wiper Inserts Increase Machining Efficiency

1 Innovative Solutions for Finish Machining

Designed with a unique insert combination of semi-finishing and finishing, the MFF drastically improves productivity by reducing finish quality issues.



Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications
M MILLING

SOLUTION

- Increase feed to $f = 0.197$ ipt
- Achieved $0.8 \mu\text{m}$ Ra surface finish
- No grinding required
- Achieved $5 \mu\text{m}$ flatness

The above is the result of a field test. Actual results will depend on machining environment, workpiece rigidity, machine, etc. For more details, see case studies on page 4 and 5.

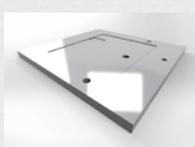
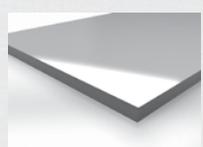
Finishing Insert
Provides excellent surface finish
Adjustable cutting edge and a single insert eliminates runout

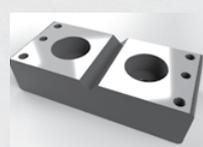
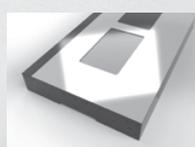
MFF

Machining Solutions

Can be used on a wide variety of parts and workpieces

Parts	Workpieces	Industries
Plate / Frame / Case Cylinder Pump / Rail Turbine Housing Casing / Mold Base	S5400 / NO.45 / 80-60-03 Cast Iron Mold Steel Carburized and Hardened Steel (60 HRC)	Industrial Machining Machine Tools Shipbuilding / Automotive Construction Machinery Molds

2 Molded Wiper Insert for High-Quality Surface Finish

Utilizes Kyocera's unique molded insert technology for high feed rates and excellent surface finish



Low cutting force with special edge preparation

Micro-honing
Good sharpness

Wiper edge

Large S-curve shape developed for higher feed rates

Edge Temperature Simulation Comparison (Internal Evaluation)

MFF

Conventional Tool After 2 sec machining

MEGACOAT NANO Cermet PV60M

For high-speed machining
Recommended $V_c = \sim 1,150$ sfm

High-quality surface finish

Molded TT Chipbreaker

Reduces chip clogging
High feed machining

Comprehensive Machining Solutions From Roughing to Finish Machining Improvements (Internal Evaluation)

Combine with Kyocera's MFH high feed cutter to improve quality and efficiency

General Use Cutter

MFH Harrier + **MFF**

High Feed Cutter

Conventional

SOLUTION

4 sec tool change included

125 sec

37 sec

70% DOWN

Cutting Time

Cutting Conditions
Conventional Ø200mm (6 flute)
 $V_c = 660$ sfm
Roughing : $V_f = 11.26$ ipm ($f_z = 0.006$ ipt), D.O.C. = 0.047"
Finishing : $V_f = 9.06$ ipm ($f_z = 0.005$ ipt), D.O.C. = 0.012"

SOLUTION
Roughing: MFH-RAPTOR Ø63mm (6 flute)
 $V_c = 660$ sfm
 $V_f = 287.40$ ipm ($f_z = 0.047$ ipt), D.O.C. = 0.028"
Finishing: MFF Ø200mm (2 flute)
 $V_c = 980$ sfm
 $V_f = 94.49$ ipm ($f = 0.197$ ipt), D.O.C. = 0.004"

Surface Finish Quality after Machining

The MFF SOLUTION

Excellent Surface Finish (0.27 μ m Ra)

Conventional Machining

Cloudy Surface Finish (1.01 μ m Ra)

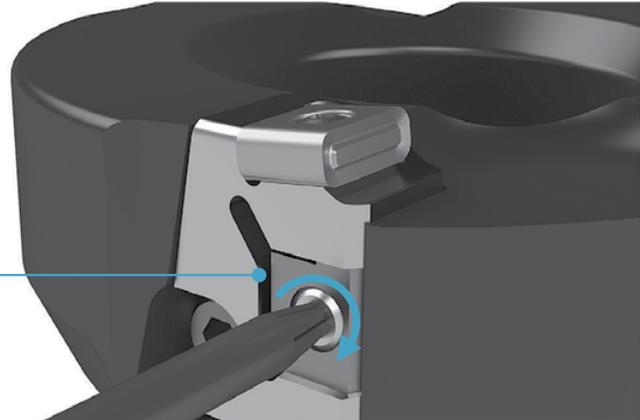
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KYOCERA M189

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

3 Adjustable Cutting Edge Height for Increased Usability

Cartridge height comes pre-adjusted and adjustment should not be necessary.
Adjustment is not required after replacing insert.



Easy-to-adjust Cutting Edge Height

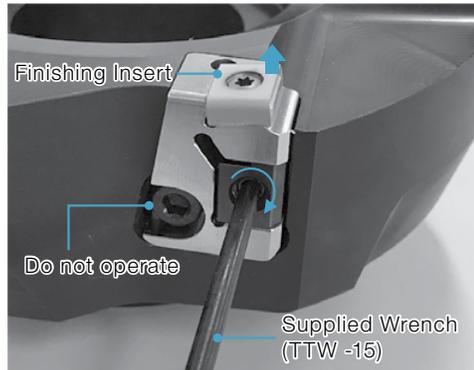
Cutting edge height can be adjusted easily with one screw

Included adjustment wrench

Edge Adjustment

If D.O.C. is 0.004" ~ 0.008" (0.1mm ~ 0.2mm), no adjustment is necessary (Pre-adjusted before holder is shipped).
Cutting edge adjustment is NOT required when replacing inserts.

If D.O.C. is less than 0.004" (0.1mm) or if you prefer a different edge height, use the following method:



Adjusting the Cutting Edge

Use the supplied TTW-15 wrench to rotate the screw and easily adjust the cutting edge position.

Procedure

To adjust, start with the screw turned counterclockwise about two rotations (lowering the cutting edge). Tighten the screw clockwise (raising the cutting edge) to adjust the amount of protrusion.
*Use a dial gauge to measure protrusion amount.

Precautions:

Make sure to lower the cutting edge below the desired height first (turning screw counterclockwise) and then raise the edge up to the final height (turning screw clockwise). If cutting edge is simply lowered to the final edge height, chattering or loosening of the screw may occur due to backlash. Make sure the measurement position of the cutting edge is the same machining diameter.

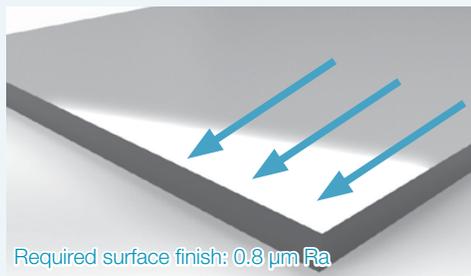
Standard Cutting Edge Height

D.O.C. = 0.0020" => protrusion against rough edge: 0.0012"
ap = 0.0039" ~ => protrusion against rough edge : 0.0024" *Pre-adjusted before shipment

Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

SOLUTION 1 1.7 times increase in efficiency at $f = 0.197$ ipt with a $0.8 \mu\text{m Ra}$ surface finish

Plate (SS400)



SOLUTION MFF
Ø200mm 2 flute



1.7 times Machining Efficiency

$V_f = 8,530$ sfm

$V_c = 1,080$ sfm, $f = 0.169$ ipt, D.O.C. = $0.004''$, Dry



Conventional
Competitor A
Ø200mm 2 flute

$V_f = 4,920$ sfm

$V_c = 720$ sfm, $f = 0.169$ ipt, D.O.C. = $0.004''$, Dry

The conventional cutter was not able to feed faster than $f = 0.169$ ipt as surface finish deteriorated. The MFF showed good surface finish of $0.8 \mu\text{m Ra}$ or less even at $f = 0.197$ ipt. Increasing the cutting speed increased machining efficiency by 1.7 times.

INSERT GRADES **A**

TURNING INSERTS **B**

GEN/PCD INSERTS **C**

TURNING HOLDERS **D**

SOLUTION 2 Surface finish $0.5 \mu\text{m Ra}$. No grinding required (Fewer Processes)

Valve (65-45-12)



SOLUTION MFF
Ø160mm 2 flute



No grinding required

127 sec

$V_c = 980$ sfm, $V_f = 9.84$ ipm ($f = 0.016$ ipt) D.O.C. = $0.004''$, Wet



Conventional
Competitor B
Ø200mm 10 flute

Machining **32 sec** + Grinding **10 min**

$V_c = 980$ sfm, $V_f = 31.50$ ipm ($f = 0.063$ ipt) D.O.C. = $0.004''$, Wet

Conventional cutter showed cloudy finished surface, MFF provided $0.5 \mu\text{m Ra}$ with a glossy finish. Reduced grinding process and cycle time by 80%.

SMALL TOOLS **E**

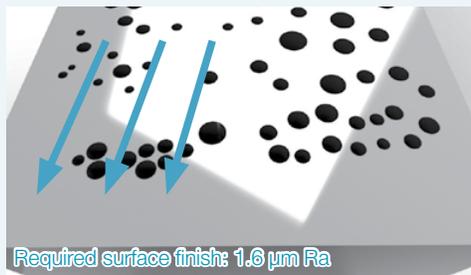
BORING **F**

GROOVING **G**

CUT-OFF **H**

SOLUTION 3 Improved flatness and machining efficiency tripled in interrupted mold steel

Mold (H13 Equivalent)



SOLUTION MFF
Ø200mm 2 flute



Machining Efficiency x 3

$V_f = 14.96$ ipm 6 Pass

$V_c = 390$ sfm, $f = 0.079$ ipt, D.O.C. = $0.002''$, Dry



Conventional
Competitor C
Ø125mm 5 flute

$V_f = 8.27$ ipm 10 Pass

$V_c = 390$ sfm, $f = 0.026$ ipt, D.O.C. = $0.002''$, Dry

The MFF left a good finished surface with no gaps among tool path seams. Larger cutter diameter reduced the number of passes to six and improved productivity. Desirable chip shape and size were achieved.

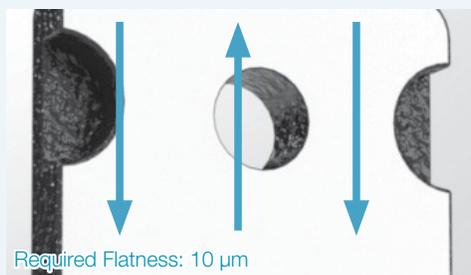
THREADING **J**

DRILLING **K**

MILLING **M**

SOLUTION 4 Flatness of $5 \mu\text{m}$ was achieved. Showed good surface finish with reduced chattering on the thin part

Case (NO.45)



SOLUTION MFF
Ø100mm 2 flute



Machining Quality Improvement

Reduced Chattering and Good Finish

$V_c = 1,080$ sfm, $V_f = 62.99$ ipm ($f = 0.059$ ipt) D.O.C. = $0.004''$, Dry



Conventional
Competitor D
Ø100mm 8 flute (CBN)

Chattering occurred in thin wall

$V_c = 3,940$ sfm, $V_f = 96.46$ ipm ($f = 0.025$ ipt) D.O.C. = $0.004''$, Dry

Conventional cutter needed adjustment due to chattering on the thin portion. MFF prevented chattering. Finished surface is good and there is no gap in the tool path seams. Flatness of $5 \mu\text{m}$ achieved.

QUICK CHANGE TOOLING **N**

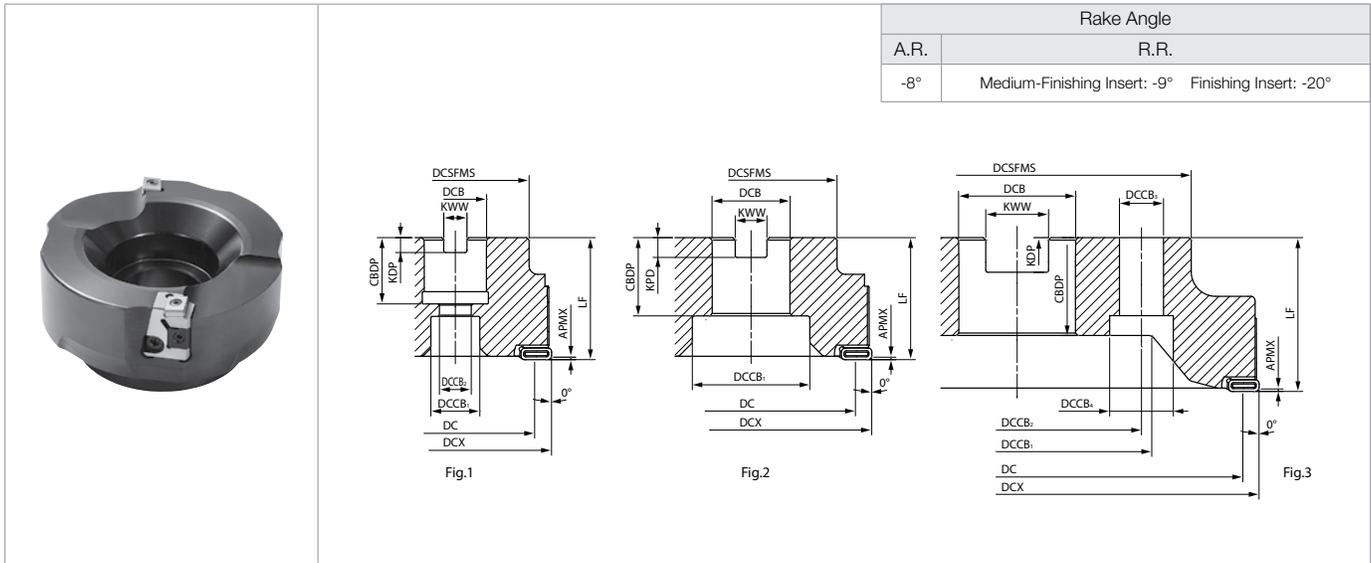
SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

MFF FINISH MILLING

MFF Face Mill NEW



Rake Angle	
A.R.	R.R.
-8°	Medium-Finishing Insert: -9° Finishing Insert: -20°

● Toolholder Dimensions (Metric Size)

Inserts	Part Number	Stock	No. of Inserts	Dimensions (mm)											Coolant Hole	Drawing	Weight (kg)	Max RPM		
				DCX	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	DCCB ₃	DCCB ₄	LF	CBDP	KDP					KWW	APMX
45°~70° Lead Angle	MFF 080R-SF	●	2	80	67.3	60	1.000"	20	13	-	-	50	1.063"	0.236"	0.375"	0.3	No	Fig.1	1.3	2,000
75° Lead Angle	100R-SF	●		100	87.3	70	1.250"	48	-	-	-	50	1.260"	0.315"	0.500"				1.8	1,600
90°/88° Lead Angle	125R-SF	●		125	112.3	87	1.500"	58	-	-	-	63	1.496"	0.394"	0.625"			Fig.2	3.5	1,300
High Feed Milling	160R-SF	●		160	147.3	102	2.000"	72	-	-	-	63	1.496"	0.433"	0.750"				5.9	1,000
Finish Milling	200R-SF	●		200	187.3	142	1.875"	110	101.6	26	18	63	1.575"	0.551"	1.000"			Fig.3	8.1	800
Multi-Function	250R-SF	●		250	237.3	142	1.875"	110	101.6	26	18	63	1.575"	0.551"	1.000"				10.8*	800
Slot Mill	MFF 080R-M-SF	●	2	80	67.3	60	27	20	13	-	-	50	24	7	12.4	0.3	No	Fig.1	1.3	2,000
Ball-Nose Radius	100R-M-SF	●		100	87.3	70	32	48	-	-	-	50	32	8	14.4				Fig.2	1.8	1,600
Other Applications	125R-M-SF	●		125	112.3	87	40	55	-	-	-	63	33	9	16.4			Fig.3		3.5
	160R-M-SF	●		160	147.3	102	40	72	-	-	-	63	33	9	16.4				5.9	1,000
	200R-M-SF	●		200	187.3	142	60	110	101.6	26	18	63	40	14	25.7			Fig.3	7.7	800
	250R-M-SF	●		250	237.3	142	60	110	101.6	26	18	63	40	14	25.7				10.5*	800

*Ø250mm sizes have holes for lighter weight.

Caution with Max. Revolution

Set the number of revolutions per minute within the recommended cutting speed specified by the workpiece on back cover. Do not use the end mill or cutter at the maximum revolution or higher since the centrifugal force may cause chips and parts to scatter even under no load.

Surface Finish
The surface will be finished flat within the range of DC shown on the right.

● Spare Parts

Spare Parts							
Clamp Screw	Wrench	Wedge	Cartridge	Cartridge Clamp Screw	Wrench	Adjustment Screw	Anti-seize Compound
SB-3592TR	DTM-10	AD-MFF	CR-MFF	HH5X15L	TTW-15	W6X18N	P-37
Tightening Torque for Insert Screw 1.2 Nm							

● Applicable Inserts (☞ M15)

Insert	Part Number	Dimension (mm)					MEGACOAT NANO Cermet	MEGACOAT NANO
		IC	S	D1	INSL	RE	PV60M	PR1525
 Steel and Stainless Steel (Low Cutting Force)	LNGX 120916R-TT	3/8	1/4	0.165	1/2	1/16	●	●
 Cast Iron	LNGX 120916	3/8	1/4	0.165	1/2	1/16	●	●

◆ Recommended Cutting Conditions

Chipbreaker	Workpiece	f (ipt)	D.O.C. (in)	Recommended Insert Grade (Cutting Speed Vc: sfm)	
				PV60M	PR1525
TT	Structural Steel	0.059 - 0.158 - 0.197	0.001 - 0.004 - 0.012	★ 750 - 920 - 1,150	☆ 750 - 920 - 1,150
	Carbon Steel	0.039 - 0.158 - 0.197		★ 660 - 820 - 1,150	☆ 660 - 820 - 1,150
	Alloy Steel	0.039 - 0.158 - 0.197		★ 660 - 820 - 1,150	☆ 660 - 820 - 1,150
	Mold Steel	0.039 - 0.079 - 0.158	0.001 - 0.004 - 0.008	☆ 390 - 660 - 820	★ 390 - 660 - 820
	Mold Steel (50 HRC~)	0.024 - 0.039 - 0.047	0.001 - 0.002 - 0.004	-	★ 160 - 230 - 260
	Austenitic Stainless Steel *	0.039 - 0.079 - 0.158	0.001 - 0.004 - 0.008	☆ 390 - 660 - 820	★ 390 - 660 - 820
	Martensitic Stainless steel *	0.039 - 0.118 - 0.158		☆ 490 - 660 - 980	★ 490 - 660 - 980
Standard	Gray Cast Iron	0.039 - 0.079 - 0.158	0.001 - 0.004 - 0.012	☆ 660 - 820 - 1,150	★ 660 - 820 - 1,150
	Nodular Cast Iron	0.059 - 0.079 - 0.158		☆ 490 - 820 - 980	★ 490 - 820 - 980

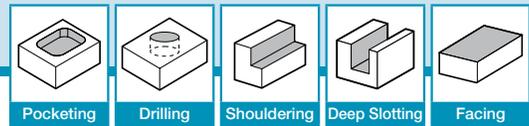
*Machining with coolant is recommended for stainless steel

The number in **bold** is recommended starting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

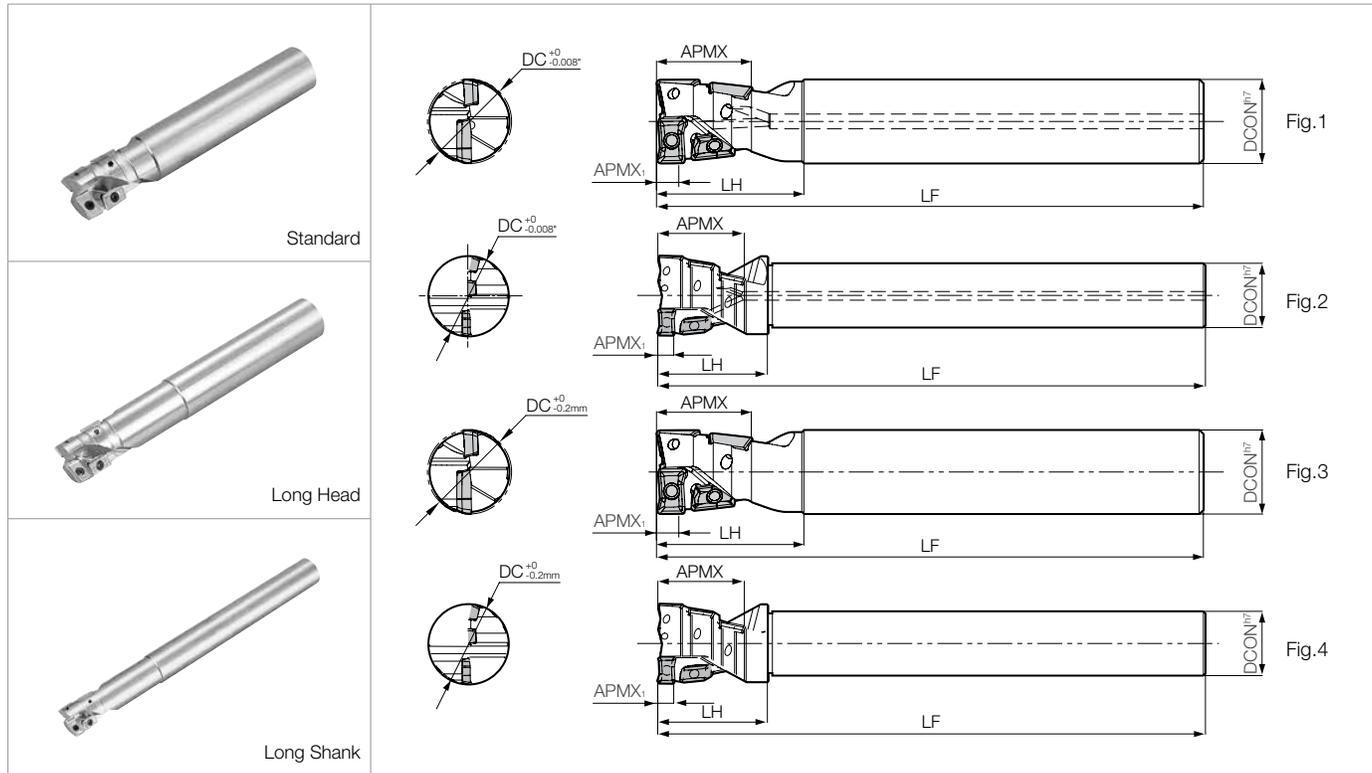
★: 1st Recommendation ☆: 2nd Recommendation

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

MEY MULTI-FUNCTION END MILL



MEY End Mill



Toolholder Dimensions

Inserts	Part Number	Stock	Unit	No. of Inserts	No. of Flutes	Dimensions						Rake Angle (°)		Coolant Hole	Drawing	Spare Parts								
						DC	DCON	LF	LH	APMX	APMX ₁	A.R.	R.R.			Clamp Screw	Wrench	Anti-seize Compound						
45°~70° Lead Angle	MEY 0625-S625-HG	●	inch	4	2	0.625	0.625	4.699	1.195	0.748	0.177	+11°	-11°	Yes	Fig.1	SB-2040TRG	DTM-6	P-37						
75° Lead Angle	0750-S750-HG	●				0.750	0.750	5.091	1.350	0.866	0.236		-9°											
90°/88° Lead Angle	1000-S100-HG	●				1.000	1.000	5.486	1.549	1.102	0.295		-11°											
High Feed Milling	1250-S125-HG	●				1.250	5.858	1.921	1.417	0.374		+13°	-9°											
Finish Milling	1500-S125-HG	●				1.500	6.260	2.126	1.654	0.295		-11°												
Multi-Function	2000-S150-HG	●				1.984	1.500	6.649	2.712	2.126	0.374		-9°											
Slot Mill	MEY 16-S16	●	mm	4	2	16	16	120	31	19	4.5	+11°	-11°	No	Fig.3	SB-2040TRG	DTM-6	P-37						
Ball-Nose Radius	17-S16	●				17																		
Other Applications	20-S20	●				20	20	130	35	22	6.0	+13°	-9°											
	21-S20	●				21																		
	25-S25	●				25	25	140	40	28	7.5	+13°	-11°											
	26-S25	●				26																		
	32-S32	●				32	32	150	50	36	9.5	+13°	-9°											
	33-S32	●				33																		
	40-S32	●				40	32	160	55	42	7.5	+13°	-11°											
	50-S42	●				50	42	170	70	54	9.5	+13°	-9°											
	MEY 16-S16-140H	●				mm	4	2	16	16	140	51	19			4.5	+11°		-11°	No	Fig.3	SB-2040TRG	DTM-6	P-37
	20-S20-150H	●							20	20	150	53	22			6.0			-9°					
	25-S25-170H	●							25	25	170	70	28			7.5	+13°		-11°					
	32-S32-180H	●							32	32	180	80	36			9.5			-9°					
	MEY 16-S16-190	●	mm	4	2				16	16	190	61	19	4.5	+11°	-11°	No	Fig.3	SB-2040TRG			DTM-6	P-37	
	17-S16-190	●							17															
	20-S20-200	●				20	20	200	63	22	6.0	+13°	-9°											
	21-S20-200	●				21			35															
	25-S25-220	●				25	25	220	80	28	7.5	+13°	-11°											
	26-S25-220	●				26			40															
	32-S32-230	●				32	32	230	90	36	9.5	+13°	-9°											
	33-S32-230	●				33			50															
	40-S32-240	●				40	32	240	55	42	7.5	+13°	-11°											
	50-S42-250	●				50	42	250	70	54	9.5	+13°	-9°											

APMX₁ shows the edge length of the complete 2-insert part.

Applicable Inserts **M195**

Coat Anti-seize Compound (P-37) thinly on portion of taper and thread when insert is fixed

MEY MULTI-FUNCTION END MILL

● Applicable Inserts

Part Number	Applicable Inserts M23			
		No. of Inserts		No. of Inserts
	Side Edge Insert		Side Edge Insert	
MEY 0625-S625-HG	JOMT08T208ER-D	3	GOMT08T208ER-D	1
0750-S750-HG	JOMT100308ER-D		GOMT100308ER-D	
1000-S100-HG	JOMT13T308ER-D		GOMT13T308ER-D	
1250-S125-HG	JOMT160408ER-D		GOMT160408ER-D	
1500-S125-HG	JOMT13T308ER-D	6	GOMT13T308ER-D	
2000-S150-HG	JOMT160408ER-D		GOMT160408ER-D	
MEY 16-S16(-...)	JOMT08T208ER-D	3	GOMT08T208ER-D	1
17-S16(-...)	JOMT100308ER-D		GOMT100308ER-D	
20-S20(-...)	JOMT100308ER-D		GOMT100308ER-D	
21-S20(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
25-S25(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
26-S25(-...)	JOMT160408ER-D		GOMT160408ER-D	
32-S32(-...)	JOMT160408ER-D		GOMT160408ER-D	
33-S32(-...)	JOMT13T308ER-D		GOMT13T308ER-D	
40-S32(-...)	JOMT13T308ER-D	6	GOMT13T308ER-D	
50-S42(-...)	JOMT160408ER-D		GOMT160408ER-D	

◆ Recommended Cutting Conditions

Workpiece Material	fz (ipt)		Recommended Insert Grade (Vc: sfm)		
	Drilling	Shouldering Slotting	MEGACOAT		PVD Coated Carbide
			PR1225	PR1210	PR830
Carbon Steel	0.003-0.006	0.002-0.010	★ 390-820	-	☆ 390-660
Alloy Steel	0.003-0.006	0.002-0.010	★ 330-720	-	☆ 330-590
Mold Steel	0.003-0.005	0.002-0.006	★ 260-590	-	☆ 260-490
Stainless Steel	0.003-0.005	0.002-0.006	★ 390-720	-	☆ 330-590
Cast Iron	0.002-0.008	0.002-0.010	-	★ 330-720	-

★: 1st Recommendation ☆: 2nd Recommendation

● Drilling Precautions

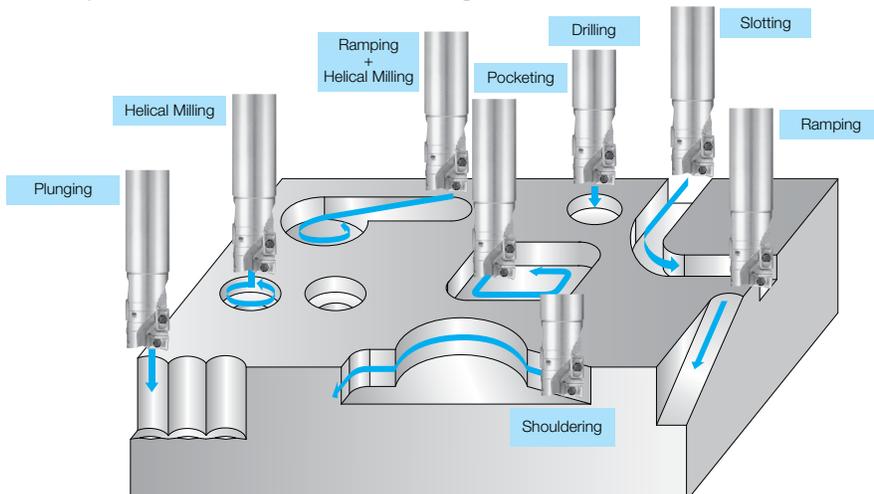
- (1) Drilling conditions should be calculated as one flute effective.
- (2) Use compressed air during drilling.
- (3) Carbon Steel other than low carbon steel can be drilled to a depth of 0.5D without step feeding. For soft steel or sticky material such as stainless steel, step feed drilling (0.020"-0.039") is recommended.
- (4) For stainless steel drilling, coolant is recommended.
- (5) Please refer to the chart for maximum hole depth.

Cutting Dia. (DC)	Max. Hole Depth
0.630" / Ø16mm	0.512" / 13mm
0.669" / Ø17mm	0.512" / 13mm
0.787" / Ø20mm	0.669" / 17mm
0.827" / Ø21mm	0.669" / 17mm
0.984" / Ø25mm	0.866" / 22mm
1.024" / Ø26mm	0.866" / 22mm
1.260" / Ø32mm	1.142" / 29mm
1.299" / Ø33mm	1.142" / 29mm
1.575" / Ø40mm	1.417" / 36mm
1.969" / Ø50mm	1.575" / 40mm

● Drilled Hole Bottom Shape

Cutting Dia.	a	Shape of the bottom
0.630" / 0.669" Ø16mm, Ø17mm	0.020" 0.50mm	
0.787" / 0.827" Ø20mm, Ø21mm	0.025" 0.64mm	
0.984" / 1.024" Ø25, Ø26	0.033" 0.85mm	
1.260" / 1.299" Ø32mm, Ø33mm	0.044" 1.12mm	
1.575" Ø40mm	0.061" 1.54mm	
1.969" Ø50mm	0.065" 1.65mm	

● Examples of MEY Multi-function Cutting

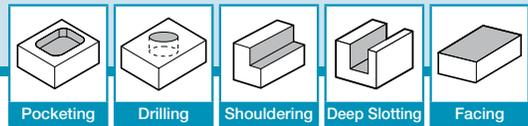


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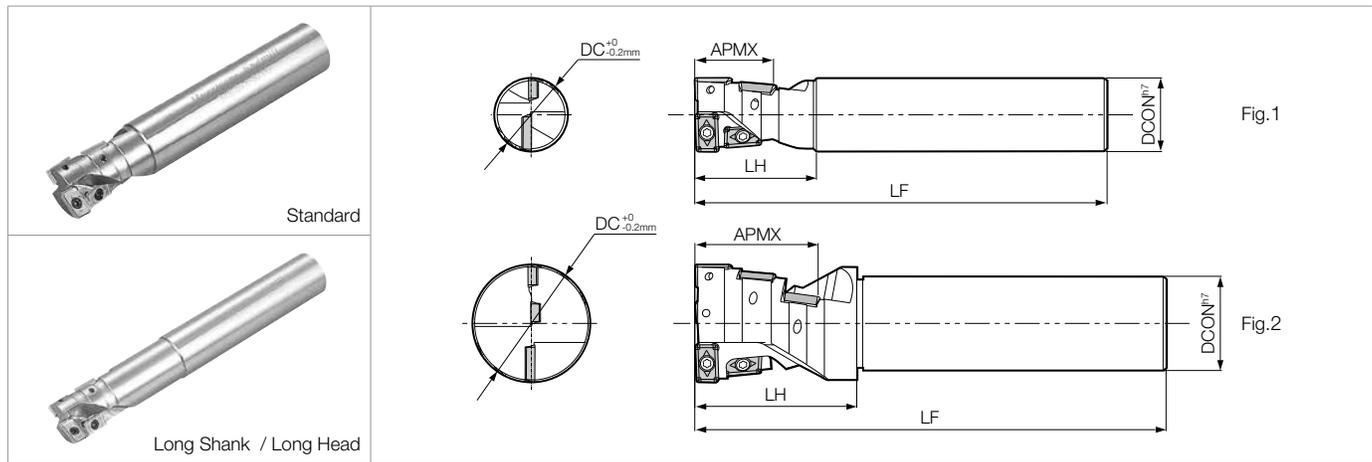
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MEZ-G MULTI-FUNCTION END MILL



MEZ-G End Mill



Toolholder Dimensions

Part Number	Stock	No. of Inserts	No. of Flutes	Dimensions					Rake Angle (°)		Drawing	Spare Parts		Applicable Inserts See Page M24	
				DC	DCON	LF	LH	APMX	A.R.	R.R.		Clamp Screw	Wrench		
Standard	△	4	2	MEZ 16-S16G	16	16	120	31	16	+9°	-5°	Fig.1	SB-2040TRG	DTM-6	NDMT 080208ER-D□
				MEZ 20-S20G	20	20	130	33	21		-4°		SB-2555TRG	DT-8	NDMT 10T208ER-D□
				MEZ 25-S25G	25	25	140	40	25		-5°		SB-3070TRG	DT-10	NEMT 120308ER-D□
				MEZ 32-S32G	32	32	150	50	33		-2°		SB-4070TRG	DT-15	NEMT 16T308ER-D□
		7		MEZ 40-S32G	39	32	160	55	39	-3°	Fig.2	SB-3070TRG	DT-10	NEMT 120308ER-D□	
				MEZ 50-S42G	49	42	170	70	51	-2°		SB-4070TRG	DT-15	NEMT 16T308ER-D□	
				MEZ 16-S16-140HG	16	16	140	51	16	-5°		Fig.1	SB-2040TRG	DTM-6	NDMT 080208ER-D□
MEZ 20-S20-150HG	20	20	150	53	21	-4°	SB-2555TRG	DT-8	NDMT 10T208ER-D□						
MEZ 25-S25-170HG	25	25	170	70	25	-5°	SB-3070TRG	DT-10	NEMT 120308ER-D□						
Long Head	△	4	2	MEZ 32-S32-180HG	32	32	180	80	33	+9°	-2°	Fig.1	SB-4070TRG	DT-15	NEMT 16T308ER-D□
				MEZ 16-S16-190G	16	16	190	61	16		-5°		SB-2040TRG	DTM-6	NDMT 080208ER-D□
				MEZ 20-S20-200G	20	20	200	63	21		-4°		SB-2555TRG	DT-8	NDMT 10T208ER-D□
				MEZ 25-S25-220G	25	25	220	80	25		-5°		SB-3070TRG	DT-10	NEMT 120308ER-D□
		7		MEZ 32-S32-230G	32	32	230	90	33	-2°	Fig.1	SB-4070TRG	DT-15	NEMT 16T308ER-D□	
				MEZ 40-S32-240G	39	32	240	55	39	-3°		Fig.2	SB-3070TRG	DT-10	NEMT 120308ER-D□
				MEZ 50-S42-250G	49	42	250	70	51	-2°			SB-4070TRG	DT-15	NEMT 16T308ER-D□

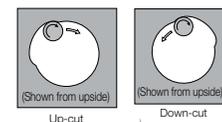
Recommended Cutting Conditions

Workpiece Material	fz (ppt)		Recommended Insert Grade (Vc: sfm)			
	Drilling	Shouldering Slotting	Cermet	MEGACOAT		Carbide
			TN100M	PR1225	PR1210	KW10
Carbon Steel	0.002~0.008	0.002~0.008	★ 390~660	★ 390~820	-	-
Alloy Steel	0.002~0.008	0.002~0.008	★ 330~590	★ 330~720	-	-
Mold Steel	0.002~0.005	0.002~0.006	★ 330~590	★ 260~590	-	-
Stainless Steel	0.002~0.005	0.002~0.006	☆ 390~660	★ 390~720	-	-
Cast Iron	0.002~0.008	0.002~0.008	-	-	★ 330~720	☆ 260~490
Non-ferrous Metals	0.002~0.008	0.002~0.008	-	-	-	★ 330~980

★: 1st Recommendation ☆: 2nd Recommendation

- Drilling conditions should be calculated as one flute line. Step feed (0.5-0.1mm) is recommended.
- Coolant is recommended when drilling stainless steel / cast iron.

- Down-Cut milling is recommended for the improvement of tool life and surface finish.
- Compressed air is recommended.



Poor galling surface, wear and chattering

Excellent surface finish, stable and long tool life, anti chattering

How to Use the Silver Drill Mill MEZ-G Effectively

Drilling

- Step feeding is recommended for good chip control. (Depth approx. 1mm)
- Drill depth should be under 0.5DC. (DC:Drilling Dia.)

Use compressed air when during machining.

Ramping - Helical Milling

- Ramping angle is recommended to be under 6°.
- Plunge depth per revolution when helical milling should be under 0.5DC.
- Use compressed air when during machining.

End Milling

- Tough edge insert is recommended for high load end milling. (High feed rate, large D.O.C.)

Use a low cutting force insert to prevent chattering.

MEZ-G MULTI-FUNCTION END MILL

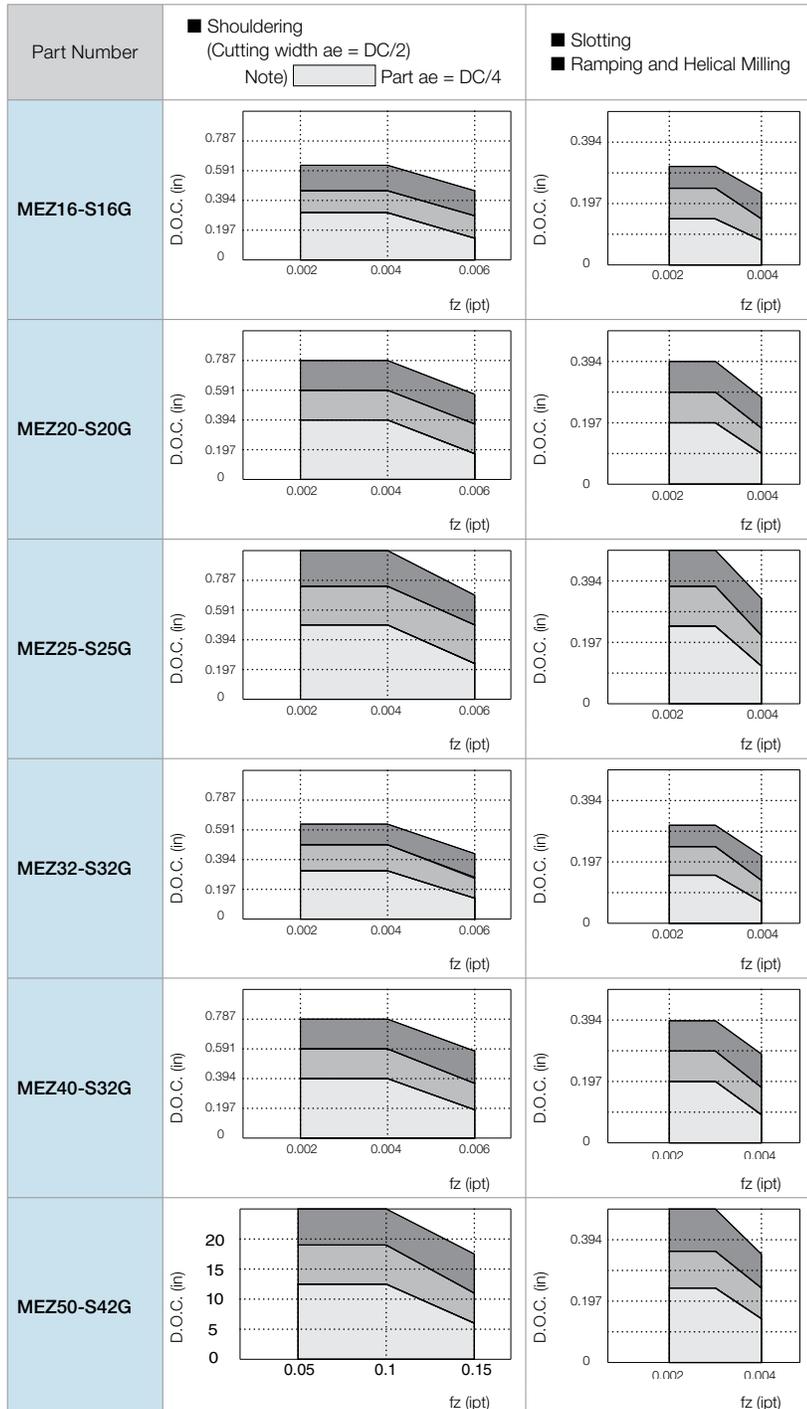
Cutting Performance of MEZ-G

[Workpiece Material: 1049]

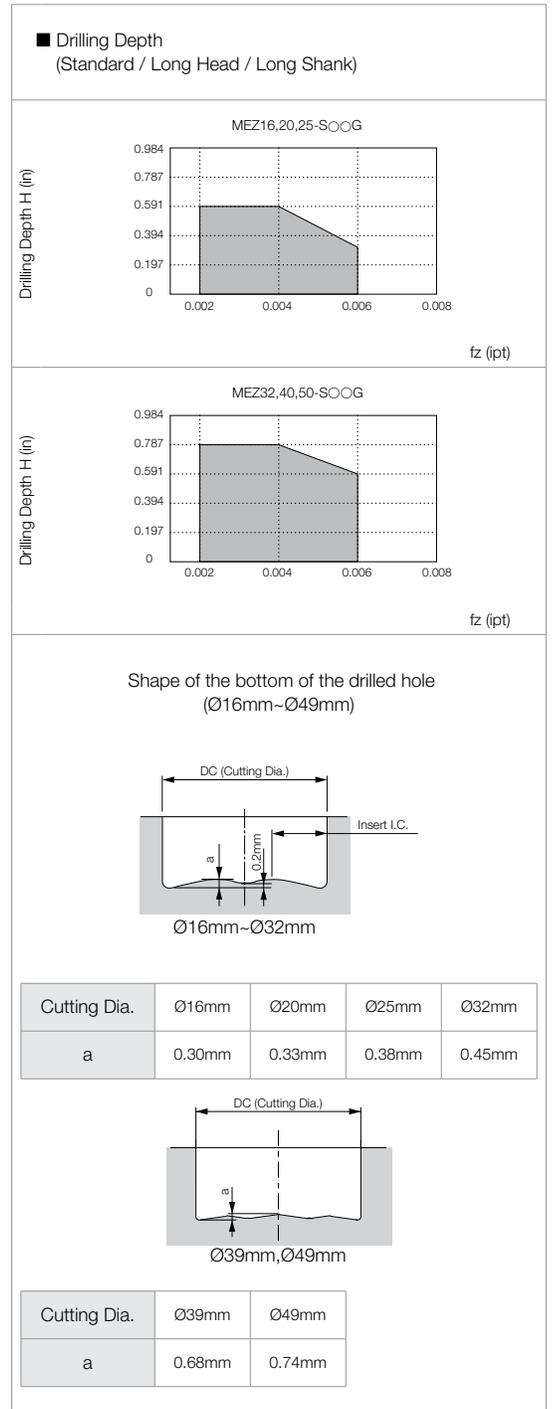
Cutting Dia.	Part Number	Overhang Length LPR (in)			Cutting Dia.	Part Number	Overhang Length LPR (in)			Shape
Ø16	MEZ16-S16G	1.220	[-2.402]	(Not Recommended)	Ø32	MEZ32-S32G	1.969	[-3.150]	(Not Recommended)	
	MEZ16-S16-140HG	-	~2.402	[-3.583]		MEZ32-S32-180HG	-	3.150	[-4.331]	
	MEZ16-S16-190G	-	2.402	~3.583		MEZ32-S32-230G	-	3.543	~4.331	
Ø20	MEZ20-S20G	1.299	[-2.480]	(Not Recommended)	Ø39	MEZ40-S32G	2.165	[-3.346]	[-4.528]	
	MEZ20-S20-150HG	-	~2.480	[-3.661]		-	-	-	-	
	MEZ20-S20-200G	-	2.480	~3.661		MEZ40-S32-240G	2.165	~3.346	~4.528	
Ø25	MEZ25-S25G	1.575	[-2.756]	(Not Recommended)	Ø49	MEZ50-S42G	2.756	[-3.937]	[-5.118]	
	MEZ25-S25-170HG	-	2.756	[-3.937]		-	-	-	-	
	MEZ25-S25-220G	-	3.150	~3.937		MEZ50-S42-250G	2.756	~3.937	~5.118	

When using dimensions in [], be careful that the chucking amount is sufficient.

Shouldering / Slotting



Drilling Depth



INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

MST Slot Mill



MSTA

For Narrow Groove Widths
Self Clamping Type

Slot Width: 1.60 ~ 4.05mm

MSTB

For Medium Groove Widths
Semi-adjustable Width Type

Slot Width: 6.00 ~ 13.00mm

MSTC

For Wide Groove Widths
Full-adjustable Width Type

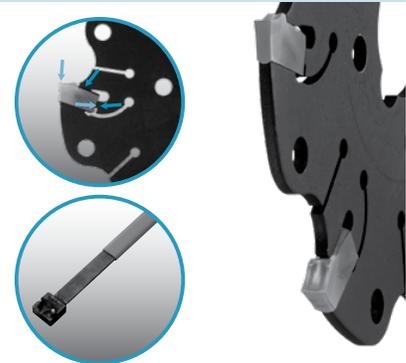
Slot Width: 14.00 ~ 23.30mm

Lineup of MST Series Slot Mills

Inserts	Type	Applicable Inserts	Features	Slot Width (mm)														
				1.60	2.20 (2.25)	3.05	4.05	6.00	8.00	10.00	13.00	14.00	16.00	18.00	20.00	22.00	24.00	
45°~70° Lead Angle	MSTA	SLT..	1.60-4.05mm Fixed	●	●	●	●											
75° Lead Angle	MSTB	LNEU12..	6.00~13.00mm Semi-adjustable					▶ Adjustable in 0.50mm increments between 6.00mm and 13.00mm depending on combination of inserts										
90°/88° Lead Angle	MSTC	SP..10T3..	14.00~18.00mm Full-adjustable								▶ Adjustable between 14.00mm and 18.00mm							
High Feed Milling		SD..1204...	18.00~23.30mm Full-adjustable									▶ Adjustable between 18.00mm and 23.30mm						
Finish Milling																		
Multi-Function																		

MSTA Slot Mill [Slot Width 1.6, 2.2 (2.25), 3.05, 4.05mm]

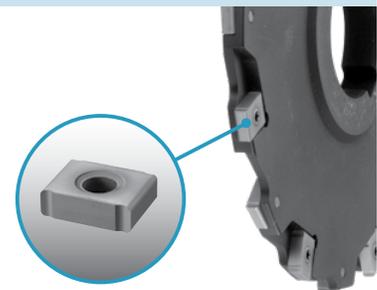
- Self-clamping Type Slot Mill**
 MSTA Slot Mills have simple self-clamping system to allow for easy attachment by just installing the insert.
- High Rigidity Clamping System**
 Owing to the highly rigid clamping system - with an end-stopper, the cutter enables high operability and stable slotting by maintaining an accurate edge position.
- Double-Prism Clamping System**
 High replacement precision due to the clamping system with two prisms.
- Easy Replacement**
 The replacement of inserts is easy and quick by using special wrench.



*Wrench Sold Separately

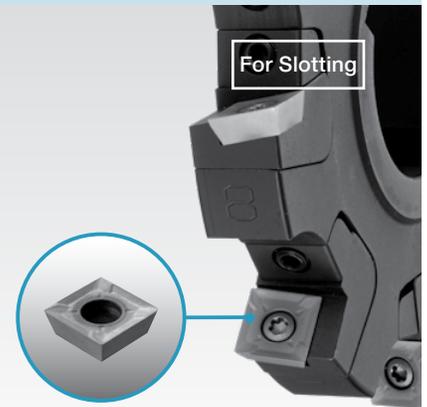
MSTB Slot Mill (Slot Width 6.0~13.0mm)

- Up-right Type / Semi-adjustable Slot Width**
- Easy and Secure Screw Holding**
 Inserts can be attached to the MSTB Slot Mills very easily by using clamp screws.
- Inserts have four edge and are, therefore, cost-effective**
- Applicable to a variety of slotting by choosing different inserts**
 By changing the thickness of inserts, various slotting widths are possible up to a max of 13.00mm in 0.50mm increments.



MSTC Slot Mill (Slot Width 14.0~23.3mm)

- Lay-down type inserts / fully adjustable slot width
- Applicable to various slotting needs. Slotting widths: 14.0mm to 23.3mm
Cutter Dia.: from 100mm to 160mm
- Smooth slotting width adjustment is possible due to unique cam style adjustment mechanism
- Four-sided inserts are cost-effective
- Wide range of corner radii available
- When utilizing wiper edge insert, an excellent surface finish can be expected
- Numerous insert geometries and grades, are available for various types of workpiece machining



Insert Features

Insert Shape			
Symbol	SB	SD	SE
Rake Angle			
Shape			

CA0835

- TiN+TiCN+Al₂O₃ based CVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel and Nodular Cast Iron.
- For middle to high speed machining.

PR0725

- TiN+TiCN+TiN based Multi-layer PVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel, Heat Resistant Alloys and Nodular Cast Iron.
- For medium speed machining.

PR0735

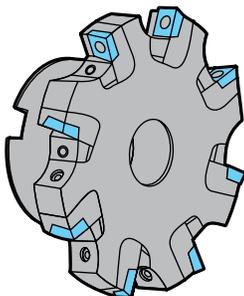
- TiN based PVD Coated Carbide
- For Stainless Steel, Heat Resistant Alloys, etc.
- For low to medium speed machining.

PR0110

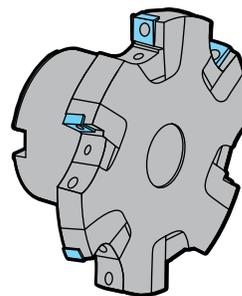
- TiB₂ based PVD Coated Carbide
- For Non-ferrous Metals such as Aluminum Alloys (Si<10%) and Titanium Alloys.
- For high speed machining.

With Boss

Right-hand



Left-hand

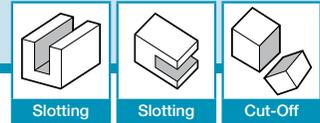


For Shouldering

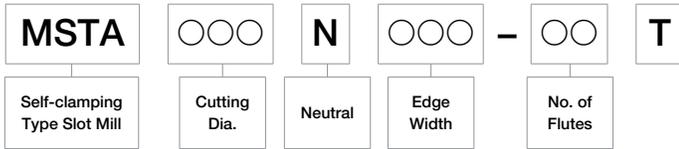


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

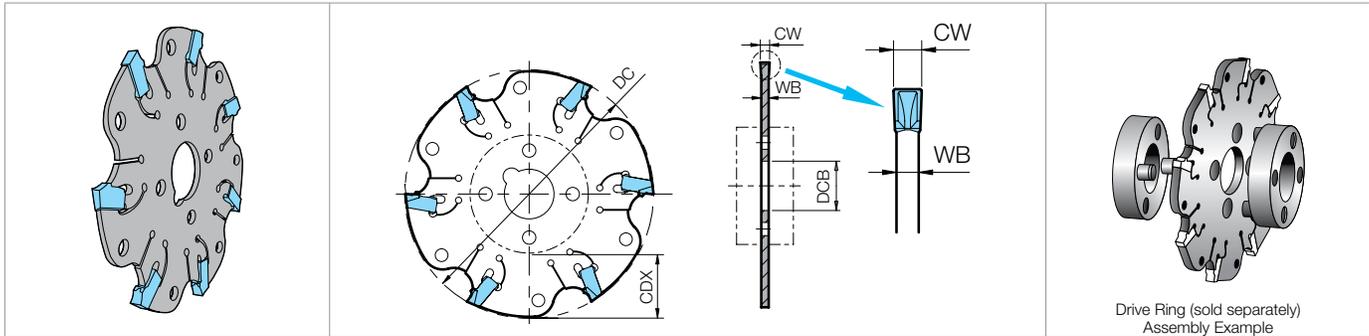
MSTA SLOT MILL (SELF-CLAMPING)



Identification System



MSTA (Inch Size)



Toolholder Dimensions (Inch Size)

Inserts	Part Number	Stock	Edge Width	Slot Depth	No. of Inserts	Dimensions (in)			Weight (kg)	Max. RPM	Spare Parts	Applicable Inserts	
			CW (in)	CDX (in)		DC	DCB (H7)	WB			Wrench		
45°-70° Lead Angle	MSTA 02N063-5T	●	0.063	0.625	5	2.500	0.625	0.051	0.03	5,100	 MS-FRW1 (Wrench is not included. Please purchase it separately)	SLT16...	
75° Lead Angle	03N063-7T	●		0.875	7	3.000	0.625		0.04	4,000			
90°/88° Lead Angle	04N063-9T	●		1.063	9	4.000	1.000		0.07	3,200			
High Feed Milling	05N063-11T	●		1.375	11	5.000	1.250		0.10	2,600			
Finish Milling	MSTA 03N089-7T	●	0.089	0.875	7	3.000	0.625	0.071	0.05	4,000		 MS-FRW1 (Wrench is not included. Please purchase it separately)	SLT22...
Multi-Function	04N089-9T	●		1.063	9	4.000	1.000		0.08	3,200			
Slot Mill	06N089-14T	●		1.438	14	6.000	1.250		0.30	2,000			
Ball-Nose Radius	MSTA 02N126-4T	●	0.120	0.625	4	2.500	0.625	0.095	0.05	5,100		 • How to Use Wrench Ref. to Page M203	SLT30...
Other Applications	03N126-6T	●		0.875	6	3.000	0.625		0.08	4,000			
	04N126-9T	●		1.063	9	4.000	1.000		0.13	3,200			
	05N126-11T	●		1.375	11	5.000	1.250		0.20	2,600			
	06N126-14T	●		1.438	14	6.000	1.250		0.35	2,000			
MILLING	MSTA 03N164-6T	●	0.160	0.875	6	3.000	0.625	0.134	0.10	4,000	 SLT40...		
	04N164-9T	●		1.063	9	4.000	1.000		0.15	3,200			
	05N164-11T	●		1.375	11	5.000	1.250		0.25	2,600			
		●		34.925mm									

- Note) 1. Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold separately. Please purchase two drive rings per one MSTA slot mill.
 2. Do not exceed the max. revolution.
 3. Do not operate cutter on reverse revolution.
 4. Wrench (MS-FRW1) is not included. Please purchase it separately.

Recommended Cutting Conditions **M203**

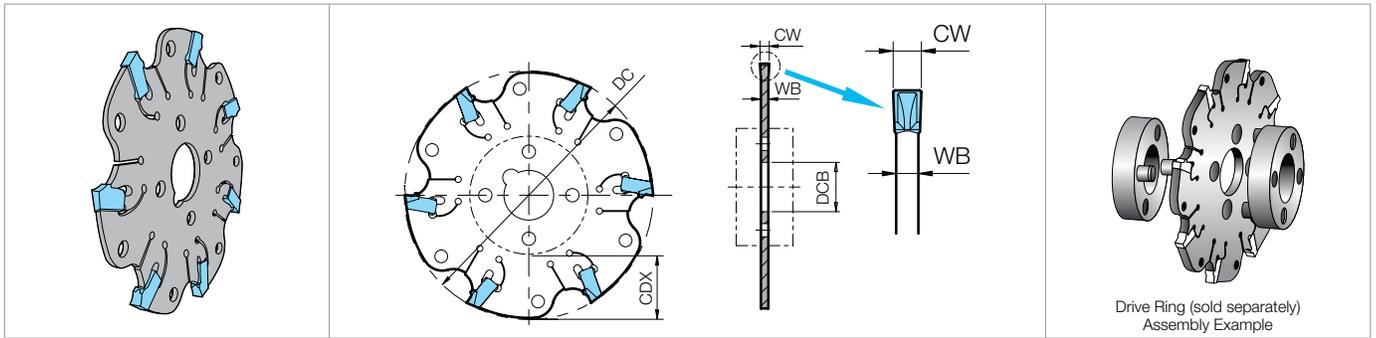
Drive Ring (Inch Size)

Shape	Part Number	Stock	Dimensions (in)					Drawing	Applicable Toolholders
			DCB	DIOUT	WB	KWW	DCON		
 Fig.1	DR0625-1250A	●	0.625 (15.875mm)	1.250 (31.750mm)	0.315 (8mm)	0.130 (3.3mm)	0.158 (4mm)	Fig.1	MSTA 02N126-4T
	DR0625-1250B	●	0.625 (15.875mm)	1.250 (31.750mm)	0.315 (8mm)	0.130 (3.3mm)	0.120 (3mm)	Fig.2	MSTA 02N063-5T
	DR0625-1250C	●					Fig.3	MSTA 03N0000-OT	
 Fig.2	DR1000-1875	●	1.000 (25.400mm)	1.875 (47.625mm)	0.394 (10mm)	0.256 (6.5mm)	0.200 (5mm)	Fig.3	MSTA 04N0000-OT
	DR1250-2250	●	1.250 (31.750mm)	2.250 (57.150mm)	0.394 (10mm)	0.319 (8.1mm)	0.240 (6mm)	Fig.3	MSTA 05N0000-OT
	DR1250-3125	●	1.250 (31.750mm)	3.125 (79.375mm)	0.472 (12mm)	0.319 (8.1mm)	0.472 (12mm)	Fig.3	MSTA 06N0000-OT

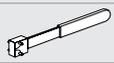
Wrenches and drive rings are sold in 1 piece per box.

MSTA SLOT MILL (SELF-CLAMPING)

MSTA (Metric Size)



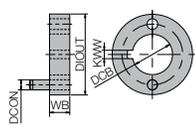
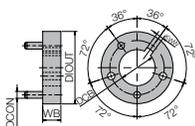
Toolholder Dimensions (Metric Size)

Part Number	Stock	Edge Width	Slot Depth	No. of Inserts	Dimensions (mm)			Weight (kg)	Max. RPM	Spare Parts	Applicable Inserts ● M202		
					CW (mm)	CDX (mm)	WB			Wrench			
MSTA 63N16-5T	●	1.60	15	5	63	16	1.3	0.03	 MS-FRW1 (Wrench is not included. Please purchase it separately)	SLT16...			
80N16-7T	●		21	7	80	16		0.04					
100N16-9T	●		27	9	100	22		0.07					
125N16-11T	●		35	11	125	32		0.10					
MSTA 63N22-5T	●	2.20 (2.25)	15	5	63	16	1.8	0.03		How to use Wrench Ref. to page ● M203	SLT22...		
80N22-7T	●		21	7	80	16		0.05					
100N22-9T	●		27	9	100	22		0.08					
125N22-11T	●		35	11	125	32		0.12					
160N22-14T	●		40	14	160	40		0.30					
MSTA 63N30-4T	●	3.00	15	4	63	16	2.4	0.05			How to use Wrench Ref. to page ● M203	SLT30...	
80N30-6T	●		21	6	80	16		0.08					
100N30-9T	●		27	9	100	22		0.13					
125N30-11T	●		35	11	125	32		0.20					
160N30-14T	●		40	14	160	40		0.35					
MSTA 63N40-4T	●	4.00	15	4	63	16	3.4	0.06				How to use Wrench Ref. to page ● M203	SLT40...
80N40-6T	●		21	6	80	16		0.10					
100N40-9T	●		27	9	100	22		0.15					
125N40-11T	●		35	11	125	32		0.25					
160N40-14T	●		40	14	160	40		0.40					

- Note) 1. Attach the drive ring (sold separately) to MSTA slot mill to use. Drive ring is sold separately. Please purchase two drive rings per one MSTA slot mill.
 2. Do not exceed the max. revolution.
 3. Do not operate cutter on reverse revolution.
 4. Wrench (MS-FRW1) is not included. Please purchase it separately.

Recommended Cutting Conditions ● M203

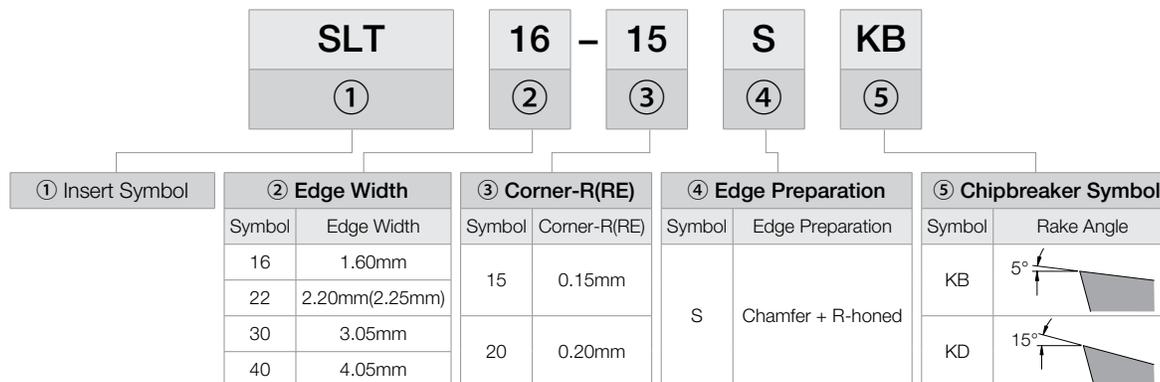
Drive Ring (Metric Size)

Shape	Part Number	Stock	Dimensions (mm)					Drawing	Applicable Toolholders
			DCB	DIOUT	WB	KWW	DCON		
	DR16-32A	●	16	32	8	4.1	3	Fig.2	MSTA 63N16-5T 63N22-7T
	DR16-32B	●	16	32	8	4.1	4	Fig.1	MSTA 63N30-4T 63N40-4T
	DR16-38	●	16	38	8	4.1	4	Fig.3	MSTA 80N00-OT
	DR22-46	●	22	46	10	6.1	5	Fig.3	MSTA 100N00-OT
	DR32-55	●	32	55	10	8.1	6	Fig.3	MSTA 125N00-OOT
	DR40-80	●	40	80	12	10.1	12	Fig.3	MSTA 160N00-OOT

Wrenches and drive rings are sold in 1 piece per box.

A INSERT GRADES
 B TURNING INSERTS
 C GEN/PCD INSERTS
 D TURNING HOLDERS
 E SMALL TOOLS
 F BORING
 G GROOVING
 H CUT-OFF
 J THREADING
 K DRILLING
 M MILLING
 N QUICK CHANGE TOOLING
 P SPARE PARTS
 R TECHNICAL
 T INDEX

Insert Identification System



Applicable Inserts (SLT)

Inserts	Insert	Part Number	Dimensions (mm)		Rake Angle (°)	CVD Coated Carbide	PVD Coated Carbide	Applicable Toolholder
			CW	RE				
45°~70° Lead Angle		SLT 16-15SKB	1.60 ^{+0.00} _{-0.10}	0.15	5°	●	○	M200
75° Lead Angle		22-20SKB	2.20 ^{+0.08} _{-0.05}	0.20	5°	●	●	
90°/88° Lead Angle		30-20SKB	3.05 ^{+0.15} _{-0.00}			●	●	
High Feed Milling		40-20SKB	4.05 ^{+0.15} _{-0.00}	●	●			
Finish Milling		SLT 16-15SKD	1.60 ^{+0.00} _{-0.10}	0.15	15°	●	●	M201
Multi-Function		22-20SKD	2.25 ^{+0.15} _{-0.00}	0.20	15°	●	●	
Slot Mill		30-20SKD	3.05 ^{+0.15} _{-0.00}			●	●	
Ball-Nose Radius		40-20SKD	4.05 ^{+0.15} _{-0.00}	●	●			

Chipbreaker Selection

- KB Chipbreaker ... General Purpose Chipbreaker for Steel and Cast Iron
- KD Chipbreaker ... Low Cutting Force Chipbreaker for Stainless Steel

Feature of Insert Grades

CA0835

- TiN+TiCN+Al₂O₃ based CVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel and Nodular Cast Iron.
- For medium to high speed machining.

PR0735

- TiN base PVD Coated Carbide
- For Stainless Steel, Heat-Resistant Alloys, etc.
- For low to medium speed machining.

Inserts are sold in 10 piece boxes.

MSTA SLOT MILL (SELF-CLAMPING)

● Set up

Wrench Support Hole

Insert Removal Hole for Wrench

How to install inserts

1. Put insert inside the slot mill.
2. Insert one of the pins on the wrench (on IN indicated side) into the wrench support hole.
3. Using the other pin, push the front relief surface of the insert.
4. Rotate the wrench until insert's back end makes contact with slot mill.

How to remove inserts

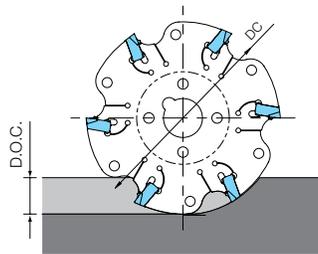
1. Insert one of the pins on the wrench (on OUT indicated side) into the wrench support hole, and insert other pin into the insert removal hole.
2. Insert can be removed by rotating the wrench counter clock wise. (A magnet is installed on OUT indicated side.)

Note) Use appropriate wrench for set up.

◆ Recommended Cutting Conditions

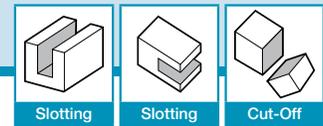
Workpiece Material		Hardness (HRC)	Recommended Insert Grade (Vc: sfm)		fz (ipt)				Notes
			CVD Coated Carbide	PVD Coated Carbide	Edge Width				
			CA0835	PR0735	0.063" 1.60mm	0.087" (0.089") 2.20mm (2.25mm)	0.118" 3.00mm	0.157" 4.00mm	
Low Carbon Steel	1010-1025	20	820-1020	660-820	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	Coolant
Carbon Steel	1030-1059, 1060 Annealed	29	520-620	430-520	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	
	1030-1059, 1060 Heat Treated	37	460-590	360-490	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	
Alloy Steel	Annealed	28	460-590	360-490	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	
	Heat Treated	41	390-520	330-430	0.001-0.004	0.002-0.005	0.002-0.006	0.003-0.007	
High Carbon Alloy	D2, H13, etc.	42	330-460	260-390	0.001-0.004	0.002-0.005	0.002-0.006	0.003-0.007	
Stainless Steel	304, 316, etc. Austenitic	33	490-620	260-390	0.001-0.004	0.002-0.005	0.002-0.006	0.003-0.007	
	403, 410, etc. Martensitic	45	460-590	200-260	0.001-0.004	0.002-0.005	0.002-0.006	0.003-0.007	
Gray Cast Iron	NO.45-NO.60	38	520-660	-	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	
Nodular Cast Iron	60-40-18-70-50-05	25	430-520	-	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	
	80-60-03-120-90-02	37	360-460	-	0.001-0.005	0.002-0.006	0.002-0.007	0.003-0.008	

- Note) 1. Use down-cut machining.
 2. If D.O.C. is under 1/10 of Cutter Dia.(DC), it is possible to increase feed per tooth (fz) 40%.



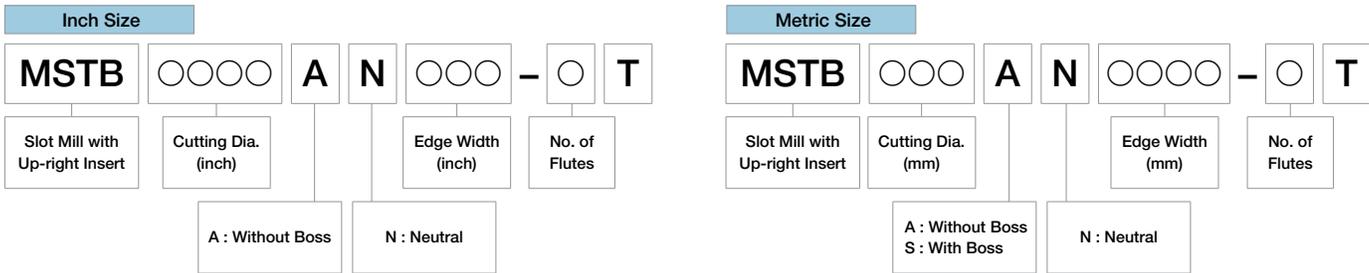
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSTB SLOT MILL (UP-RIGHT)

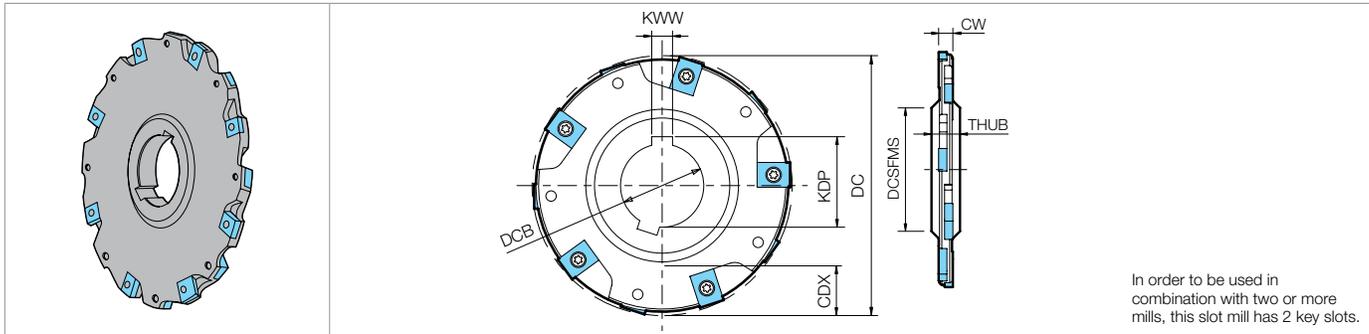


Identification System

MSTB Slot Mill



MSTB Without Boss



In order to be used in combination with two or more mills, this slot mill has 2 key slots.

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Toolholder Dimensions (Inch Size)

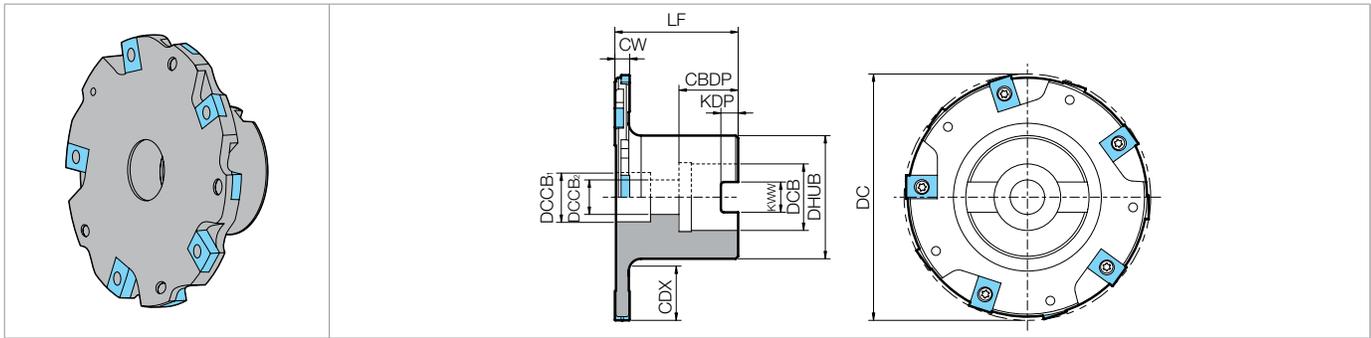
Part Number	Stock	Edge Width (inch)		Slot Depth	No. of Inserts	No. of Edge Lines M207	Dimensions (inch)					Weight (kg)	Max. RPM	
		CW (Min.)	CW (Max.)				CDX (inch)	DC	DCB (H7)	DCSFMS	THUB			KDP	KWW
MSTB 3000AN250-4T	●	0.250	0.289	0.625	8	4	3.000	1.000	1.500	0.500	1.106	0.250	0.3	9,470
4000AN250-5T	●	0.250	0.289	0.935	10	5	4.000	1.250	1.880	0.500	1.386	0.312	0.3	8,200
5000AN250-6T	●			1.435	12	6	5.000						0.7	7,300
6000AN250-8T	●	0.250	0.289	1.750	16	8	6.000	1.500	2.250	0.500	1.665	0.375	1.0	6,700
MSTB 4000AN312-5T	●	0.312	0.351	0.966	10	5	4.000	1.250	1.880	0.500	1.386	0.312	0.5	7,400
5000AN312-6T	●			1.466	12	6	5.000						0.8	6,600
6000AN312-8T	●	0.312	0.351	1.781	16	8	6.000	1.500	2.250	0.500	1.665	0.375	1.1	6,000
MSTB 4000AN375-3T	●	0.375	0.414	1.000	9	3	4.000	1.250	1.880	0.500	1.386	0.312	0.5	7,400
5000AN375-4T	●			1.500	12	4	5.000						0.8	6,600
6000AN375-5T	●	0.375	0.414	1.812	15	5	6.000	1.500	2.250	0.500	1.665	0.375	1.3	6,000
MSTB 4000AN500-3T	●	0.500	0.539	1.060	9	3	4.000	1.250	1.880	0.500	1.386	0.312	0.6	4,900
5000AN500-4T	●			1.560	12	4	5.000						1.1	4,400
6000AN500-5T	●	0.500	0.539	1.875	15	5	6.000	1.500	2.250	0.500	1.665	0.375	1.7	4,000

Toolholder Dimensions (Metric Size)

Part Number	Stock	Edge Width (mm)		Slot Depth	No. of Inserts	No. of Edge Lines M207	Dimensions (mm)					Weight (kg)	Max. RPM	
		CW (Min.)	CW (Max.)				CDX (mm)	DC	DCB (H7)	DCSFMS	THUB			KDP	KWW
MSTB 80AN0607-4T	●	6	7	15.0	8	4	80	27	44	12	29.8	7	0.3	9,240
100AN0607-5T	●	6	7	21.0	10	5	100	32	52	12	34.8	8	0.4	8,270
125AN0607-6T	●			28.0	12	6	125	40	63	12	43.5	10	0.7	7,390
160AN0607-8T	●	45.5	16	8	160	1.1	6,540							
MSTB 80AN0809-4T	●	8	9	16.0	8	4	80	27	44	12	29.8	7	0.4	9,240
100AN0809-5T	●	8	9	22.0	10	5	100	32	52	12	34.8	8	0.5	8,270
160AN0809-8T	●			45.5	16	8	160	40	63	12	43.5	10	1.3	6,540
MSTB 125AN1011-4T	●	10	11	30.0	12	4	125	40	63	12	43.5	10	0.9	7,390
160AN1011-5T	●			47.5	15	5	160						1.6	6,540
MSTB 160AN1213-5T	●	12	13	48.5	15	5	160	40	63	12	43.5	10	1.6	6,540

MSTB SLOT MILL (UP-RIGHT)

MSTB With Boss



Toolholder Dimensions

Part Number	Stock	Unit	Edge Width		Slot Depth	No. of Inserts	No. of Edge Lines	Dimensions								Weight (kg)	Max. RPM	
			CW (Min.)	CW (Max.)				CDX	DC	DCB (H7)	DHUB	LF (Min.)	CDBP	KDP	KWW			DCCB ₁	DCCB_{2}
MSTB 2500SN250-3T	●	inch	0.250	0.289	0.550	6	3	2.500	0.750	1.580	1.875	0.075	0.220	0.332	-	0.406	0.5	10,400
2500SN312-3T	●		0.312	0.351	0.550	6	3	2.500	0.750	1.580	1.875	0.075	0.220	0.332	-	0.406	0.6	9,400
MSTB 80SN0607-4T	●	mm	6	7	16	8	4	80	22	40	50	23	6.3	10.4	18	12	0.7	9,240
100SN0607-5T	●				21	10	5	100	27	50		24	7.0	12.4	20	14	1.0	8,270
160SN0607-8T	●				41	16	8	160	40	70		28	9.0	16.4	33	22	1.9	6,540
MSTB 80SN0809-4T	●	mm	8	9	16	8	4	80	22	40	50	23	6.3	10.4	18	12	0.8	9,240
100SN0809-5T	●				21	10	5	100	27	50		24	7.0	12.4	20	14	1.2	8,270
160SN0809-8T	●				41	16	8	160	40	70		28	9.0	16.4	33	22	2.2	6,540
MSTB 125SN1011-4T	●	mm	10	11	26	12	4	125	40	70	50	28	9.0	16.4	33	22	2.0	7,390
160SN1011-5T	●				43	15	5	160									2.5	6,540

Note) CW (Min.) dimension shows case of minimum edge width.

Spare Parts and Applicable Inserts

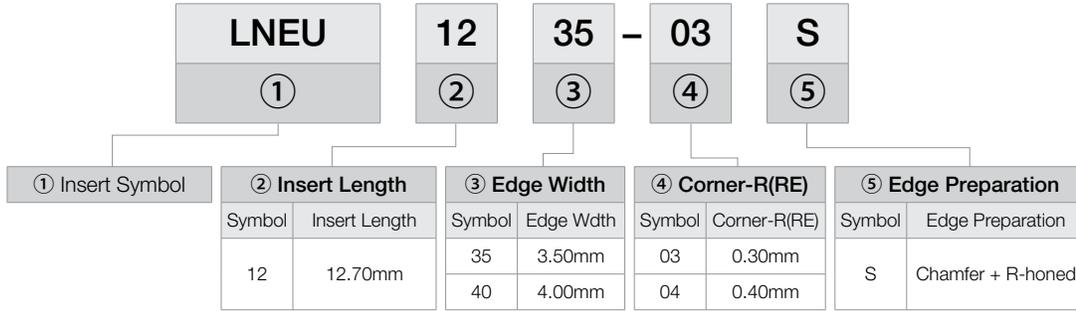
Part Number		Spare Parts				Applicable Inserts ● M206
		Clamp Screw	Wrench	Anti-seize Compound	Arbor Bolt	
Without Boss	Inch Sizes	MSTB ○○○○AN250-○T	SE-40055TR	TT-15L	P-37	-
		○○○○AN312-○T	SE-40068TR	TT-15L	P-37	-
		○○○○AN375-○T	SE-40090TR	TT-15L	P-37	-
		○○○○AN500-○T	SE-40090TR	TT-15L	P-37	-
Without Boss	Metric Sizes	MSTB ○○○AN0607-○T	SE-40050TRN	TT-15L	P-37	-
		○○○AN0809-○T	SE-40068TR	TT-15L	P-37	-
		○○○AN1011-○T	SE-40068TR	TT-15L	P-37	-
With Boss	Metric Sizes	160AN1213-5T	SE-40090TR	TT-15L	P-37	-
		MSTB 80SN0607-4T	SE-40050TRN	TT-15L	P-37	HH10X35
		100SN0607-5T	SE-40050TRN	TT-15L	P-37	HH12X35
		160SN0607-8T	SE-40050TRN	TT-15L	P-37	HH20X40
		MSTB 80SN0809-4T	SE-40068TR	TT-15L	P-37	HH10X35
		100SN0809-5T	SE-40068TR	TT-15L	P-37	HH12X35
		160SN0809-8T	SE-40068TR	TT-15L	P-37	HH20X40
MSTB ○○○SN1011-○T	SE-40068TR	TT-15L	P-37	HH20X40	LNEU12...	

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Recommended Cutting Conditions ● M208

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

■ Insert Identification System



■ Applicable Inserts (LN)

Part Number	L (mm)		Usage Classification	Usable Edges	Dimensions (mm)			PVD Coated Carbide	Applicable Clamp Screw	Applicable Toolholders
	L	W1			S	D1	RE			
LNEU12	12.7	9.52	● : 1st Choice ○ : 2nd Choice							
Insert	Part Number						PR0725			
 Honed	LNEU 1245-04			4	4.5	4.2	0.4	●	SE-40068TR	 Applicable Toolholders
	1245-08			4	4.5	4.2	0.8	●		
	1250-04			4	5.0	4.2	0.4	●		
	1250-08			4	5.0	4.2	0.8	●		
	1255-04			4	5.5	4.2	0.4	●		
	1255-08			4	5.5	4.2	0.8	●		
	1260-04			4	6.0	4.2	0.4	●		
 Tough Edge	LNEU 1235-03S-4			4	3.5	4.4	0.3	●	SE-40050TRN	 Applicable Toolholders
	1240-03S-4			4	4.0	4.4	0.3	●		
	1245-04S			4	4.5	4.2	0.4	●		
	1245-08S			4	4.5	4.2	0.8	●		
	1250-04S			4	5.0	4.2	0.4	●		
	1250-08S			4	5.0	4.2	0.8	●		
	1250-08S			4	5.0	4.2	0.8	●		

Notes) 1. Please select the applicable clamp screw depending on each insert part number.
 2. Ref. to page M207 for insert description and applicable clamp screw depending on edge width.

Recommended Cutting Conditions M208

● Feature of Insert Grades

● PR0725

- TiN+TiCN+TiN based Multi-layer PVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel, Heat Resistant Alloys and Cast Iron.
- For medium speed machining.

Inserts are sold in 10 piece boxes.

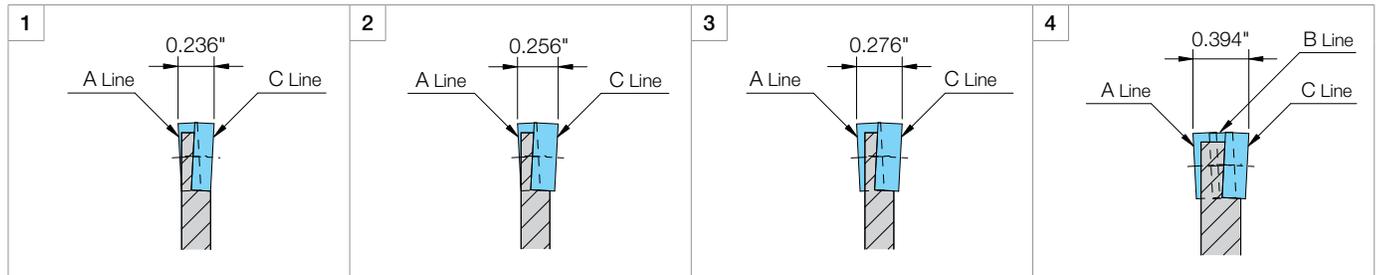
MSTB SLOT MILL (UP-RIGHT)

Combination of Applicable Inserts

Part Number	Clamp Screw (Standard attachment parts)	Edge Width		A Line		B Line		C Line		Wrench for Clamp Screw	Tightening Torque (N-m)
		mm	inch	Applicable Inserts	Clamp Screw	Applicable Inserts	Clamp Screw	Applicable Inserts	Clamp Screw		
Inch Size	MSTB ○○○AN250-○T SE-40055TR	-	0.250	LNEU1240..	SE-40055TR	-	-	LNEU1240..	SE-40055TR	TT-15L	3
			0.270	LNEU1245..	SE-40068TR	-	-	LNEU1245..	SE-40068TR		
			0.289	LNEU1245..	SE-40068TR	-	-	LNEU1250..	SE-40080TR		
	MSTB ○○○AN312-○T SE-40068TR	-	0.312	LNEU1245..	SE-40068TR	-	-	LNEU1245..	SE-40068TR		
			0.332	LNEU1250..	SE-40080TR	-	-	LNEU1250..	SE-40080TR		
			0.351	LNEU1250..	SE-40080TR	-	-	LNEU1250..	SE-40080TR		
MSTB ○○○AN375-○T SE-40068TR	-	0.375	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR			
		0.395	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR			
		0.414	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR			
MSTB ○○○AN500-○T SE-40090TR	-	0.500	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR			
		0.520	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR			
		0.539	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR			
Metric Size	MSTB ○○○AN0607-○T ○○○SN0607-○T SE-40050TRN	-	6.0	LNEU1235..	SE-40050TRN	-	-	LNEU1235..	SE-40050TRN		
			6.5	LNEU1240..	SE-40055TR	-	-	LNEU1240..	SE-40055TR		
			7.0	LNEU1240..	SE-40055TR	-	-	LNEU1240..	SE-40055TR		
	MSTB ○○○AN0809-○T ○○○SN0809-○T SE-40068TR	-	8.0	LNEU1245..	SE-40068TR	-	-	LNEU1245..	SE-40068TR		
			8.5	LNEU1250..	SE-40080TR	-	-	LNEU1250..	SE-40080TR		
			9.0	LNEU1250..	SE-40080TR	-	-	LNEU1250..	SE-40080TR		
	MSTB ○○○AN1011-○T ○○○SN1011-○T SE-40068TR	-	10.0	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR	LNEU1245..	SE-40068TR		
			10.5	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR		
			11.0	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR	LNEU1250..	SE-40080TR		
	MSTB ○○○AN1213-○T SE-40090TR	-	12.0	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR	LNEU1255...	SE-40090TR		
			12.5	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR		
			13.0	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR	LNEU1260...	SE-40100TR		

* For clamp screw, above listed "Standard attachment parts" are included. In case of necessity of another size of clamp screw by changing slotting width, please purchase separately.

Slot Width (Edge Width) Adjustment



● The Slot width (edge width) of MSTB Slot Mills is adjustable by a maximum of 1.00mm (0.039") with the combination of inserts.

1. In the case of MSTB○○○AN0607-○T the width (W) is 6.00mm (0.236") by installing LNEU1235 on both A line and C line.
2. By replacing C line only with LNEU1240 the width (W) is 6.50mm (0.256").
3. By replacing A line and C line with LNEU1240 the width (W) is 7.00mm (0.276").
4. If the slotting width (edge width) is 10.00mm (0.394") or more, the B line (middle edge) is necessary.

* Caution

- 1) There is no description such as "A line", "B line", and "C line" on the actual Slot Mill. These are only for explanation of the combination of inserts.
- 2) Use proper clamp screws for applicable inserts on the basis of the above chart.
- 3) The Slot width (edge width) of MSTB Slot Mills is adjustable by a maximum of 1.00mm (0.039") with the combination of inserts.

Bottom Cutting Shape of MSTB Slot Mill

Slot bottom shape will be (Fig.1) convex shape.

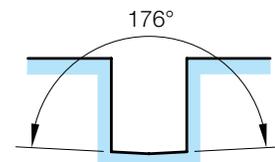


Fig.1 Convex bottom shape

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

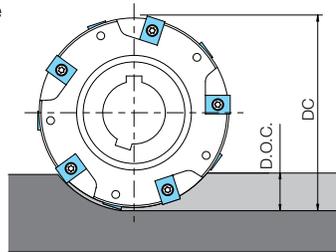
MSTB SLOT MILL (UP-RIGHT)

◆ Recommended Cutting Conditions

Workpiece Material		Hardness (HRC)	Recommended Insert Grade (Vc: sfm)	fz (ipt)		Notes
				Insert Thickness		
			PVD Coated Carbide		0.138"~0.157" 3.50mm~4.00mm		0.177"~0.236" 4.50mm~6.00mm
Low Carbon Steel	1010~1025	20	560~690	0.003~0.008	0.004~0.009	Dry
Carbon Steel	1030~1059, 1060 Annealed	29	330~460	0.003~0.008	0.004~0.009	
	1030~1059, 1060 Heat Treated	37	300~390	0.003~0.008	0.004~0.009	
Alloy Steel	Annealed	28	300~390	0.003~0.008	0.004~0.009	
	Heat Treated	41	260~360	0.002~0.007	0.003~0.008	
High Carbon Alloy	D2, H13, etc.	41	230~300	0.002~0.007	0.003~0.008	
Stainless Steel	304, 316, etc. Austenitic	33	360~460	0.002~0.007	0.003~0.008	Coolant
	403, 410, etc. Martensitic	45	330~390	0.002~0.007	0.003~0.008	
Heat-resistant Alloys	Inconel 718, etc.	37.7	50~100	0.002~0.007	0.003~0.008	
Titanium Alloys	Ti-6Al-4V, etc.	40	70~160	0.002~0.007	0.003~0.008	
Gray Cast Iron	NO.45~NO.60	38	360~430	0.003~0.009	0.004~0.010	Dry
Nodular Cast Iron	60-40-18~70-50-05	25	260~330	0.003~0.009	0.004~0.010	
	80-60-03~120-90-02	37	230~300	0.003~0.009	0.004~0.010	

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

- Note) 1. Use down-cut machining.
 2. If D.O.C. is under 1/10 of Cutter Dia.(DC), it is possible to increase feed per tooth (fz) 40%.

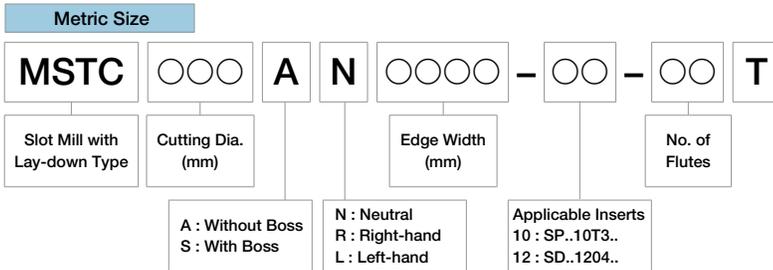
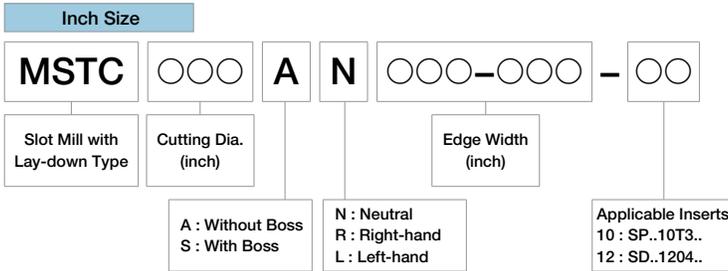


M
MILLING

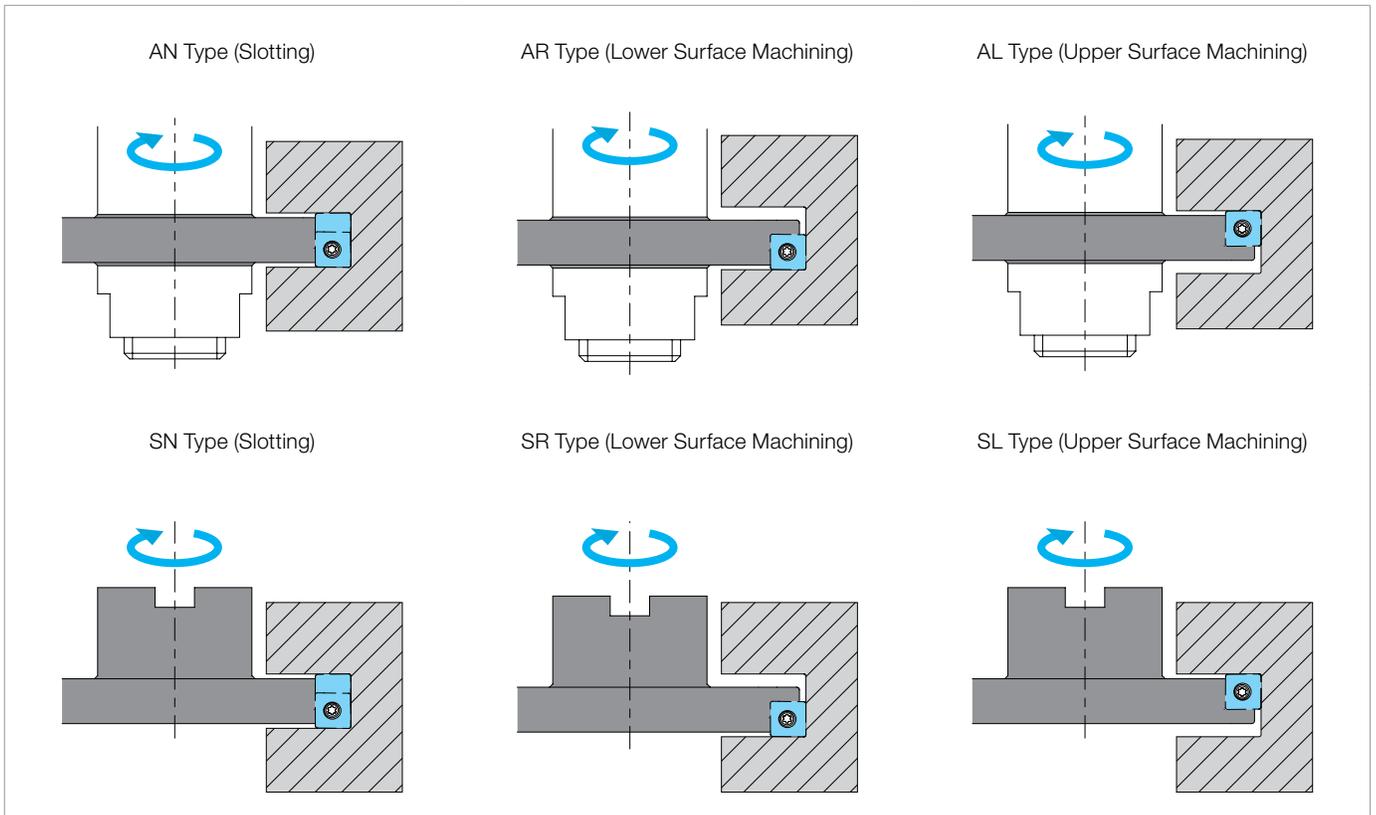
MSTC SLOT MILL (LAY-DOWN / HALF SIDE)

Identification System

MSTC Slot Mill



Cutting Direction of MSTC Slot Mill



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSTC SLOT MILL (LAY-DOWN)



Slotting

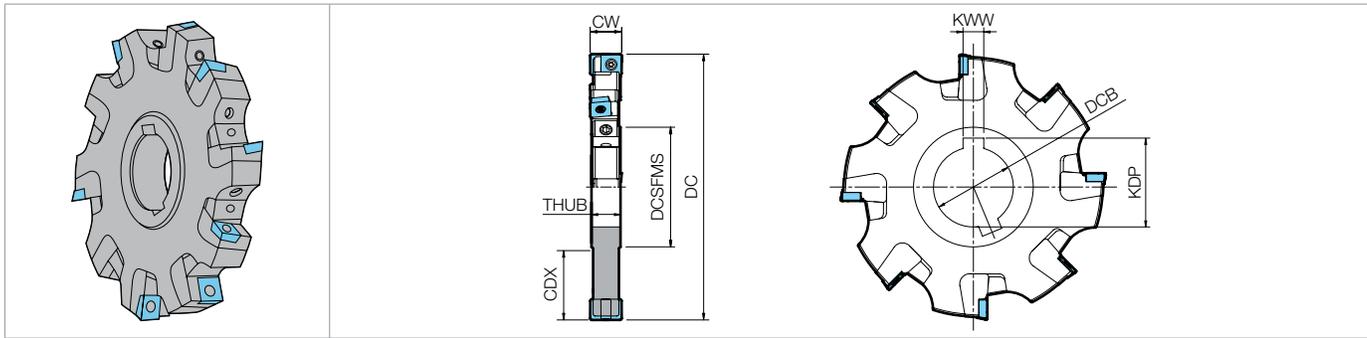


Slotting



Shouldering

MSTC Without Boss Neutral



Toolholder Dimensions (Inch Size)

Part Number	Stock	Edge Width (inch)		Slot Depth CDX (inch)	No. of Inserts	No. of Edge Lines	Dimensions (inch)						Weight (kg)	Max. RPM
		CW (Min.)	CW (Max.)				DC	DCB (H7)	DCSFMS	THUB	KDP	KWW		
MSTC 400AN551-630-10	●	0.551	0.630	1.030	6	3	4.000	1.250	1.880	0.545	1.386	0.312	0.6	17,100
500AN551-630-10	●	0.551	0.630	1.345	8	4	5.000	1.500	2.250	0.545	1.665	0.375	0.9	15,300
600AN551-630-10	●			1.845	10	5	6.000							
MSTC 500AN630-709-10	●	0.630	0.709	1.345	8	4	5.000	1.500	2.250	0.624	1.665	0.375	1.1	15,300
600AN630-709-10	●			1.845	10	5	6.000							
MSTC 500AN709-813-12	●	0.709	0.813	1.331	8	4	5.000	1.500	2.250	0.716	1.665	0.375	1.1	10,300
600AN709-813-12	●			1.831	10	5	6.000							
MSTC 500AN813-917-12	●	0.813	0.917	1.331	8	4	5.000	1.500	2.250	0.820	1.665	0.375	1.3	10,300
600AN813-917-12	●			1.831	10	5	6.000							

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

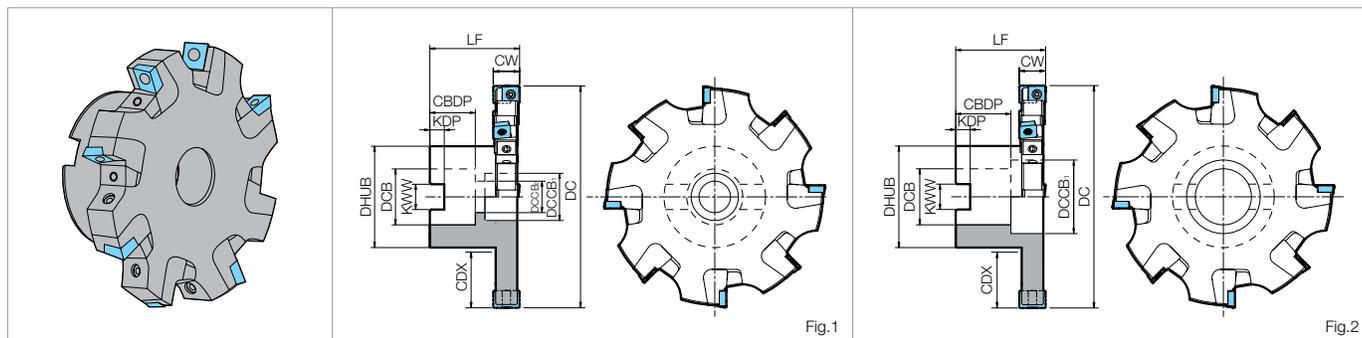
Toolholder Dimensions (Metric Size)

Part Number	Stock	Edge Width (mm)		Slot Depth CDX (mm)	No. of Inserts	No. of Edge Lines	Dimensions (mm)						Weight (kg)	Max. RPM
		CW (Min.)	CW (Max.)				DC	DCB (H7)	DCSFMS	THUB	KDP	KWW		
MSTC 100AN1416-10-3T	●	14.0	16.0	25.9	6	3	100	32	46.8	13.9	34.8	8	0.5	17,250
125AN1416-10-4T	●	14.0	16.0	34.4	8	4	125	40	54.8	13.9	43.5	10	0.8	15,450
160AN1416-10-5T	●			51.9	10	5	160							
MSTC 125AN1618-10-4T	●	16.0	18.0	34.4	8	4	125	40	54.8	15.9	43.5	10	1.0	15,450
160AN1618-10-5T	●			51.9	10	5	160							
MSTC 125AN1820-12-4T	●	18.0	20.7	34.0	8	4	125	40	54.8	18.2	43.5	10	1.0	10,350
160AN1820-12-5T	●			51.5	10	5	160							
MSTC 125AN2123-12-4T	●	21.0	23.3	34.0	8	4	125	40	54.8	20.8	43.5	10	1.2	10,350
160AN2123-12-5T	●			51.5	10	5	160							

M
MILLING

MSTC SLOT MILL (LAY-DOWN)

MSTC With Boss Neutral (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	Edge Width (mm)		Slot Depth	No. of Inserts	No. of Edge Lines	Dimensions (mm)								Drawing	Weight (kg)	Max. RPM	
		CW (Min.)	CW (Max.)				CDX (mm)	DC	DCB (H7)	DHUB	LF (Min.)	CBDP	KDP	KWW				DCCB ₁	DCCB_{2}
MSTC 100SN1416-10-3T	●			24.4	6	3	100	27	48							Fig.1	1.0	17,250
125SN1416-10-4T	●	14.0	16.0	31.9	8	4	125	32	58	50.8	26	8	14.4	27	18	Fig.1	1.6	15,450
160SN1416-10-5T	●			43.4	10	5	160	40	70		30	9	16.4	56	-	Fig.2	2.0	13,650
MSTC 125SN1618-10-4T	●			31.9	8	4	125	32	58							Fig.1	1.7	15,450
160SN1618-10-5T	●	16.0	18.0	43.4	10	5	160	40	70	50.8	30	9	16.4	56	-	Fig.2	2.3	13,650
MSTC 125SN1820-12-4T	●			31.9	8	4	125	32	58							Fig.1	1.6	10,350
160SN1820-12-5T	●	18.0	20.7	43.4	10	5	160	40	70	51.0	30	9	16.4	56	-	Fig.2	2.3	9,150
MSTC 125SN2123-12-4T	●			31.9	8	4	125	32	58							Fig.1	1.7	10,350
160SN2123-12-5T	●	20.7	23.3	43.4	10	5	160	40	70	51.0	30	9	16.4	56	-	Fig.2	2.6	9,150

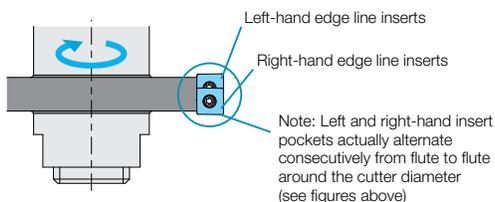
Note) LF (Min.) dimension shows case of minimum of edge width.

Recommended Cutting Conditions [M220](#)

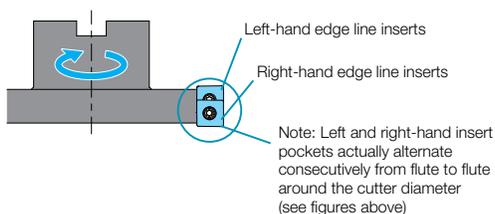
Applicable Insert Installation Method (Inch Sizes / Metric Sizes)

When installing handed inserts, it is necessary to equip same number of right-hand and left-hand inserts as shown in "No. of Edge Lines" respectively. Install left-hand inserts in left edge line pockets and right-hand inserts in right edge line pockets. Note that left and right-hand edge line pockets differentiate consecutively from flute to flute around the cutter diameter.

MSTC...AN... (Without Boss)



MSTC...SN... (With boss)



Part Number	Insert Location Indication	Applicable Inserts M218-M219	
		With hand	Neutral
MSTC...AN...10... MSTC...SN...10...		SP..10T3...L...	SP..10T3...N...
		SP..10T3...R...	
MSTC...AN...12... MSTC...SN...12...		SD..1204...L...	SD..1204...N...
		SD..1204...R...	

Spare Parts (Inch Sizes / Metric Sizes)

- For spare parts, ref. to page [M216](#)

Slot Width (Edge Width) Adjustment

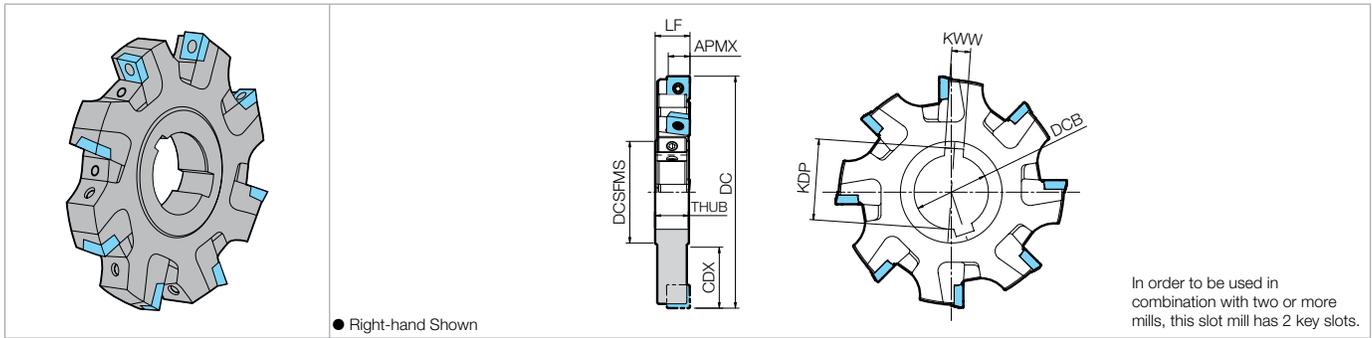
- Ref. to page [M220-M223](#)

A
B
C
D
E
F
G
H
J
K
M
N
P
R
T



Shouldering

MSTC Without Boss Right-hand



● Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)										Weight (kg)	Max. RPM
			DC	DCB (H7)	DCSFMS	THUB	LF		CDX	APMX (Max.)	KDP	KWW		
							(Min.)	(Max.)						
MSTC 500AR709-813-12	●	8	5.000	1.500	2.250	0.716	0.712	0.764	1.331	0.461	1.665	0.375	1.1	10,300
600AR709-813-12	●	10	6.000				1.831	9,400						

● Toolholder Dimensions (Metric Size)

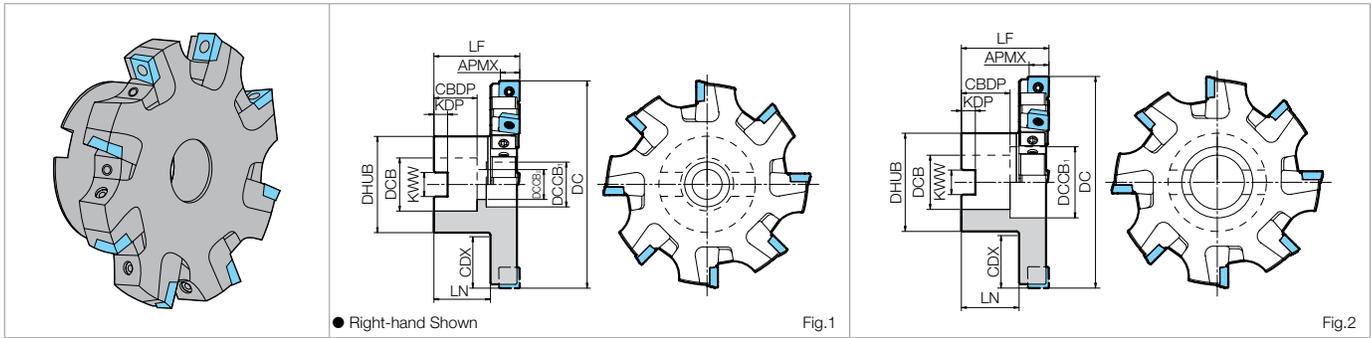
Part Number	Stock	No. of Inserts	Dimensions (mm)										Weight (kg)	Max. RPM
			DC	DCB (H7)	DCSFMS	THUB	LF		CDX	APMX (Max.)	KDP	KWW		
							(Min.)	(Max.)						
MSTC 160AR1416-10-10T	●	10	160	40	54.8	13.9	13.9	14.9	51.9	9.1	43.5	10	1.5	13,650
MSTC 125AR1820-12-8T	●	8	125	40	54.8	18.2	18.1	19.4	34.0	11.7	43.5	10	1.0	10,350
160AR1820-12-10T	●	10	160						51.5				1.8	9,150

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

MSTC SLOT MILL (HALF SIDE)

MSTC With Boss Right-hand



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)													Drawing	Weight (kg)	Max. RPM
			DC	DCB (H7)	DHUB	LF		CDX	APMX (Max.)	CDBP	KDP	KWW	DCCB ₁	DCCB ₂				
						(Min.)	(Max.)											
MSTC 500SR709-813-12	●	8	5.000	1.25	2.88			0.997		0.75	0.319	0.5	1.05	0.656	Fig.1	2.1	10,300	
600SR709-813-12	●	10	6.000	1.5	3.81	2.041	2.093	1.032	0.461	0.972	0.394	0.626	2.5	-	Fig.2	2.9	9,400	

Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)													Drawing	Weight (kg)	Max. RPM
			DC	DCB (H7)	DHUB	LN	LF		CDX	APMX (Max.)	CDBP	KDP	KWW	DCCB ₁	DCCB ₂			
							(Min.)	(Max.)										
MSTC 125SR1820-12-8T	●	8	125	32	58			31.9		26	8	14.4	27	18	Fig.1	1.6	10,350	
160SR1820-12-10T	●	10	160	40	70	34.0	51.0	52.3	11.7	30	9	16.4	56	-	Fig.2	2.3	9,150	

Applicable Inserts (Inch Sizes / Metric Sizes)

Part Number	Applicable Inserts ➔ M218-M219	
	With hand	Neutral
MSTC...AR...10.. MSTC...SR...10..	SP..10T3...R...	SP..10T3...N...
MSTC...AR...12.. MSTC...SR...12..	SD..1204...R...	SD..1204...N...

Recommended Cutting Conditions ➔ **M220**

Spare Parts (Inch Sizes / Metric Sizes)

- For spare parts, ref. to page ➔ **M217**

Slot Width (Edge Width) Adjustment

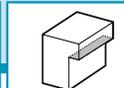
- Ref. to page ➔ **M220-M223**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSTC SLOT MILL (HALF SIDE)

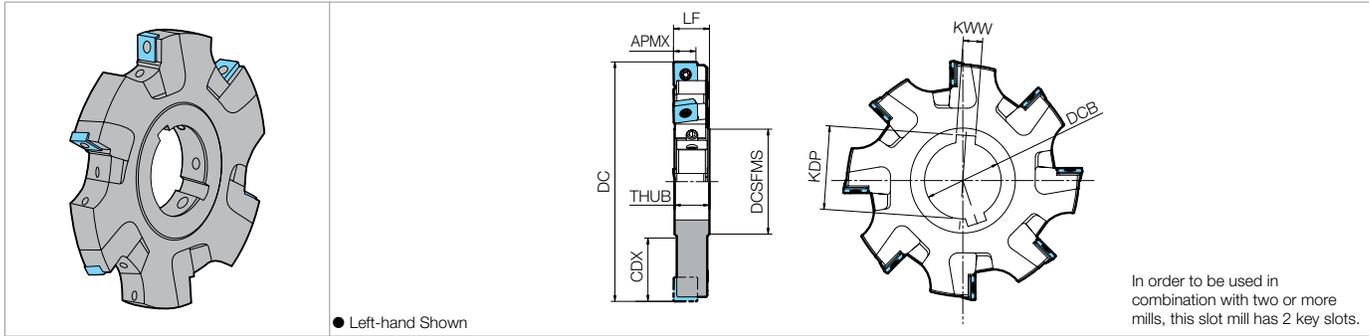


Shouldering



Back Side Milling

MSTC Without Boss Left-hand



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)										Weight (kg)	Max. RPM
			DC	DCB (H7)	DCSFMS	THUB	LF		CDX	APMX (Max.)	KDP	KWW		
							(Min.)	(Max.)						
MSTC 500AL709-813-12	●	8	5.000	1.500	2.250	0.716	0.712	0.764	1.331	0.461	1.665	0.375	1.1	10,300
600AL709-813-12	●	10	6.000						1.831					

Toolholder Dimensions (Metric Size)

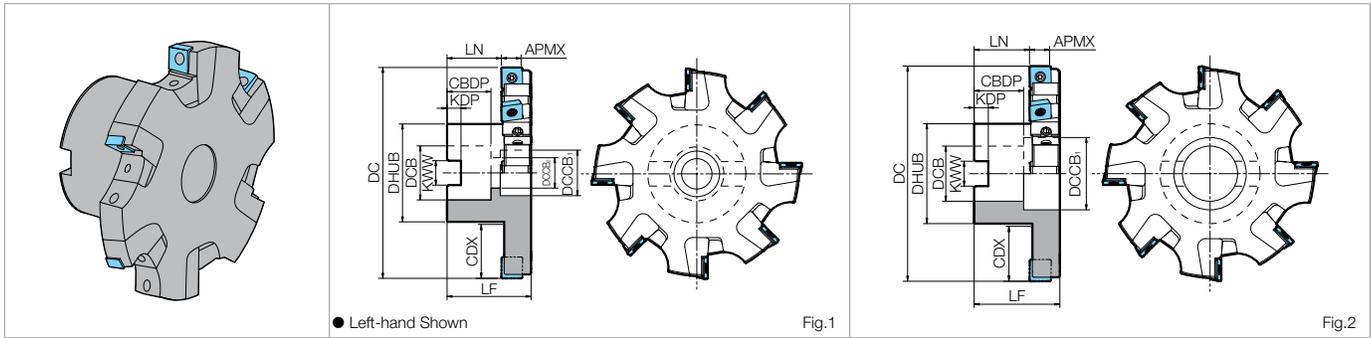
Part Number	Stock	No. of Inserts	Dimensions (mm)										Weight (kg)	Max. RPM
			DC	DCB (H7)	DCSFMS	THUB	LF		CDX	APMX (Max.)	KDP	KWW		
							(Min.)	(Max.)						
MSTC 125AL1820-12-8T	●	8	125	40	54.8	18.2	18.1	19.4	34.0	11.7	43.5	10	1.0	10,350
160AL1820-12-10T	●	10	160						51.5					

- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

M
MILLING

MSTC SLOT MILL (HALF SIDE)

MSTC With Boss Left-hand



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)												Drawing	Weight (kg)	Max. RPM
			DC	DCB (H7)	DHUB	LN		CDX	APMX (Max.)	CBDP	KDP	KWW	DCCB ₁	DCCB ₂			
MSTC 500SL709-813-12	●	8	5.000	1.250	2.880	1.280	1.332	0.997	0.461	0.750	0.319	0.500	1.050	0.656	Fig.1	2.1	10,300
600SL709-813-12	●	10	6.000	1.500	3.810			1.032		0.972	0.394	0.626	2.500	-	Fig.2	2.9	9,400

Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)												Drawing	Weight (kg)	Max. RPM	
			DC	DCB (H7)	DHUB	LF	LN		CDX	APMX (Max.)	CBDP	KDP	KWW	DCCB ₁				DCCB ₂
MSTC 125SL1820-12-8T	●	8	125	32	58	50	31.7	33.0	31.9	11.7	26	8	14.4	27	18	Fig.1	1.6	10,350
160SL1820-12-10T	●	10	160	40	70			43.4		30	9	16.4	56	-	Fig.2	2.3	9,150	

Applicable Inserts (Inch Sizes / Metric Sizes)

Part Number	Applicable Inserts M218-M219	
	With hand	Neutral
MSTC...AL...10.. MSTC...SL...10..	SP..10T3...L...	SP..10T3...N...
MSTC...AL...12.. MSTC...SL...12..	SD..1204...L...	SD..1204...N...

Recommended Cutting Conditions [M220](#)

Spare Parts (Inch Sizes / Metric Sizes)

- For spare parts, ref. to page [M217](#)

Slot Width (Edge Width) Adjustment

- Ref. to page [M220-M223](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSTC SLOT MILL (LAY-DOWN)

● Spare Parts (Inch Sizes / Metric Sizes)

Part Number		Spare Parts													
		Cartridge		Wedge	Wedge Screw	Cam Pin	Clamp Screw	Wrench			Anti-seize Compound	Arbor Bolt			
		Right-hand	Left-hand					for Wedge Screw	for Cam Pin	for Clamp Screw					
Without Boss	Inch Size	MSTC 400AN551-630-10	C90SP1416-10R	C90SP1416-10L	WC-14	W6X18	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-		
		500AN551-630-10	C90SP1416-10R	C90SP1416-10L	WC-14	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-		
		600AN551-630-10													
		MSTC 500AN630-709-10	C90SP1618-10R	C90SP1618-10L	WC-16	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-		
		600AN630-709-10													
		MSTC 500AN709-813-12	C90SD1820-12R	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-		
	600AN709-813-12														
	MSTC 500AN813-917-12	C90SD2023-12R	C90SD2023-12L	WC-20	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-			
	600AN813-917-12														
	Metric Size	MSTC 100AN1416-10-3T	C90SP1416-10R	C90SP1416-10L	WC-14	W6X18	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-		
														125AN1416-10-4T	
			160AN1416-10-5T												
			MSTC 125AN1618-10-4T	C90SP1618-10R	C90SP1618-10L	WC-16	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-	
															160AN1618-10-5T
			MSTC 125AN1820-12-4T	C90SD1820-12R	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-	
		160AN1820-12-5T													
		MSTC 125AN2123-12-4T	C90SD2023-12R	C90SD2023-12L	WC-20	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-		
														160AN2123-12-5T	
With Boss		Metric Size	MSTC 100SN1416-10-3T											HH12X35	
			125SN1416-10-4T	C90SP1416-10R	C90SP1416-10L	WC-14	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-	HH16X35
			160SN1416-10-5T												
	MSTC 125SN1618-10-4T		C90SP1618-10R	C90SP1618-10L	WC-16	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-	HH16X35	
	160SN1618-10-5T														
	MSTC 125SN1820-12-4T		C90SD1820-12R	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-	HH16X35	
160SN1820-12-5T															
MSTC 125SN2123-12-4T	C90SD2023-12R	C90SD2023-12L	WC-20	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-	HH16X35			
160SN2123-12-5T															

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

● Tightening Torque

Wrench	TH-3L	DTP-9	DTP-15
Tightening Torque (Nm)	5-6	1.5	4

MSTC SLOT MILL (HALF SIDE)

● Spare Parts (Inch Sizes / Metric Sizes)

Part Number		Spare Parts											
		Cartridge		Wedge	Wedge Screw	Cam Pin	Clamp Screw	Wrench			Anti-seize Compound	Arbor Bolt	
		Right-hand	Left-hand					for Wedge Screw	for Cam Pin	for Clamp Screw			
													
Without Boss	Inch Size	MSTC 500AR709-813-12	C90SD1820-12R	-	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-
		600AR709-813-12											
	Metric Size	MSTC 500AL709-813-12	-	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-
		600AL709-813-12											
	Metric Size	MSTC 160AR1416-10-10T	C90SP1416-10R	-	WC-14	W6X20	AP-1416	SE-3070TRP	TH-3L	LW-2.5	DTP-9	P-37	-
		MSTC 125AR1820-12-8T	C90SD1820-12R	-	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-
160AR1820-12-10T													
MSTC 125AL1820-12-8T		-	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	-	
With Boss	Inch Size	MSTC 500SR709-813-12	C90SD1820-12R	-	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	HH16X35
		600SR709-813-12											-
	Metric Size	MSTC 500SL709-813-12	-	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	HH16X35
		600SL709-813-12											-
	Metric Size	MSTC 125SR1820-12-8T	C90SD1820-12R	-	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	HH16X35
		160SR1820-12-10T											-
		MSTC 125SL1820-12-8T	-	C90SD1820-12L	WC-18	W6X20	AP-1820	SB-3590TRP	TH-3L	LW-3	DTP-15	P-37	HH16X35
		160SL1820-12-10T											-

 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

● Tightening Torque

Wrench	TH-3L	DTP-9	DTP-15
			
Tightening Torque (Nm)	5-6	1.5	4

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Insert Identification System

Symbol	Shape	Class			Symbol	Corner-R(RE)	Symbol	Hand of Tool		
		Corner Height	Thickness	I.C. Size						
S	Square	C	±0.013mm	±0.025mm	±0.025mm	16	1.60mm	N	Neutral	
		E	±0.025mm			12	1.20mm	L	Left-hand	
① Shape		③ Tolerance			⑤ Edge Length		⑦ Corner-R(RE)		⑨ Hand of Tool	

S	P	C	T	10	T3	08	E	R	-	SD
①	②	③	④	⑤	⑥	⑦	⑧	⑨		⑩

② Relief Angle		④ Hole / Chipbreaker		⑥ Thickness		⑧ Edge Preparation	
Symbol	Relief Angle	Symbol	Shape	Symbol	Thickness	Symbol	Edge Preparation
D	15°	T	Single-sided Chipbreaker, with Hole	T3	3.97mm	E	Honed
P	11°			04	4.76mm	F	Sharp Edge
						S	Chamfer + R-honed

⑩ Chipbreaker Symbol	
Symbol	Rake Angle
SB	5°
SD	15°
SE	20°

Applicable Inserts (SP..10T3)

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Part Number	IC	S	D1	Classification of Usage	Usable Edges	Dimensions (in)		CVD Coated Carbide	PVD Coated Carbide	
						RE	BS (Wiper Edge)		CA0835	PR0725	PR0110
SPCT 10T316EN-SD	0.394	5/32	0.134	● : 1st Choice ○ : 2nd Choice	4	0.063	-		●	
SPCT 10T308E [△] /L-SD					4	0.031	0.098		●	
10T312E [△] /L-SD					4	0.047	0.071		●	
SPCT 10T316FN-SE					4	0.063	-			●
SPCT 10T308F [△] /L-SE					4	0.031	0.106			●
10T312F [△] /L-SE					4	0.047	0.087			●
SPET 10T308E [△] /L-SB					4	0.031	0.106	●	●	
SPET 10T308S [△] /L-SB					4	0.031	0.106	●	●	

Inserts are sold in 10 piece boxes.

Applicable Inserts (SD..1204)

Part Number				IC	S	D1	Usage Classification			Material			
SD..1204				1/2	3/16	0.173	● : 1st Choice	○ : 2nd Choice	P Carbon Steel / Alloy Steel	●	●		
Insert Right-handed Insert Shown							Part Number	Usable Edges	Dimensions (in)		CVD Coated Carbide	PVD Coated Carbide	
									RE	BS (Wiper Edge)	CA0835	PR0725	PR0110
			SDCT 120416EN-SD	4	0.063	-				●			
			SDCT 120408E%L-SD	4	0.031	0.098				●			
			SDCT 120412E%L-SD	4	0.047	0.071				●			
			SDCT 120416FN-SE	4	0.063	-					●		
			SDCT 120408F%L-SE	4	0.031	0.106					●		
			SDCT 120412F%L-SE	4	0.047	0.075					●		
			SDET 120408E%L-SB	4	0.031	0.098	●	●					
			SDET 120412E%L-SB	4	0.047	0.071	●	●					
			SDET 120416SN-SB	4	0.063	-	●	●					
			SDET 120408S%L-SB	4	0.031	0.098	●	●					

Feature of Insert Grades

CA0835

- TiN+TiCN+Al₂O₃ based CVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel and Cast Iron.
- For medium to high speed machining

PR0725

- TiN+TiCN+TiN based Multi-layer PVD Coated Carbide
- For Carbon Steel, Alloy Steel, Stainless Steel, Heat Resistant Alloys and Cast Iron.
- For medium speed machining

PR0110

- TiB₂ based PVD Coated Carbide
- For Non-ferrous Metals such as Aluminum Alloys (Si<10%) and Titanium Alloys.
- For high speed machining

Inserts are sold in 10 piece boxes.

● : Standard Item △ : Phaseout Item (will be removed from next catalog)
Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

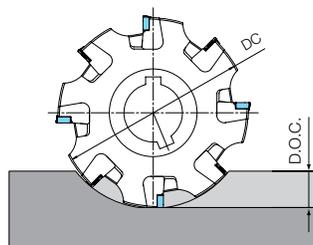
MSTC SLOT MILL (LAY-DOWN / HALF SIDE)

◆ Recommended Cutting Conditions (CA0835 / PR0725 / PR0110)

Workpiece Material		Hardness (HB)	Recommended Insert Grade (Vc: sfm)			fz (ipt)				Notes
			CVD Coated Carbide	PVD Coated Carbide		Chipbreaker				
				CA0835	PR0725	PR0110	EN-SD ER-SD EL-SD	ER-SB EL-SB	SN-SB SR-SB SL-SB		FN-SE FR-SE FL-SE
Low Carbon Steel	1010-1025	20	820-1020	560-690	-	0.003-0.008	0.004-0.009	0.006-0.012	-	Dry
Carbon Steel	1030-1059, 1060 Annealed	29	520-620	330-460	-	0.003-0.008	0.004-0.009	0.006-0.012	-	
	1030-1059, 1060 Heat Treated	37	460-590	300-390	-	0.003-0.008	0.004-0.009	0.006-0.012	-	
Alloy Steel	Annealed	28	460-590	300-390	-	0.003-0.008	0.004-0.009	0.006-0.012	-	
	Heat Treated	41	390-520	260-360	-	0.002-0.007	0.003-0.008	0.005-0.010	-	
High Carbon Alloy	D2, H13, etc.	41	360-430	230-300	-	0.002-0.007	0.003-0.008	0.005-0.010	-	Coolant
Stainless Steel	304, 316, etc. Austenitic	33	520-660	360-460	-	0.002-0.007	0.003-0.008	0.005-0.010	-	
	403, 410, etc. Martensitic	45	490-590	330-390	-	0.002-0.007	0.003-0.008	0.005-0.010	-	
Heat-resistant Alloys	Inconel 718, etc.	37.7	-	50-100	-	0.002-0.007	0.003-0.008	0.005-0.010	-	
Titanium Alloys	Ti-6Al-4V, etc.	40	-	70-160	-	0.002-0.007	0.003-0.008	0.005-0.010	-	Dry
Gray Cast Iron	NO.45-NO.60	38	520-660	360-430	-	0.003-0.009	0.004-0.010	0.006-0.014	-	
Nodular Cast Iron	60-40-18-70-50-05	25	430-520	260-330	-	0.003-0.009	0.004-0.010	0.006-0.014	-	
	80-60-03-120-90-02	37	360-460	230-300	-	0.003-0.009	0.004-0.010	0.006-0.014	-	
Non-ferrous Metals		-	-	-	2460-3120	-	-	-	0.003-0.008	

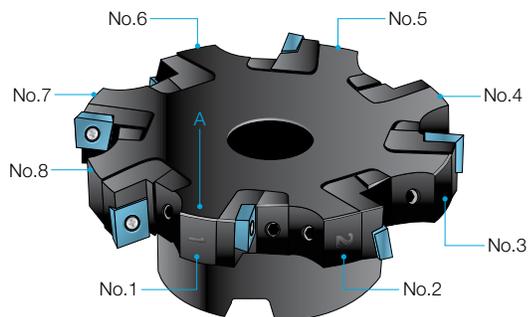
- Inserts
- 45°-70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications

Note) 1. Use down-cut machining.
 2. If D.O.C. is under 1/10 of Cutter Dia.(DC), it is possible to increase feed per tooth (fz) 40%.

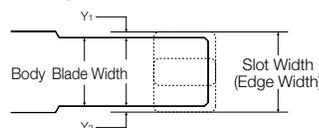


Slot Width (Edge Width) Adjustment of MSTC Slot Mills

Slot Width (Edge Width) Measurement

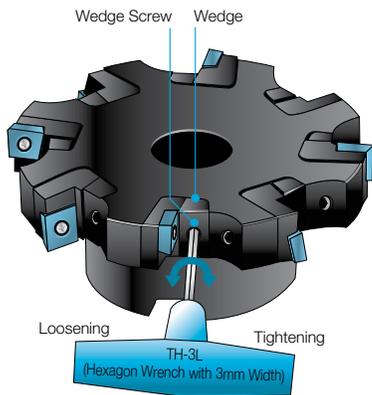


- ① Please check slot mill insert location number.
(The insert location number is marked on the slot mill body.)
- ② Set up the slot mill on length measuring equipment such as tool presettlers.
- ③ Place the side A of the slot mill body near the insert position No.1 to "0 (zero)" the length measuring equipment.
- ④ Move the length measuring equipment to the insert corner and measure the step (Y₁) between side A and the corner of insert No.1.
- ⑤ Likewise, on the other side, measure the step between the slot mill body and the insert corner (Y₂), and you will obtain the slot width (edge width).

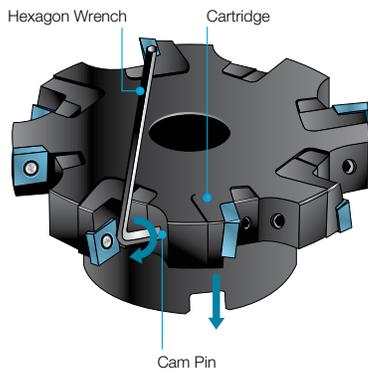


MSTC SLOT MILL (LAY-DOWN / HALF SIDE)

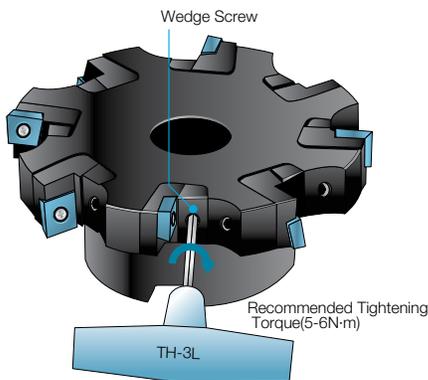
Changing the Slot Width (Edge Width)



- ① Set up the slot mill on length measuring equipment such as tool presetters.
- ② Insert a 3mm Hexagon Wrench (TH-3L) into the wedge screw.
- ③ Turn TH-3L counterclockwise to loosen the Wedge.
- ④ Turn TH-3L clockwise by the torque of 1 N·m to tighten the wedge lightly and make the wedge contact the cartridge and the Slot Mill body.
In doing so, some resistance occurs against the cartridge.

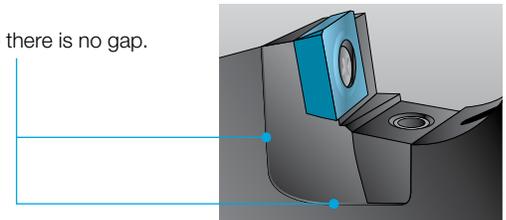


- ⑤ Insert a Hexagon Wrench (LW-2.5 or LW-3) into the Cam Pin on the back of the cartridge.
- ⑥ Turn the wrench and adjust the position of the Cartridge.
- ⑦ To secure the adjustment, back-turn the Cam Pin and make sure that it does not touch the groove surface of the back of the Cartridge.
- ⑧ Remove the Hexagon wrench from the Cam Pin.



- ⑨ Insert TH-3L into the Wedge Screw.
- ⑩ Tighten the Wedge Screw by the torque of 5-6N·m.
(Use a torque wrench to get the correct torque.)
- ⑪ Make sure there is no gap between the Cartridge and the Slot Mill body.

Make sure there is no gap.



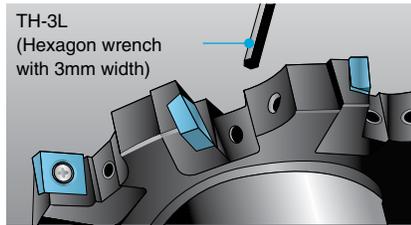
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MSTC SLOT MILL (LAY-DOWN / HALF SIDE)

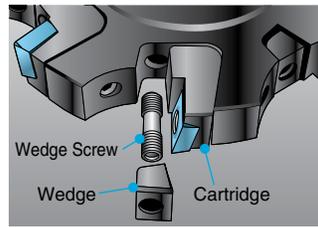
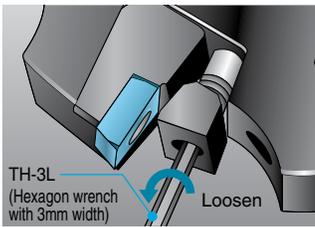
Replacement of the Cartridge

Follow the instructions below to replace the Cartridge.

- (1) Insert Hexagon wrench with 3mm width (TH-3L) into the Wedge Screw. TH-3L

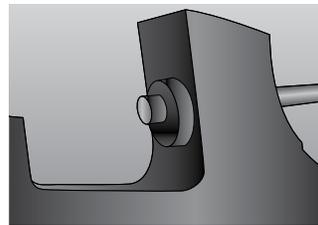
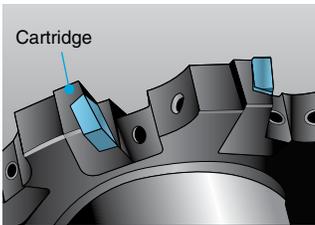


- (2) Loosen the Wedge Screw.



- (3) Remove the Wedge Screw and Wedge.

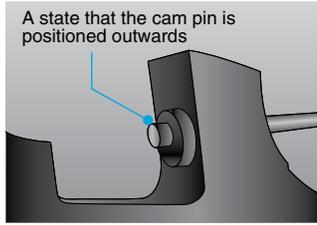
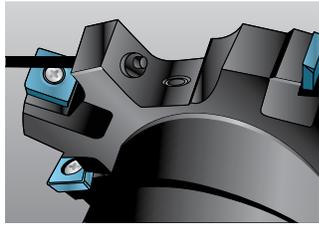
- (4) Remove the Cartridge.



Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi- Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING

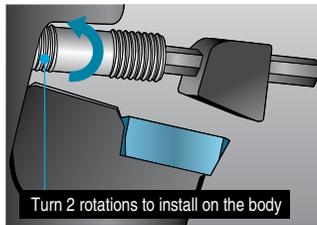
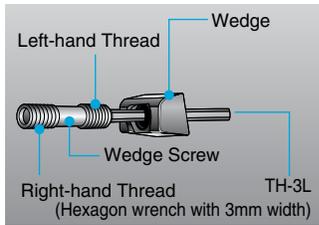
MSTC SLOT MILL (LAY-DOWN / HALF SIDE)



(5) Before replacing the Cartridge, make sure that the Cam Pin is positioned radially-outwards.



(6) If the Cam Pin is in the position shown in the left diagram, assembling the Cartridge is not possible.



(7) Place the wedge so that its larger slant surface faces toward the Cartridge.

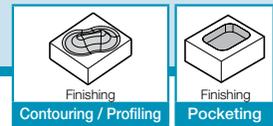
(8) Turn the Wedge Screw two times to install the Wedge to the body.

(9) When installing the Wedge Screw to the body, keep the Wedge from rotating and screw it in.

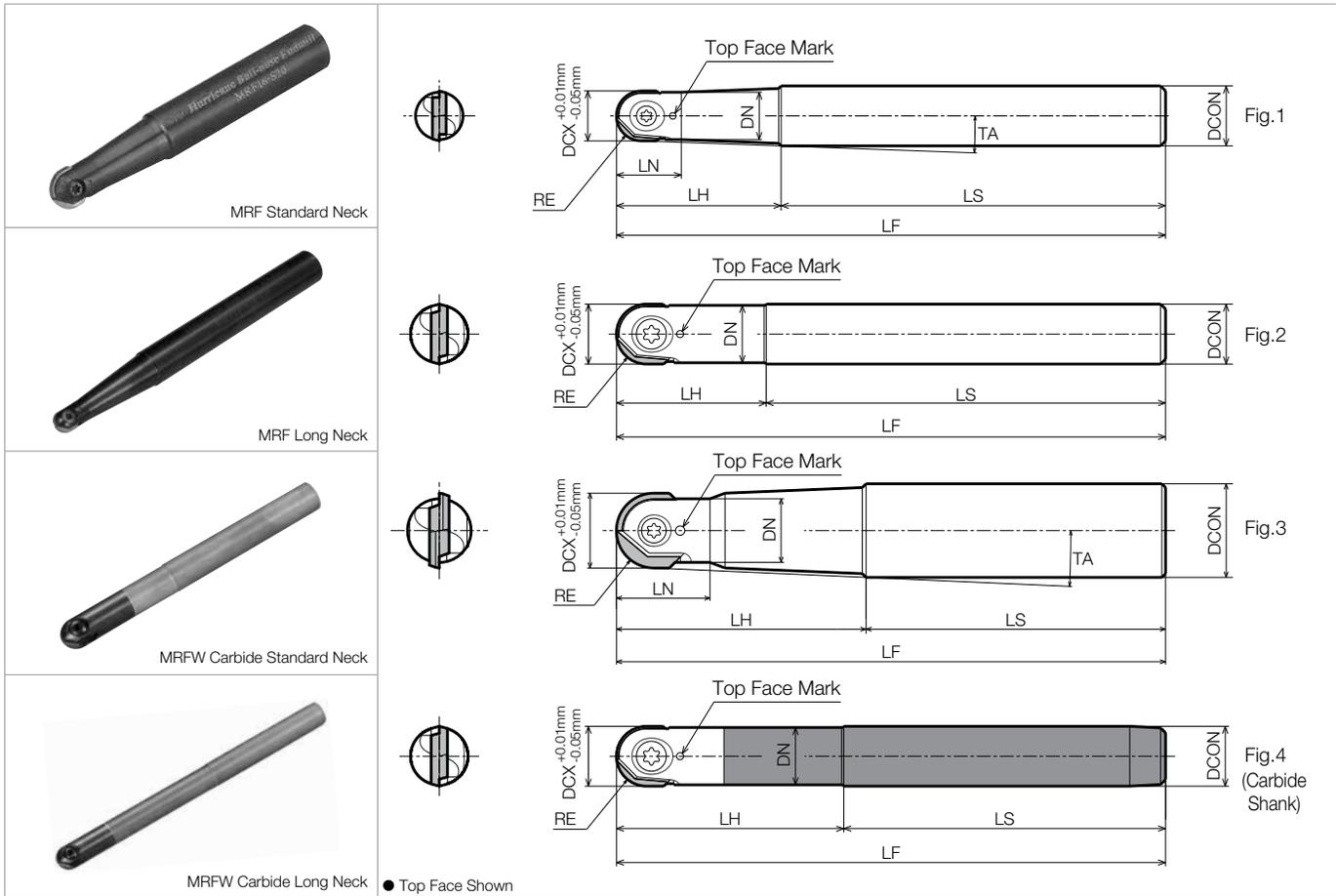


(10) Tighten the Wedge Screw by the torque of 5-6N·m. Keep the Screw head and the Wedge even (prevent either of those from sticking out).

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T



MRF (Steel Shank) / MRFW (Carbide Shank)



Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

● Toolholder Dimensions (Metric Size)

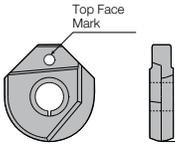
Part Number	Stock	No. of Inserts	Dimensions (mm)										Drawing	Spare Parts			Applicable Inserts ● M25
			RE	DCX	DCON	DN	LF	LN	LH	LS	TA	Clamp Screw		Wrench	Anti-seize Compound		
			RE	DCX	DCON	DN	LF	LN	LH	LS	TA	SC		DT	TT		
Standard Neck	MRF 08-S12	●	1	4.0	8	12	7.5	100	10	22	78	6°20'	Fig.1	SC-30067	DT-8	P-37	RDFG08FR
	10-S12	●	1	5.0	10	12	9.5	100	13	25	75	3°	Fig.1	SC-35085	DT-10		RDFG10FR
	12-S12	●	1	6.0	12	12	11.5	110	-	30	80	-	Fig.2	SC-40100	DT-15		RDFG12FR
	16-S20	●	1	8.0	16	20	14.0	130	20	50	80	2°50'	Fig.1	SC-50130	DT-20		RDFG16FR
	20-S25	●	1	10.0	20	25	17.0	140	25	60	80	3°	Fig.3	SC-60160	TT-25		RDFG20FR
	25-S32	●	1	12.5	25	32	22.0	150	31	70	80	3°30'	Fig.3	SC-60210	TT-30		RDFG25FR
Long Neck	MRF 08-S12-130	●	1	4.0	8	12	7.5	130	10	50	80	2°30'	Fig.1	SC-30067	DT-8	P-37	RDFG08FR
	10-S16-150	●	1	5.0	10	16	9.5	150	15	50	100	3°50'	Fig.1	SC-35085	DT-10		RDFG10FR
	12-S16-160	●	1	6.0	12	16	11.5	160	16	60	100	2°10'	Fig.1	SC-40100	DT-15		RDFG12FR
	16-S20-160	●	1	8.0	16	20	14.0	160	20	65	95	2°	Fig.1	SC-50130	DT-20		RDFG16FR
	20-S25-180	●	1	10.0	20	25	17.0	180	25	80	100	2°10'	Fig.3	SC-60160	TT-25		RDFG20FR
	25-S32-200	●	1	12.5	25	32	22.0	200	31	90	110	2°40'	Fig.3	SC-60210	TT-30		RDFG25FR
Carbide Standard Neck	MRFW 08-S08	●	1	4.0	8	8	7.4	100	-	30	70	-	Fig.4	SC-30067	DT-8	P-37	RDFG08FR
	10-S10	●	1	5.0	10	10	9.5	100	-	35	65	-	Fig.4	SC-35085	DT-10		RDFG10FR
	12-S12	●	1	6.0	12	12	11.5	110	-	45	65	-	Fig.4	SC-40100	DT-15		RDFG12FR
Carbide Long Neck	MRFW 08-S08-130	●	1	4.0	8	8	7.4	130	-	65	65	-	Fig.4	SC-30067	DT-8	P-37	RDFG08FR
	10-S10-140	●	1	5.0	10	10	9.5	140	-	75	65	-	Fig.4	SC-35085	DT-10		RDFG10FR
	12-S12-150	●	1	6.0	12	12	11.5	150	-	85	65	-	Fig.4	SC-40100	DT-15		RDFG12FR

● TA (Toolholder's interference angle) is the angle formed by the tangential line from insert dia. to toolholder's shank dia.

🔧 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

MRF / MRFW BALL-NOSE END MILL

● Applicable Inserts (● M25)

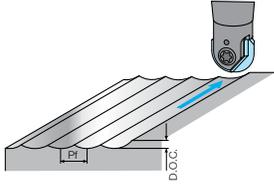
Insert	Part Number
	RDFG 08FR
	10FR
	12FR
	16FR
	20FR
	25FR

● Top Face Shown

● Align the Top Face Mark of both insert and toolholder.

● Recommended Depth of Cut

Part Number	Depth of Cut (in)		Applications
	D.O.C.	Pf	
Standard Neck	MRF08-S12	0.008 (Max 0.012)	0.031
	MRF10-S12	0.008	0.039
	MRF12-S12	0.020	0.047
	MRF16-S20	0.020	0.063
	MRF20-S25	0.039	0.079
Long Neck	MRF08-S12-130	0.008 (Max 0.012)	0.031
	MRF10-S16-150	0.008	0.039
	MRF12-S16-160	0.020	0.047
	MRF16-S20-160	0.020	0.063
	MRF20-S25-180	0.039	0.079
Carbide Standard Neck	MRF25-S32-200	0.039	0.098
	MRFW08-S08	0.008 (Max 0.012)	0.031
	MRFW10-S10	0.008	0.039
Carbide Long Neck	MRFW12-S12	0.020	0.047
	MRFW08-S08-130	0.008 (Max 0.012)	0.031
	MRFW10-S10-140	0.008	0.039
	MRFW12-S12-150	0.020	0.047



For Ø8mm, Holder may be broken because of overload if D.O.C. exceeds 0.012".

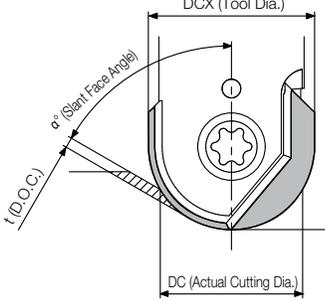
◆ Recommended Cutting Conditions (At Cutting Dia. DCX)

Workpiece Material	Insert Grades	Vc (sfm)	fz (ipt)	Ø8mm		Ø10mm		Ø12mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon Steel	PR915	330~660	0.004~0.012	490 (5,970)	0.008 (94.095)	490 (4,770)	0.008 (75.197)	490 (3,980)	0.008 (62.598)
Alloy Steel	PR915	260~590	0.004~0.012	430 (5,170)	0.008 (81.496)	430 (4,140)	0.008 (65.354)	430 (3,450)	0.008 (54.331)
Mold Steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Stainless Steel	PR915	160~490	0.004~0.008	330 (3,980)	0.006 (46.850)	330 (3,180)	0.006 (37.402)	330 (2,650)	0.006 (31.496)
Cast Iron	PR915	330~660	0.008~0.016	490 (5,970)	0.012 (140.945)	490 (4,770)	0.012 (112.598)	490 (3,980)	0.012 (94.095)
Workpiece Material	Insert Grades	Vc (sfm)	fz (ipt)	Ø16mm		Ø20mm		Ø25mm	
				Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)	Vc (sfm) (RPM)	fz (ipt) Vf (ipm)
Carbon Steel	PR915	330~660	0.004~0.012	490 (2,980)	0.008 (46.850)	490 (2,390)	0.008 (37.402)	490 (1,910)	0.008 (29.921)
Alloy Steel	PR915	260~590	0.004~0.012	430 (2,590)	0.008 (40.551)	430 (2,070)	0.008 (32.677)	430 (1,660)	0.008 (25.984)
Mold Steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Stainless Steel	PR915	160~490	0.004~0.008	330 (1,990)	0.006 (23.622)	330 (1,590)	0.006 (18.898)	330 (1,270)	0.006 (14.961)
Cast Iron	PR915	330~660	0.008~0.016	490 (2,980)	0.012 (70.472)	490 (2,390)	0.012 (56.299)	490 (1,910)	0.012 (45.276)

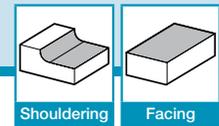
◆ Actual Cutting Speed (Vd) Conversion Coefficient Table

Vd varies depending on D.O.C. and slant face angle.

Vd can be obtained by dividing the conversion coefficient into the recommended cutting speed.

Model	Tool Dia. (DCX)	Ø8mm		Ø10mm		Ø12mm			
		D.O.C. (t: in)							
	Slant Face Angle (α°)	15°	1.00	1.00	1.00	1.00	1.00		
		30°	1.05	1.02	1.05	1.03	1.04	1.01	
		45°	1.18	1.12	1.20	1.14	1.16	1.07	
		60°	1.47	1.34	1.51	1.38	1.42	1.24	
		75°	2.15	1.82	2.24	1.92	2.02	1.60	
		90°(Horizontal Plane)	4.48	3.22	5.06	3.57	3.92	2.50	
Slant Face Angle (α°)	Slant Face Angle (α°)	Tool Dia. (DCX)		Ø16mm		Ø20mm		Ø25mm	
		D.O.C. (t: in)		0.008*	0.020*	0.020*	0.039*	0.020*	0.039*
		15°	1.00	1.00	1.00	1.02	1.00	1.01	
		30°	1.05	1.01	1.02	1.00	1.03	1.00	
		45°	1.18	1.10	1.12	1.06	1.14	1.08	
		60°	1.47	1.30	1.34	1.21	1.38	1.25	
		75°	2.14	1.73	1.83	1.53	1.93	1.62	
90°(Horizontal Plane)	4.48	2.87	3.20	2.29	3.57	2.55			

e.g.) Suppose tool dia. 8mm, D.O.C. = 0.039", slant face angle 90°. The actual cutting speed Vd for carbon steel machining, when Vc is 490sfm at the full cutter diameter, Vd can be obtained by calculating: $Vd = 490 \div 4.48 = 109.4\text{sfm}$



RAD-8 (MRW)

The MRW Radius Cutter Lowers Cutting Costs and Increases Efficiency

The double-faced inserts improve milling in a wide variety of materials

Advantages

Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

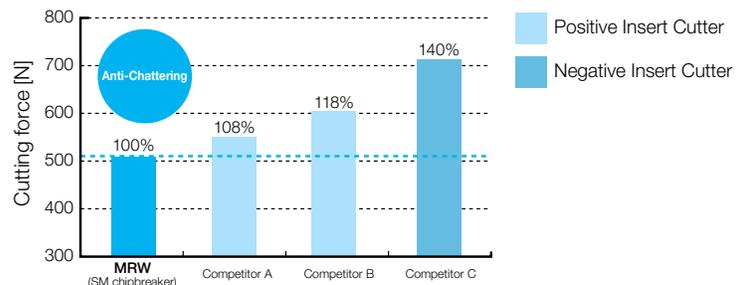
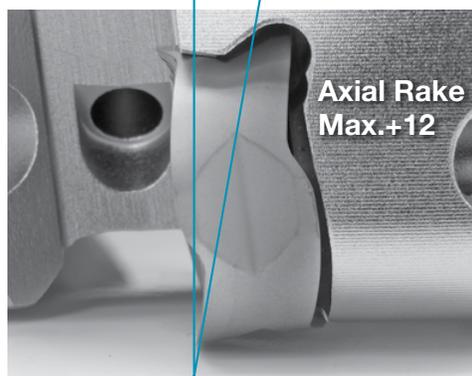
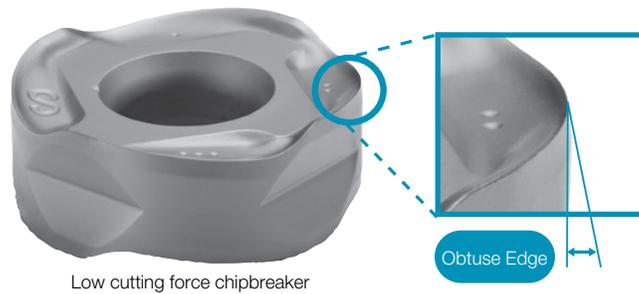
Economical 8-edge Insert

Combined Sharpness & Cutting Edge Strength

Improved edge strength due to obtuse edge

Helical Cutting Edge Design with Maximum Axial Rake 12°

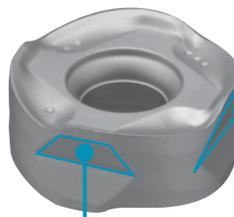
Lower cutting forces equivalent to positive inserts



< Cutting Condition >
 Vc = 390 sfm, D.O.C. × ae = 0.039" × 1.575", fz = 0.008 ipt
 304 Stainless Steel, Cutter Ø2.000"

Flat Lock Structure Holds Insert Firmly

Prevents insert rotation during machining to provide stable cutting

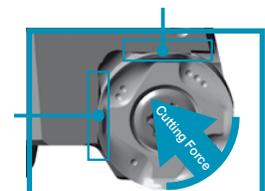


Wide and flat binding face

Flat Lock Structure

Wide Flat Binding Face

- Receives even cutting forces
- Prevents insert rotation



Longer tool life with a wide insert lineup including 4 grades and 3 chipbreakers!

Available for Steel, Stainless Steels, Cast Iron, and Heat-Resistant Alloys

Workpiece Material		Applicable Insert Grade	Applicable Chipbreaker
P Carbon Steel / Alloy Steel / Die Steel		PR1525	GM/SM/GH Chipbreaker
K Gray Cast Iron / Nodular Cast Iron		PR1510	GH/GM Chipbreaker
S Ni-base Heat Resistant Alloy	M Martensitic Stainless Steel	CA6535	SM/GM Chipbreaker
S Titanium Alloy	M Austenitic Stainless Steel M Precipitation Hardened Stainless Steel	PR1535	SM/GM Chipbreaker

New Grades for Difficult-to-cut Materials

- Stable cutting prevents insert fracturing
- Good for high efficiency machining



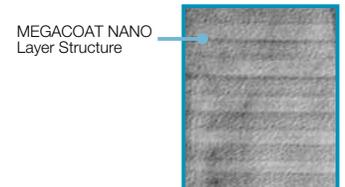
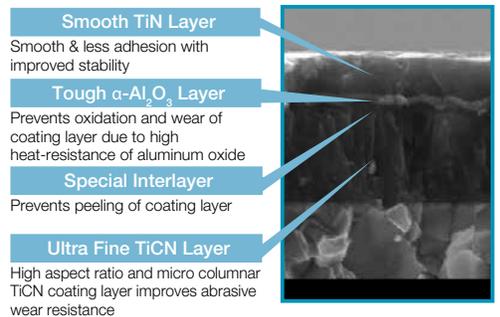
CA6535

- For Ni-base heat resistant alloys and martensitic stainless steels
- High heat resistance and wear resistance with CVD coating
- Improved stability due to thin film coating technology



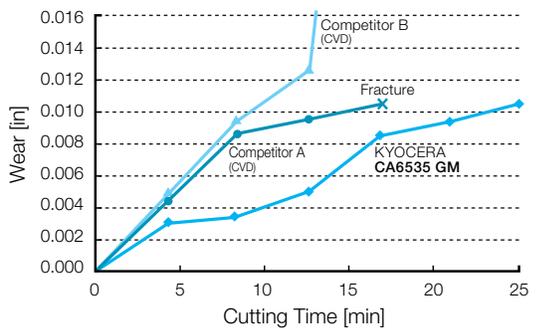
PR1535

- For titanium alloys and precipitation hardened stainless steel
- Stable milling operation and long tool life with Kyocera's MEGACOAT NANO coating technology
- Improved stability due to thin film coating technology



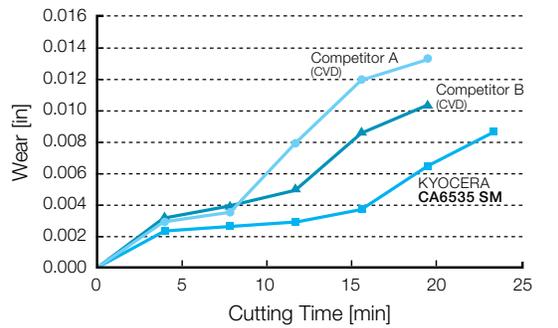
Tool Life Comparison

Ni-base Heat Resistant Alloy



1st recommendation GM Chipbreaker

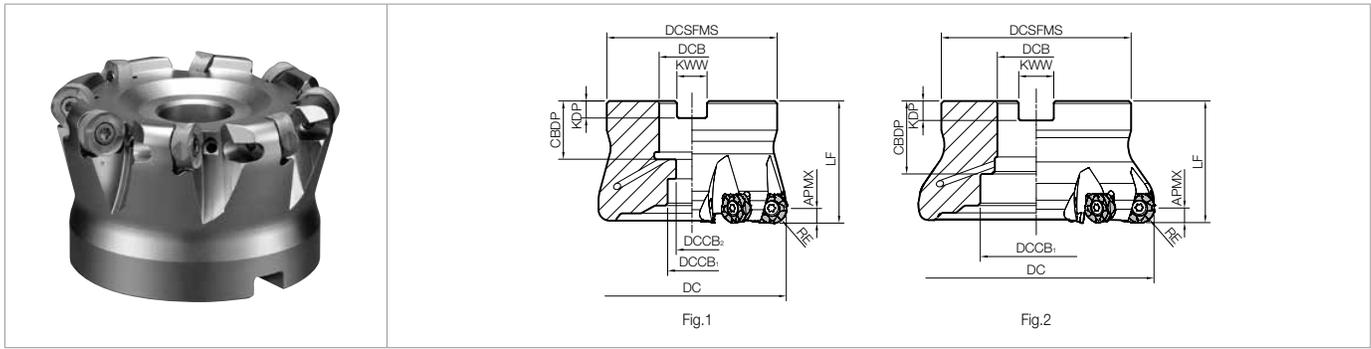
Martensitic Stainless Steel



1st recommendation SM Chipbreaker

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MRW Face Mill (Inch Size)



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)											Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max. RPM
			RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDB	KDP	KWW	APMX	A.R.	R.R.				
MRW 2000R-12-5T 2000R-12-6T 2500R-12-6T 2500R-12-7T 3000R-12-6T 3000R-12-8T 4000R-12-7T 4000R-12-9T	●	5	0.236 (6mm)	2.00	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.236 (6mm)	+12°	-15.5°	Yes	Fig. 1	0.3	16,000
	●	6																0.3	
	●	6																0.6	
	●	7		2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.236 (6mm)	+12°	-15.5°	Yes	Fig. 1	0.6	14,000
	●	6																0.6	
	●	8		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381	0.236 (6mm)	+12°	-15.5°	Yes	Fig. 1	1.1	12,000
	●	7																1.1	
	●	7		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625	0.236 (6mm)	+12°	-15.5°	Yes	Fig. 2	1.5	10,600
	●	9																1.4	
MRW 2500R-16-5T 2500R-16-6T 3000R-16-6T 3000R-16-7T 4000R-16-6T 4000R-16-8T 5000R-16-8T 5000R-16-10T	●	5	0.315 (8mm)	2.50	1.75	0.75	0.748	0.433	1.575	0.750	0.187	0.312	0.315 (8mm)	+11°	-16.5°	Yes	Fig. 1	0.5	12,800
	●	6																0.5	
	●	6																1.1	
	●	7		3.00	2.25	1.00	0.866	0.551	1.969	1.063	0.236	0.381	0.315 (8mm)	+11°	-16.5°	Yes	Fig. 1	1.0	11,000
	●	6																1.0	
	●	8		4.00	3.54	1.50	2.047	-	1.969	1.142	0.393	0.625	0.315 (8mm)	+11°	-16.5°	Yes	Fig. 2	1.4	9,600
	●	8																1.3	
●	8	5.00	3.54	1.50	2.047	-	2.480	1.496	0.393	0.625	0.315 (8mm)	+11°	-16.5°	Yes	Fig. 2	2.6	8,560		
●	10															2.5			

Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts					Applicable Inserts M19			
	Clamp Screw	Wrench		Anti-seize Compound	Arbor Bolt				
MRW 2000R-12... 2500R-12...		DTPM-15	TTP-20		HH3/8-1.25 (HH3/8-1.25H)	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH	
3000R-12... 4000R-12...		DTPM-15			HH1/2-1.25 (HH1/2-1.25H)				
Recommended Torque for Insert Clamp 3.5 N·m									
MRW 2500R-16... 3000R-16... 4000R-16... 5000R-16...		-	TTP-20		HH3/8-1.25 (HH3/8-1.25H)	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH	
Recommended Torque for Insert Clamp 4.5 N·m					HH1/2-1.25 (HH1/2-1.25H)				

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

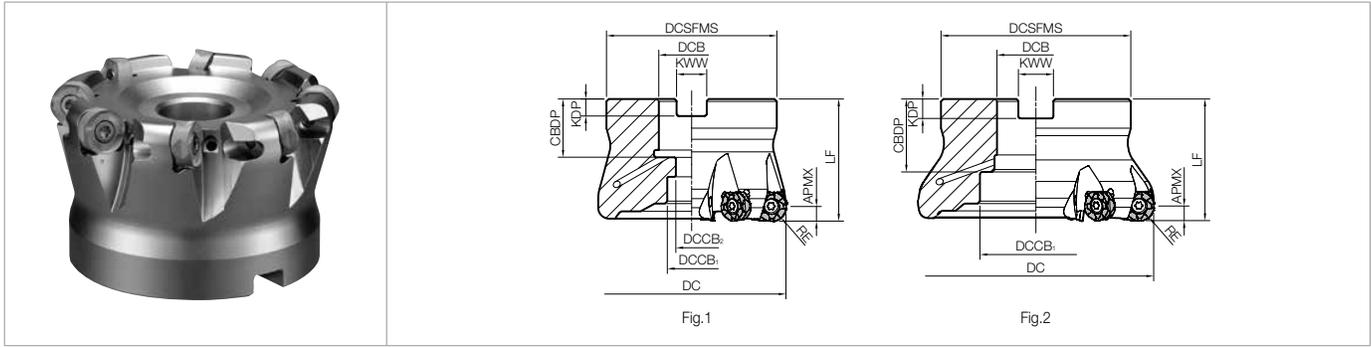
Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C.

For more details, see Page **M232**

Recommended Cutting Conditions **M232**

MRW Face Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Rake Angle (°)		Coolant Hole	Drawing	Weight (kg)	Max. RPM		
			RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX	A.R.	R.R.						
Inch Bore Dia.	MRW 080R-12-6T	●	6	6	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	6.0	+12°	-15.5°	Yes	Fig.1	1.2	12,000	
	MRW 080R-12-8T	●	8		100	78	1.250"	46	-	50	1.339"	0.315"	0.500"		+12°	-15.5°	Yes	Fig.2	1.1		
	MRW 100R-12-7T	●	7		100	78	1.250"	46	-	50	1.339"	0.315"	0.500"		+11°	-16.5°	Yes	Fig.1	1.5		
	MRW 100R-12-9T	●	9		125	89	1.500"	55	-	63	1.496"	0.394"	0.625"		+11°	-16.5°	Yes	Fig.2	1.4		
	MRW 080R-16-6T	●	6	8	80	70	1.000"	20	13	50	1.063"	0.236"	0.375"	8.0	+11°	-16.5°	Yes	Fig.1	1.1	11,000	
	MRW 080R-16-7T	●	7		100	78	1.250"	46	-	50	1.339"	0.315"	0.500"		+11°	-16.5°	Yes	Fig.2	1.1		
	MRW 100R-16-6T	●	6		100	78	1.250"	46	-	50	1.339"	0.315"	0.500"		+11°	-16.5°	Yes	Fig.2	1.4		
	MRW 100R-16-8T	●	8		125	89	1.500"	55	-	63	1.496"	0.394"	0.625"		+11°	-16.5°	Yes	Fig.2	1.4		
MRW 125R-16-8T	●	8	125		89	1.500"	55	-	63	1.496"	0.394"	0.625"	+11°		-16.5°	Yes	Fig.2	2.6			
MRW 125R-16-10T	●	10	125		89	1.500"	55	-	63	1.496"	0.394"	0.625"	+11°		-16.5°	Yes	Fig.2	2.6			
Metric Bore Dia.	MRW 050R-12-5T-M	●	5	6	50	48	22	18	11	40	21	6.3	10.4	6.0	+12°	-15.5°	Yes	Fig.1	0.3	16,000	
	MRW 050R-12-6T-M	●	6		63	60	22	19	11	40	21	6.3	10.4		+12°	-15.5°	Yes	Fig.1	0.3		
	MRW 063R-12-6T-M	●	6		63	60	22	19	11	40	21	6.3	10.4		+12°	-15.5°	Yes	Fig.1	0.6		
	MRW 063R-12-7T-M	●	7		80	70	27	20	13	50	24	7	12.4		+12°	-15.5°	Yes	Fig.1	0.6		
	MRW 080R-12-6T-M	●	6		80	70	27	20	13	50	24	7	12.4		+12°	-15.5°	Yes	Fig.1	1.1		
	MRW 080R-12-8T-M	●	8		100	78	32	46	-	50	30	8	14.4		+12°	-15.5°	Yes	Fig.2	1.1		
	MRW 100R-12-7T-M	●	7	100	78	32	46	-	50	30	8	14.4	+12°	-15.5°	Yes	Fig.2	1.5				
	MRW 100R-12-9T-M	●	9	125	89	40	55	-	63	33	9	16.4	+12°	-15.5°	Yes	Fig.2	1.4				
	Metric Bore Dia.	MRW 063R-16-5T-M	●	5	8	63	60	22	19	11	40	21	6.3	10.4	8.0	+11°	-16.5°	Yes	Fig.1	0.5	12,800
		MRW 063R-16-6T-M	●	6		80	70	27	20	13	50	24	7	12.4		+11°	-16.5°	Yes	Fig.1	0.5	
		MRW 080R-16-6T-M	●	6		80	70	27	20	13	50	24	7	12.4		+11°	-16.5°	Yes	Fig.1	1.1	
		MRW 080R-16-7T-M	●	7		100	78	32	46	-	50	30	8	14.4		+11°	-16.5°	Yes	Fig.1	1.0	
		MRW 100R-16-6T-M	●	6		100	78	32	46	-	50	30	8	14.4		+11°	-16.5°	Yes	Fig.2	1.4	
		MRW 100R-16-8T-M	●	8		125	89	40	55	-	63	33	9	16.4		+11°	-16.5°	Yes	Fig.2	1.3	
MRW 125R-16-8T-M		●	8	125		89	40	55	-	63	33	9	16.4	+11°		-16.5°	Yes	Fig.2	2.6		
MRW 125R-16-10T-M		●	10	125		89	40	55	-	63	33	9	16.4	+11°		-16.5°	Yes	Fig.2	2.5		

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts					Applicable Inserts M19		
	Clamp Screw	Wrench		Anti-seize Compound	Arbor Bolt			
MRW 050R-12... 063R-12... 080R-12... 100R-12...	SB-4085TRP	DTPM-15	TTP-20	P-37	HH10x30 HH12x35	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW 063R-16... 080R-16... 100R-16... 125R-16...	SB-50140TRP	-	TTP-20	P-37	HH10x30 HH12x35	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Recommended Cutting Conditions **M232**

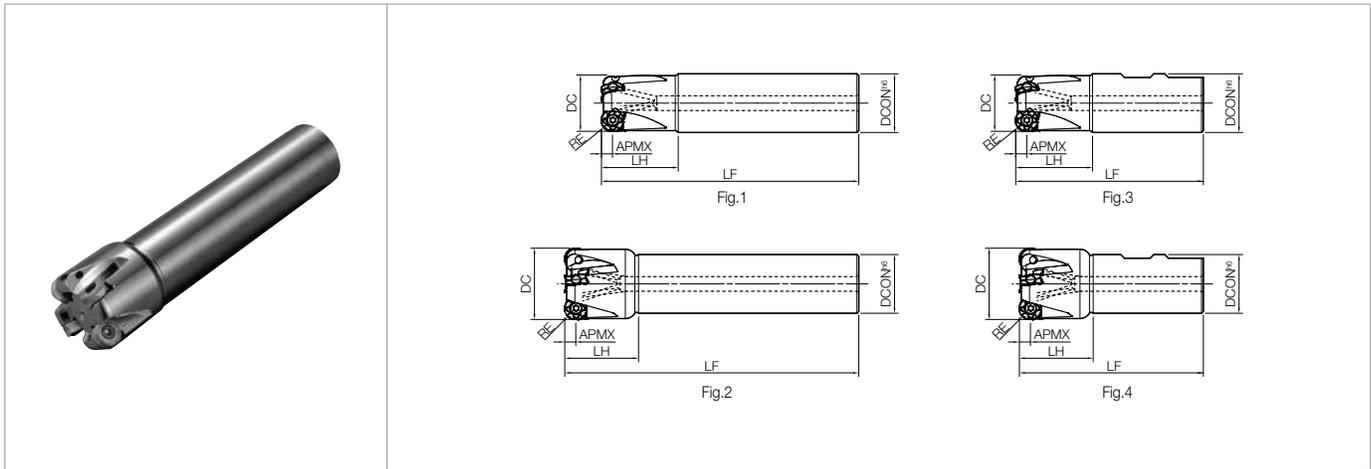
Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C.

For more details, see Page **M232**

A
B
C
D
E
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N
P
R
T

MRW End Mill (Inch Size)



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)							Rake Angle (°)		Coolant Hole	Drawing	Max. RPM	
			RE	DC	DCON	LF	LH	APMX	A.R. (Max.)	R.R.					
Standard Shank (Weldon)	MRW	1250-W125-12-3T	●	3	0.236 (6mm)	1.25	1.25	3.921	1.575	0.236 (6mm)	+12°	-20°	Yes	Fig.3	22,000
		1500-W125-12-4T	●	4		1.50	1.25	3.856	1.575			-16.5°	Yes	Fig.4	18,800
		2000-W150-12-5T	●	5		2.00	1.50	4.266	1.575			-15.5°			16,000
	MRW	1500-W125-16-2T	●	2	0.315 (8mm)	1.50	1.25	3.856	1.575	0.315 (8mm)	+11°	-18°			17,200
		2000-W150-16-4T	●	4		2.00	1.50	4.262	1.575			-16.5°	Yes	Fig.4	14,800
		2500-W150-16-5T	●	5		2.50	1.50	4.262	1.575			-16.5°			12,800
Long Shank (Cylindrical)	MRW	1250-S125-12-2T-8	●	2	0.236 (6mm)	1.25	1.25	8.000	1.575	0.236 (6mm)	+12°	-20°	Yes	Fig.1	22,000
		1500-S125-12-3T-8	●	3		1.50	1.25	8.000	1.575			-16.5°	Yes	Fig.2	18,800
		2000-S150-12-4T-12	●	4		2.00	1.50	12.000	1.969			-15.5°			16,000
	MRW	1500-S125-16-2T-8	●	2	0.315 (8mm)	1.50	1.25	8.000	1.575	0.315 (8mm)	+11°	-18°			17,200
		2000-S150-16-3T-8	●	3		2.00	1.50	8.000	1.575			-16.5°	Yes	Fig.2	14,800
		2500-S150-16-4T-12	●	4		2.50	1.50	12.000	1.969			-16.5°			12,800

Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts				Applicable Inserts M19		
	Clamp Screw	Wrench		Anti-seize Compound			
MRW ----12...	SB-4085TRP	DTPM-15	TTP-20	P-37	General Purpose	Low Cutting Force	Tough Edge (For Heavy Milling)
	Recommended Torque for Insert Clamp 3.5 N·m				ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
MRW ----16...	SB-50140TRP	-	TTP-20	P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
	Recommended Torque for Insert Clamp 4.5 N·m						

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

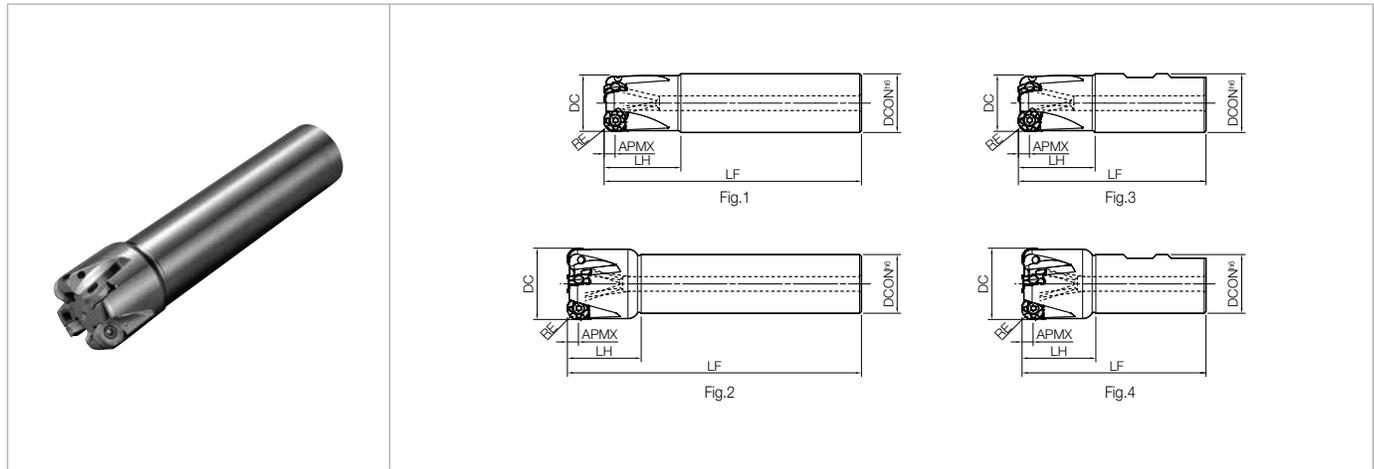
Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C.

For more details, see Page **M232**

Recommended Cutting Conditions **M232**

MRW End Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)							Rake Angle (°)		Coolant Hole	Drawing	Max. RPM	
			RE	DC	DCON	LF	LH	APMX	A.R. (Max.)	R.R.					
Standard Shank (Cylindrical)	MRW	32-S32-12-3T	●	3	6	32	32	140	40	6.0	+12°	-20°	Yes	Fig.1	22,000
		40-S32-12-4T	●	4		40	32	160	40			-16.5°	Yes	Fig.2	18,800
		50-S42-12-5T	●	5		50	42	170	40			-15.5°	Yes	Fig.2	16,000
	MRW	40-S32-16-3T	●	3	8	40	32	160	40	8.0	+11°	-18°	Yes	Fig.2	17,200
		50-S42-16-4T	●	4		50	42	170	40			-16.5°	Yes	Fig.2	14,800
		63-S42-16-5T	●	5		63	42	170	50			-16.5°	Yes	Fig.2	12,800
Long Shank (Cylindrical)	MRW	32-S32-12-2T-200	●	2	6	32	32	200	40	6.0	+12°	-20°	Yes	Fig.1	22,000
		40-S32-12-3T-200	●	3		40	32	200	40			-16.5°	Yes	Fig.2	18,800
		50-S42-12-4T-300	●	4		50	42	300	40			-15.5°	Yes	Fig.2	16,000
	MRW	40-S32-16-2T-200	●	2	8	40	32	200	40	8.0	+11°	-18°	Yes	Fig.2	17,200
		50-S42-16-3T-300	●	3		50	42	300	40			-16.5°	Yes	Fig.2	14,800
		63-S42-16-4T-300	●	4		63	42	300	50			-16.5°	Yes	Fig.2	12,800
Standard Shank (Weldon)	MRW	32-W32-12-3T	●	3	6	32	32	102	40	6.0	+12°	-20°	Yes	Fig.3	22,000
		40-W32-12-4T	●	4		40	32	100	40			-16.5°	Yes	Fig.4	18,800
		50-W40-12-5T	●	5		50	40	110	40			-15.5°	Yes	Fig.4	16,000
	MRW	40-W32-16-3T	●	3	8	40	32	100	40	8.0	+11°	-18°	Yes	Fig.4	17,200
		50-W40-16-4T	●	4		50	40	110	40			-16.5°	Yes	Fig.4	14,800
		63-W40-16-5T	●	5		63	40	120	50			-16.5°	Yes	Fig.4	12,800

Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts				Applicable Inserts M19		
	Clamp Screw	Wrench		Anti-seize Compound			
MRW ---12...	SB-4085TRP	DTPM-15	TTP-20	P-37	ROMU1204M0ER-GM	ROMU1204M0ER-SM	ROMU1204M0ER-GH
		Recommended Torque for Insert Clamp 3.5 N·m					
MRW ---16...	SB-50140TRP	-	TTP-20	P-37	ROMU1605M0ER-GM	ROMU1605M0ER-SM	ROMU1605M0ER-GH
		Recommended Torque for Insert Clamp 4.5 N·m					

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Recommended Cutting Conditions **M232**

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

APMX is Maximum D.O.C.

For more details, see Page **M232**

A INSERT GRADES
B TURNING INSERTS
C GEN/PCD INSERTS
D TURNING HOLDERS
E SMALL TOOLS
F BORING
G GROOVING
H CUT-OFF
J THREADING
K DRILLING
M MILLING
N QUICK CHANGE TOOLING
P SPARE PARTS
R TECHNICAL
T INDEX

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Chipbreaker fz (ipt) Recommended feed rate (standard value) ※ ROMU12 : D.O.C. = 0.118" ROMU16 : D.O.C. = 0.158"			Recommended Insert Grades (Cutting Speed Vc: sfm)			
	GM	SM	GH	MEGACOAT NANO			CVD Coated Carbide
				PR1535	PR1525	PR1510	CA6535
Carbon Steel	★ 0.004- 0.008 -0.012	☆ 0.002- 0.006 -0.008	☆ 0.006- 0.012 -0.014	☆ 390- 590 -820	★ 390- 590 -820	-	-
Alloy Steel	★ 0.004- 0.008 -0.012	☆ 0.002- 0.006 -0.008	☆ 0.006- 0.012 -0.014	☆ 330- 520 -720	★ 330- 520 -720	-	-
Mold Steel	★ 0.004- 0.006 -0.010	☆ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.012	☆ 260- 460 -590	★ 260- 460 -590	-	-
Austenitic Stainless Steel	☆ 0.004- 0.006 -0.008	★ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	★ 330- 520 -660	☆ 330- 520 -660	-	-
Martensitic Stainless Steel	☆ 0.004- 0.006 -0.008	★ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	☆ 490- 660 -820	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	★ 0.004- 0.006 -0.008	☆ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	★ 300- 390 -490	-	-	-
Gray Cast Iron	★ 0.004- 0.008 -0.012	-	☆ 0.006- 0.012 -0.014	-	-	★ 390- 590 -820	-
Nodular Cast Iron	★ 0.004- 0.006 -0.010	-	☆ 0.006- 0.008 -0.012	-	-	★ 330- 490 -660	-
Ni-base Heat Resistant Alloy	★ 0.004- 0.005 -0.006	☆ 0.002- 0.004 -0.006	☆ 0.005- 0.006 -0.008	☆ 70- 100 -160	-	-	★ 70- 100 -160
Titanium Alloy	☆ 0.004- 0.005 -0.006	★ 0.002- 0.004 -0.006	-	★ 130- 200 -260	-	☆ 100- 160 -230	-

※ Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy ★: 1st Recommendation ☆: 2nd Recommendation
 ※ The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

※ Recommended feed rate is the reference value when D.O.C. is RE/2 (0.118" for ROMU12, 0.158" for ROMU16).
 For lower feed rates than the above conditions, the conversion factor in the following table is recommended.

● Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Recommended)	D.O.C. (Max.)	Conversion Factor for Feed Per Tooth				
			D.O.C. = 0.020"	D.O.C. = 0.039"	D.O.C. = 0.079"	D.O.C. = 0.118"	D.O.C. = 0.158"
ROMU12 Type	0.118" or less	0.236"	2.1	1.5	1.1	1.0 (Standard)	-
ROMU16 Type	0.158" or less	0.315"	2.4	1.7	1.3	1.1	1.0 (Standard)

Calculation Example (ROMU12, Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

$$\begin{array}{|c|} \hline \mathbf{fz = 0.008 \text{ ipt}} \\ \hline \text{(Standard value for carbon steel and GM chipbreaker)} \\ \hline \end{array}
 \times
 \begin{array}{|c|} \hline \mathbf{1.5} \\ \hline \text{(Conversion factor for ROMU12 type, D.O.C. = 0.039")} \\ \hline \end{array}
 =
 \begin{array}{|c|} \hline \mathbf{fz = 0.012 \text{ ipt}} \\ \hline \text{(Recommended feed rate)} \\ \hline \end{array}$$

※ Recommended D.O.C. : 0.118" or less for ROMU12, 0.158" or less for ROMU16

● Corner R Shape During Processing with MRW (See Fig.1)

Insert	D.O.C. (Max.)	X	Y
ROMU12 Type	0.236"	0.118"	0.004"
ROMU16 Type	0.315"	0.158"	0.004"

※ When machining with larger D.O.C. than recommended D.O.C. (X), there is a gap (Y) between the workpiece corner and insert corner R(RE).
 ※ The above figure is an estimation. There is a ±0.008" variation depending on the cutting conditions.

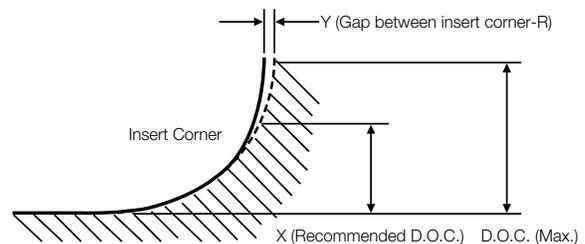


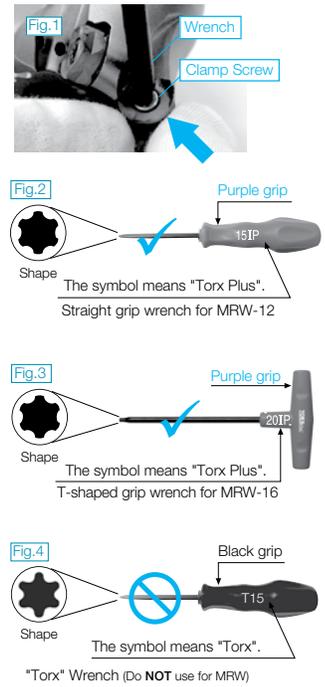
Fig.1

How to Mount an Insert

- Be sure to remove dust and chips from the insert mounting pocket.
- Apply anti-seize compound on portion of taper and thread of clamp screw.
 - Attach the screw to the front end of the wrench
 - While lightly pressing the insert against the mating surfaces, put the screw into the hole of the insert and tighten. (See Fig.1)
- Wrenches and clamp screws are "Torx Plus".
 - Fig.2 wrench is for MRW-12. (Straight grip)
 - Fig.3 wrench is for MRW-16. (T-shaped grip)
 Use a "Torx Plus" Wrench for tightening clamp screw.

*If a "Torx" Wrench (Fig.4) is used to tighten, the screw head might become damaged and then the screw cannot be removed.
- When tightening the screw, make sure that the wrench is parallel to the screw. For recommended torque, see pages [M228-M231](#).
- After tightening the screw, make sure that there is no clearance between the insert seat surface and the bearing surface of the holder or between the insert side surfaces and the mating surface of the holder.

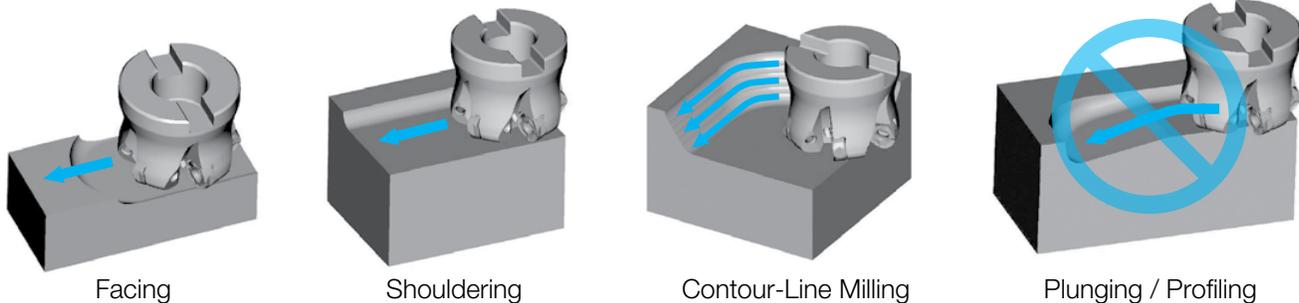
If there is any clearance, remove the insert and mount it again according to the above steps.



Case Studies

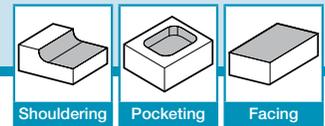
410 Stainless Steel	410 Stainless Steel
<ul style="list-style-type: none"> Turbine Blade Vc = 890 sfm fz = 0.011 ipt D.O.C. = 0.020~0.039" ae = Max. 1.378" Dry MRW050R-12-6T-M (6 Flutes) ROMU1204M0ER-SM (CA6535) 	<ul style="list-style-type: none"> Turbine Blade Vc = 820 sfm fz = 0.006 ipt D.O.C. = 0.079" ae = 0.197~1.181" Wet MRW050R-12-5T-M (5 Flutes) ROMU1204M0ER-SM (CA6535)
CA6535	CA6535
Stable Machining	Stable, available for further machining
Competitor A (Positive Insert Cutter)	Competitor B (Positive Insert Cutter)
Unstable Machining	Unstable Machining
MRW improved machining efficiency 1.2 times with same tool life compared to Competitor A. MRW has a cost advantage due to double sided inserts.	MRW showed less damage on the cutting edge and reduced machining noise. MRW has equal or longer tool life and cost advantage due to double sided inserts.
(User Evaluation)	(User Evaluation)

Application



※MRW is not available for 3D machining such as Plunging and Profiling.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T



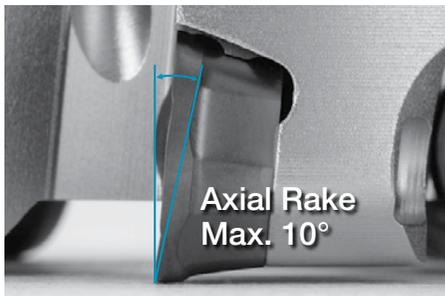
RAD-6 (MRX)

The MRX Radius Cutter
Lowers Cutting Costs and
Increases Efficiency!

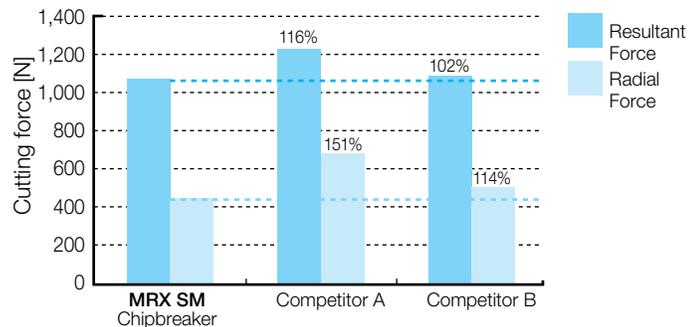
Advantages

Low Cutting Forces with Helical Cutting Edge Design

Inserts
45°~70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications



• Cutting Force Comparison



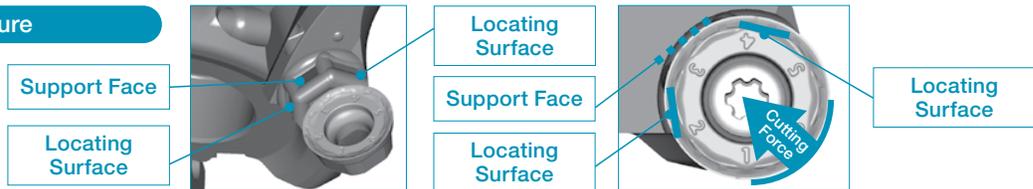
< Cutting Conditions >
Vc = 400 sfm, D.O.C. x ae = 0.079 x 0.984", fz = 0.008 ipt, 304 Stainless Steel, Cutter Ø50mm

Flat Lock Structure to Hold Insert Firmly in Place

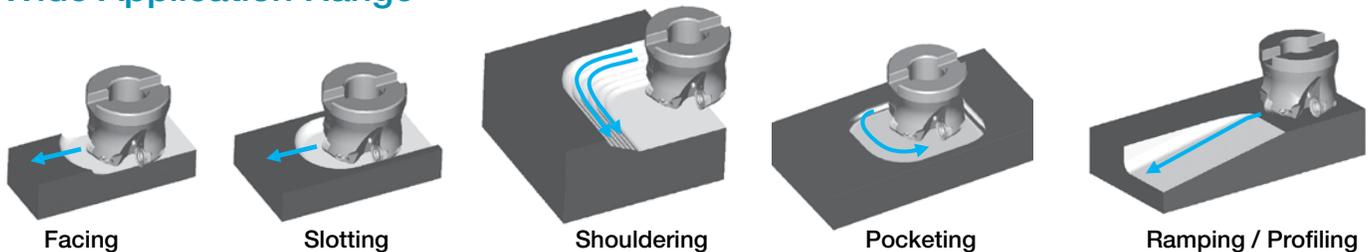
Prevents insert rotation during machining to provide stable cutting

Flat Lock Structure

- Wide flat binding face
- Receives even cutting forces
- Prevents insert rotation



Wide Application Range

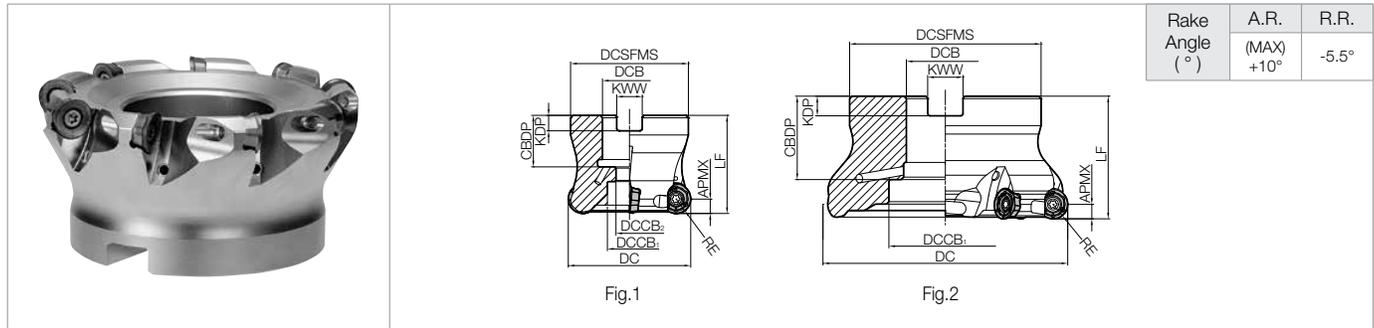


Grades for Difficult-to-cut Materials

Longer tool life with a wide lineup including 4 grades and 3 chipbreakers!
Available for steel, stainless steel, cast iron, and heat resistant alloys.

Cost-effective M-class Inserts Available.

MRX Face Mill (Inch Size)



Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)											Coolant Hole	Drawing	Weight (kg)	Max. RPM
			RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX				
MRX 1500R-10-5T	●	5	0.197 (5mm)	1.500	1.400	0.500	0.433	0.276	1.575	0.709	0.156	0.250	0.197 (5mm)	Yes	Fig.1	0.2	20,000
2000R-10-6T	●	6		2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.3	17,500
2500R-10-7T	□	7		2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.5	15,000
MRX 1500R-12-4T	□	4	0.236 (6mm)	1.500	1.400	0.500	0.394	0.276	1.575	0.709	0.156	0.250	0.236 (6mm)	Yes	Fig.1	0.2	21,000
2000R-12-4T	□	4		2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.3	18,000
2000R-12-5T	●	5		2.000	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.3	18,000
2500R-12-5T	□	5	0.236 (6mm)	2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.236 (6mm)	Yes	Fig.1	0.4	15,500
2500R-12-6T	□	6		2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.4	15,500
3000R-12-6T	●	6		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382				0.8	13,500
3000R-12-7T	□	7	0.236 (6mm)	3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382	0.236 (6mm)	Yes	Fig.2	0.8	13,500
4000R-12-7T	□	7		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626				1.7	12,000
4000R-12-9T	□	9		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626				1.6	12,000
MRX 2500R-16-4T	□	4	0.315 (8mm)	2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313	0.315 (8mm)	Yes	Fig.1	0.4	13,500
2500R-16-5T	●	5		2.500	1.750	0.750	0.669	0.433	1.575	0.750	0.187	0.313				0.4	13,500
3000R-16-5T	□	5		3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382				0.8	11,500
3000R-16-6T	●	6	0.315 (8mm)	3.000	2.250	1.000	0.866	0.551	1.969	1.063	0.236	0.382	0.315 (8mm)	Yes	Fig.2	0.8	11,500
4000R-16-6T	□	6		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626				1.6	10,000
4000R-16-7T	●	7		4.000	3.540	1.500	2.047	-	1.969	1.142	0.394	0.626				1.6	10,000
5000R-16-6T	□	6	0.315 (8mm)	5.000	3.540	1.500	2.047	-	2.480	1.496	0.394	0.626	0.315 (8mm)	Yes	Fig.2	2.9	9,000
5000R-16-8T	□	8		5.000	3.540	1.500	2.047	-	2.480	1.496	0.394	0.626				2.8	9,000

Face Mill Spare Parts and Applicable Inserts (Inch Size)

Part Number	Spare Parts					Applicable Inserts ● M19	
	Clamp Screw	Wrench		Anti-seize Compound	Arbor Bolt		
MRX 1500R-10...	SB-3070TRP	DTPM-10	-	P-37	HH1/4-0.75	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH	
2000R-10...	Recommended Torque for Insert Clamp 2.0 N·m				HH3/8-1.25	*1	
2500R-10...					HH3/8-1.25		
MRX 1500R-12...	SB-4090TRP	DTPM-15	-	P-37	HH1/4-0.75	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN	
2000R-12...					HH3/8-1.25		*2
2500R-12...					HH3/8-1.25		
3000R-12...					HH1/2-1.25		
4000R-12...					-		
MRX 2500R-16...	SB-50120TRP	-	TTP-20	P-37	HH3/8-1.25	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN	
3000R-16...					HH1/2-1.25		*3
4000R-16...					-		
5000R-16...					-		

Caution with Max. Revolution
When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

🔧 **Coat Anti-Seize Compound (P-37)** thinly on portion of taper and thread prior to installation.

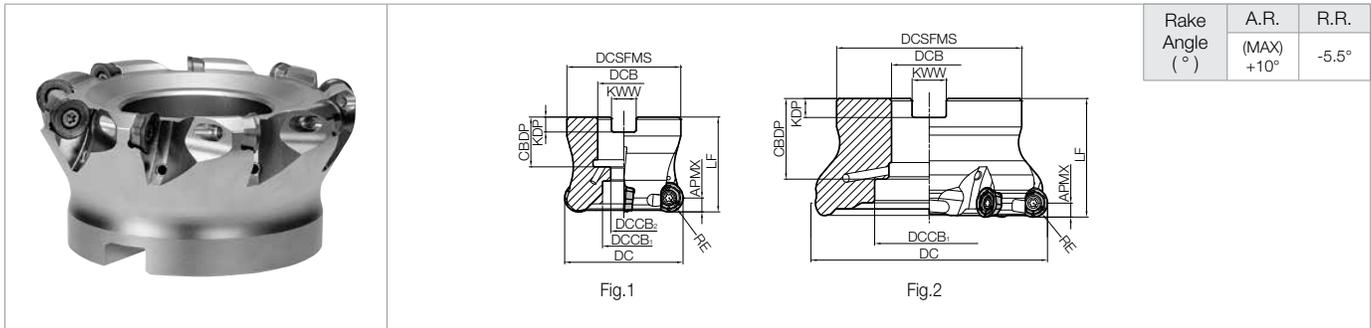
*1...Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)

*2...Not compatible with conventional RPMT1204M0 or RPMT1204M0-H inserts (without ER-.. or EN-..)

*3...Not compatible with conventional RPMT1605M0-H inserts.

Recommended Cutting Conditions ● M240

MRX Face Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)											Coolant Hole	Drawing	Weight (kg)	Max. RPM			
			RE	DC	DCSFMS	DCB	DCCB ₁	DCCB ₂	LF	CBDP	KDP	KWW	APMX							
Inch Bore Dia.	MRX 080R-12-6T	●	6	6	80	70	1.000*	20.0	13	50	1.063"	0.236"	0.375"	6	Yes	Fig.1	1.2	13,500		
	080R-12-8T	●	8		100	78	1.250*	46.0	-	50	1.339"	0.315"	0.500"				1.1	13,500		
	100R-12-7T	●	7		8	80	70	1.000*	20.0	13	50	1.063"	0.236"		0.375"	8	Yes	Fig.1	1.5	12,000
	100R-12-9T	●	9			100	78	1.250*	46.0	-	50	1.339"	0.315"		0.500"				1.1	11,500
	Metric Bore Dia.	MRX 040R-10-5T-M	●	5	5	40	38	16	15.0	9	40	19	5.6	8.4	5	Yes	Fig.1	1.4	10,000	
		050R-10-6T-M	●	6		50	48	22	18.0	11	40	21	6.3	10.4				1.1	11,500	
		063R-10-7T-M	●	7		63	60	22	18.0	11	40	21	6.3	10.4				1.1	11,500	
		Other Applications	MRX 040R-12-4T-M	●	4	6	40	38	16	13.5	9	40	19	5.6	8.4	6	Yes	Fig.1	1.1	11,500
050R-12-4T-M			●	4	50		48	22	18.0	11	40	21	6.3	10.4	1.1				11,500	
050R-12-5T-M			●	5	63		60	22	18.0	11	40	21	6.3	10.4	1.1				11,500	
MILLING			MRX 063R-12-5T-M	●	5	8	63	60	22	18.0	11	40	21	6.3	10.4	8	Yes	Fig.1	1.4	12,000
			063R-12-6T-M	●	6		80	70	27	20.0	13	50	24	7.0	12.4				1.4	12,000
			080R-12-6T-M	●	6		100	78	32	46.0	-	50	30	8.0	14.4				2.7	9,000
			080R-12-8T-M	●	8		125	89	40	55.0	-	63	33	9.0	16.4				2.6	9,000
			MRX 080R-12-7T-M	●	7	8	80	70	27	20.0	13	50	24	7.0	12.4	8	Yes	Fig.1	1.4	12,000
			100R-12-7T-M	●	7		100	78	32	46.0	-	50	30	8.0	14.4				1.4	12,000
			100R-12-9T-M	●	9		125	89	40	55.0	-	63	33	9.0	16.4				2.6	9,000
			MRX 063R-16-4T-M	●	4	8	63	60	22	18.0	11	40	21	6.3	10.4	8	Yes	Fig.1	0.2	20,000
			063R-16-5T-M	●	5		80	70	27	20.0	13	50	24	7.0	12.4				0.3	17,500
			080R-16-5T-M	●	5		100	78	32	46.0	-	50	30	8.0	14.4				0.6	15,000
080R-16-6T-M	●	6	125	89	40		55.0	-	63	33	9.0	16.4	0.2	21,000						
100R-16-6T-M	●	6	63	60	22		18.0	11	40	21	6.3	10.4	0.3	18,000						
100R-16-7T-M	●	7	80	70	27		20.0	13	50	24	7.0	12.4	0.3	18,000						
125R-16-6T-M	●	6	100	78	32		46.0	-	50	30	8.0	14.4	0.6	15,500						
125R-16-8T-M	●	8	125	89	40		55.0	-	63	33	9.0	16.4	0.6	15,500						

Face Mill Spare Parts and Applicable Inserts (Metric Size)

Part Number	Spare Parts					Applicable Inserts
	Clamp Screw	Wrench		Anti-seize Compound	Arbor Bolt	
MRX 040R-10...	SB-3070TRP	DTPM-10	TTP	P-37	HH8X25	RPMT10T3M0ER-GM RPMT10T3M0ER-SM RPMT10T3M0EN-GH
050R-10...	Recommended Torque for Insert Clamp 2.0 N·m				HH10X30	RPMT1204M0ER-GM RPMT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN
063R-10...	Recommended Torque for Insert Clamp 2.0 N·m				HH10X30	
MRX 040R-12...	SB-4090TRP	DTPM-15	TTP	P-37	HH8X25	RPMT1605M0ER-GM RPMT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN
050R-12...	Recommended Torque for Insert Clamp 3.5 N·m				HH10X30	
063R-12...	Recommended Torque for Insert Clamp 3.5 N·m				HH10X30	
080R-12...	Recommended Torque for Insert Clamp 3.5 N·m				HH12X35	
100R-12...	Recommended Torque for Insert Clamp 3.5 N·m				-	
MRX 063R-16...	SB-50120TRP	-	TTP-20	P-37	HH10X30	RPMT1605M0ER-GM RPMT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN
080R-16...	Recommended Torque for Insert Clamp 4.5 N·m				HH12X35	
100R-16...	Recommended Torque for Insert Clamp 4.5 N·m				-	
125R-16...	Recommended Torque for Insert Clamp 4.5 N·m				-	

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

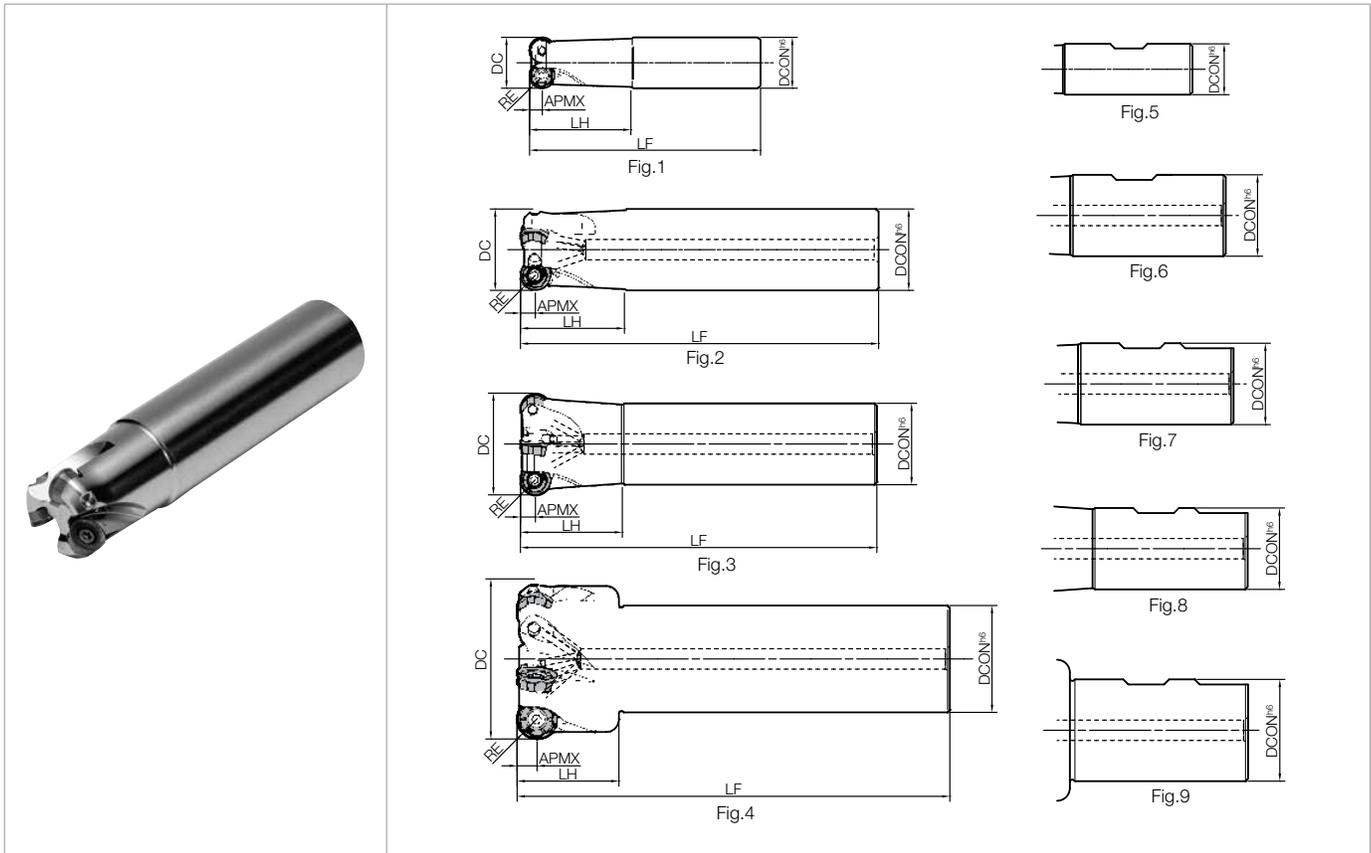
※1...Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)

※2...Not compatible with conventional RPMT1204M0 or RPMT1204M0-H inserts (without ER-.. or EN-..)

※3...Not compatible with conventional RPMT1605M0-H inserts.

Recommended Cutting Conditions M240

MRX End Mill (Inch Size)



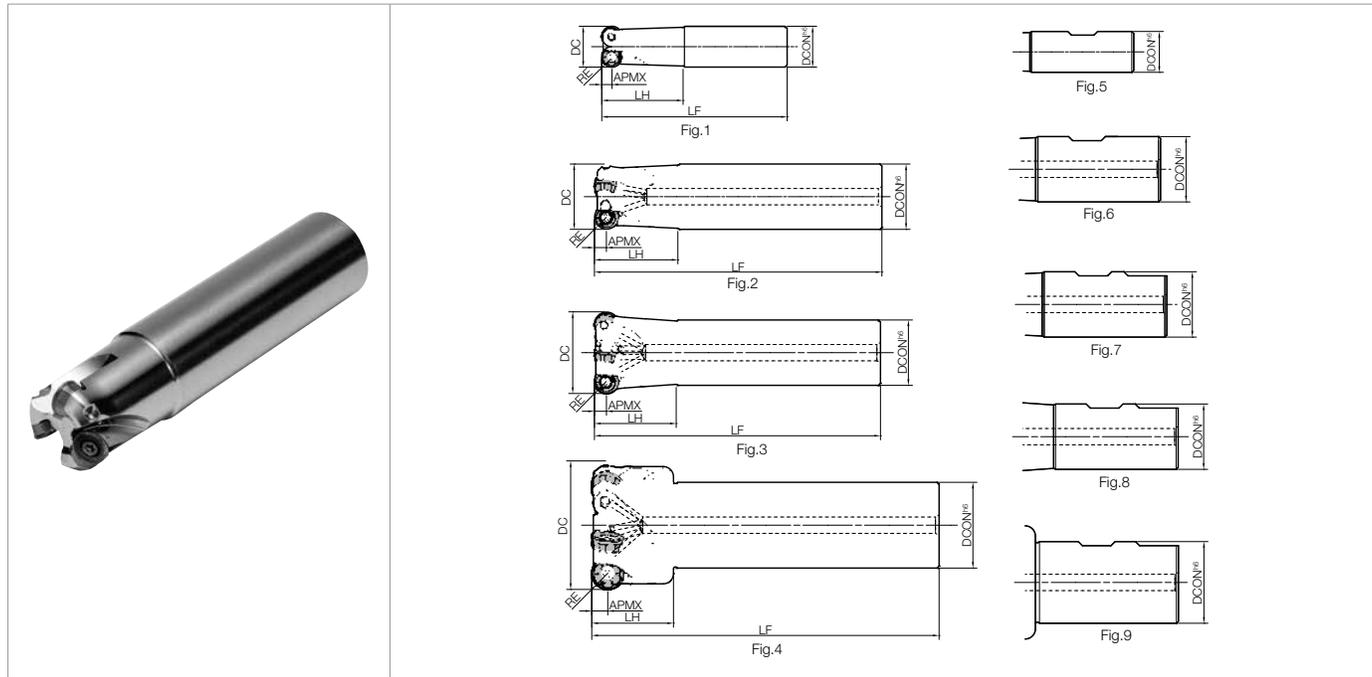
Toolholder Dimensions (Inch Size)

Part Number	Stock	No. of Inserts	Dimensions (in)							Rake Angle (°)		Coolant Hole	Drawing	Max. RPM	
			RE	DC	DCON	LF	LH	APMX	A.R. (Max.)	R.R.					
Standard Shank (Weldon)	MRX 0625-W625-08-2T	●	2		0.625	0.625	4.331	2.386		0.157 (4mm)	+3°	-6.5°	No	Fig.5	38,000
	0750-W750-08-2T	●	2	0.157 (4mm)	0.750	0.750	4.724	2.654		0.157 (4mm)	+10°	-5.5°	Yes	Fig.6	32,000
	1000-W100-08-4T	●	4		1.000	1.000	4.724	2.406			+10°	-5.5°	Yes	Fig.7	28,000
	MRX 1000-W100-10-3T	●	3	0.197 (5mm)	1.000	1.000	4.724	2.409		0.197 (5mm)	+10°	-5.5°	Yes	Fig.7	28,000
	1250-W125-10-4T	●	4		1.250	1.250	5.512	3.197							22,500
	MRX 1250-W125-12-3T	●	3		1.250	1.250	5.512	3.189			+10°	-5.5°	Yes	Fig.7	24,500
	1500-W125-12-4T	●	4	0.236 (6mm)	1.500	1.250	5.512	1.575		0.236 (6mm)	+10°	-5.5°	Yes	Fig.8	21,000
	2000-W150-12-5T	□	5		2.000	1.500	6.693	1.575			+10°	-5.5°	Yes	Fig.8	18,000
	MRX 1500-W125-16-2T	●	2	0.315 (8mm)	1.500	1.250	5.512	1.575		0.315 (8mm)	+10°	-5.5°	Yes	Fig.8	18,000
	2000-W150-16-4T	●	4		2.000	1.500	6.693	1.575			+10°	-5.5°	Yes	Fig.8	15,500
Standard Shank (Cylindrical)	MRX 0625-S625-08-2T-6	□	2		0.625	0.625	6.000	3.150		0.157 (4mm)	+3°	-6.5°	No	Fig.1	38,000
	0750-S750-08-2T-7	□	2	0.157 (4mm)	0.750	0.750	7.000	3.150		0.157 (4mm)	+10°	-5.5°	Yes	Fig.2	32,000
	1000-S100-08-4T-7	□	4		1.000	1.000	7.000	3.150			+10°	-5.5°	Yes	Fig.2	28,000
	MRX 1000-S100-10-2T-7	□	2	0.197 (5mm)	1.000	1.000	7.000	3.150		0.197 (5mm)	+10°	-5.5°	Yes	Fig.2	28,000
	MRX 1250-S125-12-2T-8	□	2		1.250	1.250	8.000	3.150			+10°	-5.5°	Yes	Fig.2	24,500
	1500-S125-12-4T-8	□	4	0.236 (6mm)	1.500	1.250	8.000	1.575		0.236 (6mm)	+10°	-5.5°	Yes	Fig.3	21,000
	2000-S150-12-4T12	□	4		2.000	1.500	12.000	1.575			+10°	-5.5°	Yes	Fig.3	18,000
	MRX 1500-S125-16-2T-8	□	2		1.500	1.250	8.000	1.575			+10°	-5.5°	Yes	Fig.3	18,000
	2000-S150-16-4T12	□	4	0.315 (8mm)	2.000	1.500	12.000	1.575		0.315 (8mm)	+10°	-5.5°	Yes	Fig.3	15,500
	2500-S150-16-4T12	□	4		2.500	1.500	12.000	1.575			+10°	-5.5°	Yes	Fig.4	13,500

Recommended Cutting Conditions **M240**
End Mill Spare Parts and Applicable Inserts **M239**

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MRX End Mill (Metric Size)

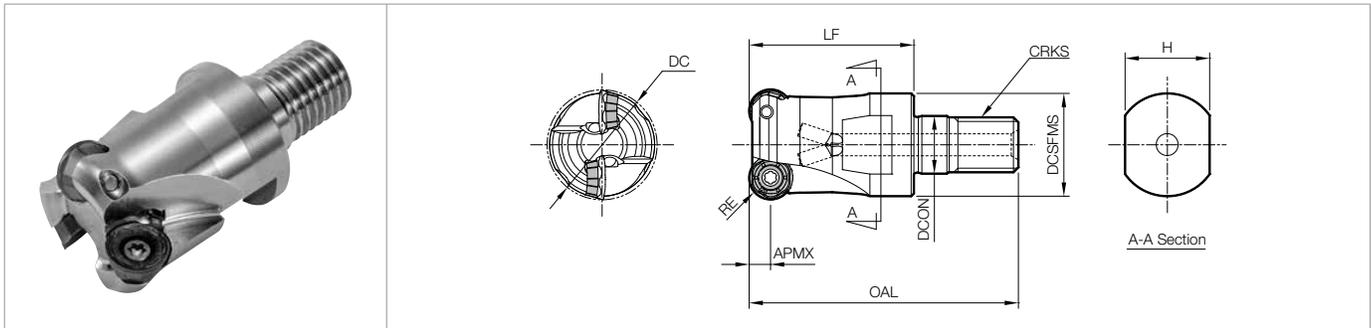


Toolholder Dimensions (Metric Size)

Inserts	Part Number	Stock	No. of Inserts	Dimensions (mm)						Rake Angle (°)		Coolant Hole	Drawing	Max. RPM
				RE	DC	DCON	LF	LH	APMX	A.R. (Max.)	R.R.			
45°-70° Lead Angle	MRX 16-S16-08-2T	●	2	4	16	16	110	40	4.0	+3°	-5.5°	No	Fig.1	38,000
75° Lead Angle	20-S20-08-2T	●	2		20	20	120	40	4.0	+10°	-5.5°	Yes	Fig.2	32,000
90°/88° Lead Angle	25-S25-08-4T	●	4		25	25	120	40	4.0	+10°	-5.5°	Yes	Fig.2	28,000
High Feed Milling	MRX 20-S20-10-2T	●	2	5	20	20	120	40	5.0	+5°	-8.0°	No	Fig.1	30,000
	25-S25-10-3T	●	3		25	25	120	40	5.0	+10°	-5.5°	Yes	Fig.2	28,000
Finish Milling	MRX 32-S32-10-4T	●	4	6	32	32	140	40	5.0	+10°	-5.5°	Yes	Fig.2	22,500
	40-S32-12-4T	●	4		40	32	140	40	6.0	+10°	-5.5°	Yes	Fig.3	21,000
Multi-Function	50-S42-12-5T	●	5		50	42	170	40	6.0	+10°	-5.5°	Yes	Fig.3	18,000
Slot Mill	MRX 40-S32-16-2T	●	2	8	40	32	140	40	8.0	+10°	-5.5°	Yes	Fig.3	18,000
	50-S42-16-4T	●	4		50	42	170	40	8.0	+10°	-5.5°	Yes	Fig.4	15,500
Other Applications	63-S42-16-5T	●	5		63	42	170	40	8.0	+10°	-5.5°	Yes	Fig.4	13,500
Standard Shank (Weldon)	MRX 16-W16-08-2T	●	2	4	16	16	89	40	4.0	+3°	-5.5°	No	Fig.5	38,000
	20-W20-08-2T	●	2		20	20	91	40	4.0	+10°	-5.5°	Yes	Fig.6	32,000
	25-W25-08-4T	●	4		25	25	97	40	4.0	+10°	-5.5°	Yes	Fig.7	28,000
	MRX 20-W20-10-2T	●	2	5	20	20	91	40	5.0	+5°	-8.0°	No	Fig.5	30,000
		25-W25-10-3T	●		3	25	25	97	40	5.0	+10°	-5.5°	Yes	Fig.7	28,000
	MRX 32-W32-10-4T	●	4	6	32	32	101	40	5.0	+10°	-5.5°	Yes	Fig.7	22,500
		32-W32-12-3T	●		3	32	32	101	40	6.0	+10°	-5.5°	Yes	Fig.7	24,500
	40-W32-12-4T	●	4		40	32	101	40	6.0	+10°	-5.5°	Yes	Fig.8	21,000
	MRX 50-W40-12-5T	●	5	8	50	40	111	40	6.0	+10°	-5.5°	Yes	Fig.8	18,000
		40-W32-16-2T	●		2	40	32	101	40	8.0	+10°	-5.5°	Yes	Fig.8	18,000
	50-W40-16-4T	●	4		50	40	111	40	8.0	+10°	-5.5°	Yes	Fig.9	15,500
	Long Shank (Cylindrical)	MRX 16-S16-08-2T-160	●	2	4	16	16	160	70	4.0	+3°	-5.5°	No	Fig.1	38,000
20-S20-08-2T-180		●	2	20		20	180	80	4.0	+10°	-5.5°	Yes	Fig.2	32,000
25-S25-08-4T-180		●	4	25		25	180	80	4.0	+10°	-5.5°	Yes	Fig.2	28,000
MRX 20-S20-10-2T-180		●	2	5	20	20	180	80	5.0	+5°	-8°	No	Fig.1	30,000
		25-S25-10-2T-180	●		2	25	25	180	80	5.0	+10°	-5.5°	Yes	Fig.2	28,000
MRX 32-S32-10-4T-200		●	4	6	32	32	200	80	5.0	+10°	-5.5°	Yes	Fig.2	22,500
		32-S32-12-2T-200	●		2	32	32	200	80	6.0	+10°	-5.5°	Yes	Fig.2	24,500
40-S32-12-4T-200		●	4		40	32	200	40	6.0	+10°	-5.5°	Yes	Fig.3	21,000
MRX 50-S42-12-4T-300		●	4	8	50	42	300	40	6.0	+10°	-5.5°	Yes	Fig.3	18,000
		40-S32-16-2T-200	●		2	40	32	200	40	8.0	+10°	-5.5°	Yes	Fig.3	18,000
50-S42-16-4T-300		●	4		50	42	300	40	8.0	+10°	-5.5°	Yes	Fig.4	15,500
63-S42-16-4T-300		●	4	63	42	300	40	8.0	+10°	-5.5°	Yes	Fig.4	13,500	

Recommended Cutting Conditions **M240**
End Mill Spare Parts and Applicable Inserts **M239**

MRX Modular End Mill (Metric Size)



Toolholder Dimensions (Metric Size)

Part Number	Stock	No. of Inserts	Dimensions (mm)									Rake Angle (°)		Coolant Hole	Applicable Inserts	Max. RPM
			RE	DC	DCSFMS	DCON	OAL	LF	CRKS	H	APMX	A.R. (Max.)	R.R.			
MRX 16-M08-08-2T	●	2	4	16	14.7	8.5	43	25	M8xP1.25	12	4	+3°	-5.5°	No	RDMT08 RDGT08	38,000
20-M10-08-2T	●	2	4	20	18.7	10.5	49	30	M10xP1.50	15	4	+10°	-5.5°	Yes		32,000
25-M12-08-4T	●	4		25	23.0	12.5	57	35	M12xP1.75	19						28,000
MRX 20-M10-10-2T	●	2	5	20	18.7	10.5	49	30	M10xP1.50	15	5	+5°	-8.0°	No	RPMT10 RPGT10	30,000
25-M12-10-3T	●	3	5	25	23.0	12.5	57	35	M12xP1.75	19	5	+10°	-5.5°	Yes		28,000
32-M16-10-4T	●	4		32	30.0	17.0	63	40	M16xP2.00	24						22,500
MRX 32-M16-12-3T	●	3	6	32	30.0	17.0	63	40	M16xP2.00	24	6	+10°	-5.5°	Yes	RPMT12 RPGT12	24,500
40-M16-12-4T	●	4		40	30.0	17.0	63	40	M16xP2.00	24					RPMW12	21,000
MRX 40-M16-16-2T	●	2	8	40	30.0	17.0	63	40	M16xP2.00	24	8	+10°	-5.5°	Yes	RPMT16 RPGT16 RPMW16	18,000

End Mill Spare Parts and Applicable Inserts (Inch / Metric Size)

Part Number	Spare Parts			Applicable Inserts	
	Clamp Screw	Wrench			Anti-seize Compound
MRX ...-08...	SB-2555TRP	DTPM-8	-	P-37	RDMT0803M0ER-GM RDGT0803M0ER-GM RDGT0803M0ER-SM RDMT0803M0EN-GH
MRX ...-10...	SB-3070TRP	DTPM-10	-	P-37	RPMT10T3M0ER-GM RPGT10T3M0ER-GM RPGT10T3M0ER-SM RPMT10T3M0EN-GH
MRX ...-12...	SB-4090TRPN	DTPM-15	-	P-37	RPMT1204M0ER-GM RPGT1204M0ER-GM RPGT1204M0ER-SM RPMT1204M0EN-GH RPMW1204M0TN
MRX ...-16...	SB-50120TRP	-	TTP-20	P-37	RPMT1605M0ER-GM RPGT1605M0ER-GM RPGT1605M0ER-SM RPMT1605M0EN-GH RPMW1605M0TN

Recommended Cutting Conditions ● M240

Caution with Max. Revolution

When running an end mill or a cutter at the maximum revolution, the insert or cutter may be damaged by centrifugal force.

🔧 Coat Anti-Seize Compound (P-37) thinly on portion of taper and thread prior to installation.

Pre-Set Torque Wrench sold separately.

※1...Not compatible with conventional RPMT08T2M0-H inserts

※2...Not compatible with conventional RPMT10T3M0 inserts (without ER-.. or EN-..)

※3...Not compatible with conventional RPMT1204M0 or RPMT1204M0-H inserts (without ER-.. or EN-..)

※4...Not compatible with conventional RPMT1605M0-H inserts.

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Chipbreaker per Material (fz: ipt)					Recommended Insert Grades (Cutting Speed Vc: sfm)			
	RD..08... : D.O.C. = 0.079" RP..10... : D.O.C. = 0.098"		RP..12... : D.O.C. = 0.118" RP..16... : D.O.C. = 0.158"			MEGACOAT NANO			CVD Coated Carbide
	RDMT-GM RPMT-GM	RDGT-GM RPGT-GM	RDGT-SM RPGT-SM	RDMT-GH RPMT-GH	RPMW	PR1535	PR1525	PR1510	CA6535
Carbon Steel	★ 0.004- 0.008 -0.012	☆ 0.004- 0.008 -0.012	☆ 0.002- 0.006 -0.008	☆ 0.006- 0.012 -0.014	☆ 0.006- 0.012 -0.016	☆ 390- 590 -820	★ 390- 590 -820	-	-
Alloy Steel	★ 0.004- 0.008 -0.012	☆ 0.004- 0.008 -0.012	☆ 0.002- 0.006 -0.008	☆ 0.006- 0.012 -0.014	☆ 0.006- 0.012 -0.016	☆ 330- 520 -720	★ 330- 520 -720	-	-
Mold Steel	★ 0.004- 0.006 -0.010	☆ 0.004- 0.006 -0.010	☆ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.012	☆ 0.006- 0.008 -0.012	☆ 260- 460 -590	★ 260- 460 -590	-	-
Austenitic Stainless Steel	☆ 0.004- 0.006 -0.008	☆ 0.004- 0.006 -0.008	★ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	☆ 0.006- 0.008 -0.010	★ 330- 520 -660	☆ 330- 520 -660	-	-
Martensitic Stainless Steel	☆ 0.004- 0.006 -0.008	☆ 0.004- 0.006 -0.008	★ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	☆ 0.006- 0.008 -0.010	☆ 490- 660 -820	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	☆ 0.004- 0.006 -0.008	★ 0.004- 0.006 -0.008	☆ 0.002- 0.005 -0.008	☆ 0.006- 0.008 -0.010	☆ 0.006- 0.008 -0.010	★ 300- 390 -490	-	-	-
Gray Cast Iron	★ 0.004- 0.008 -0.012	☆ 0.004- 0.008 -0.012	-	☆ 0.006- 0.012 -0.014	☆ 0.006- 0.012 -0.016	-	-	★ 390- 590 -820	-
Nodular Cast Iron	★ 0.004- 0.006 -0.010	☆ 0.004- 0.006 -0.010	-	☆ 0.006- 0.008 -0.012	☆ 0.006- 0.010 -0.014	-	-	★ 330- 490 -660	-
Ni-base Heat Resistant Alloy	☆ 0.004- 0.005 -0.006	★ 0.004- 0.005 -0.006	☆ 0.002- 0.004 -0.006	☆ 0.005- 0.006 -0.008	☆ 0.005- 0.006 -0.008	☆ 70- 100 -160	-	-	★ 70- 100 -160
Titanium Alloy	☆ 0.004- 0.005 -0.006	☆ 0.004- 0.005 -0.006	★ 0.002- 0.004 -0.006	-	-	★ 130- 200 -260	-	☆ 100- 160 -230	-

- Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy. ★: 1st Recommendation ☆: 2nd Recommendation
- RDGT / RPGT are recommended for Stainless Steel, Ni-base Heat Resistant Alloy, and Titanium Alloy.
- The figure in bold font is the starting value of the recommended cutting conditions.
- Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
- Recommended feed rate is the reference value when D.O.C. is RE/2 (0.079" for RD..08 / 0.098" for RP..10 / 0.118" for RP..12 / 0.158" for RP..16).
- For other D.O.C., calculate the recommended feed rate based on the conversion factor below.
- For MRX16-S16-08-2T(-160), MRX16-W08-2T, MRX20-S20-10-2T(-180), MRX20-W20-10-2T, MRX0625-W625-08-2T, MRX0625-S625-08-2T-6 set the feed rate no higher than 50% of the recommended cutting conditions.

● Conversion Factor for Feed Per Tooth by Depth of Cut (D.O.C.)

Insert	D.O.C. (Max.)	Conversion Factor for Feed Per Tooth									
		D.O.C. = 0.020" (0.5mm)	D.O.C. = 0.039" (1.0mm)	D.O.C. = 0.059" (1.5mm)	D.O.C. = 0.079" (2.0mm)	D.O.C. = 0.098" (2.5mm)	D.O.C. = 0.118" (3.0mm)	D.O.C. = 0.158" (4.0mm)	D.O.C. = 0.197" (5.0mm)	D.O.C. = 0.236" (6.0mm)	D.O.C. = 0.315" (8.0mm)
RD..08... (GM/SM/GH Chipbreaker)	0.158" (4mm)	1.7	1.3	1.1	1.0 (Standard)	0.9	0.8	0.8	-	-	-
RP..10... (GM/SM/GH Chipbreaker)	0.197" (5mm)	1.9	1.4	1.2	1.0	1.0 (Standard)	0.9	0.8	0.8	-	-
RP..12... (GM/SM/GH Chipbreaker)	0.236" (6mm)	2.1	1.5	1.3	1.1	1.0	1.0 (Standard)	0.9	0.8	0.8	-
RP..16... (GM/SM/GH Chipbreaker)	0.315" (8mm)	2.4	1.7	1.4	1.3	1.1	1.1	1.0 (Standard)	0.9	0.8	0.8

Calculation Example (RPMT12, Carbon Steel, GM Chipbreaker, D.O.C. = 0.039")

$$\begin{array}{|c|} \hline \mathbf{fz = 0.008 \text{ ipt}} \\ \hline \text{(Standard value for carbon steel and GM chipbreaker)} \\ \hline \end{array}
 \times
 \begin{array}{|c|} \hline \mathbf{1.5} \\ \hline \text{(Conversion factor for ROMU12 type, D.O.C. = 0.039")} \\ \hline \end{array}
 =
 \begin{array}{|c|} \hline \mathbf{fz = 0.012 \text{ ipt}} \\ \hline \text{(Recommended feed rate)} \\ \hline \end{array}$$

● Max. D.O.C. and Usable Edges

Usable Edges	Insert Corner-R			
	R4	R5	R6	R8
3 Edges	D.O.C. = 0.079"~0.158"	D.O.C. = 0.098"~0.197"	D.O.C. = 0.118"~0.236"	D.O.C. = 0.158"~0.315"
6 Edges	Less than D.O.C. = 0.079"	Less than D.O.C. = 0.098"	Less than D.O.C. = 0.118"	Less than D.O.C. = 0.158"

Drilling Conditions

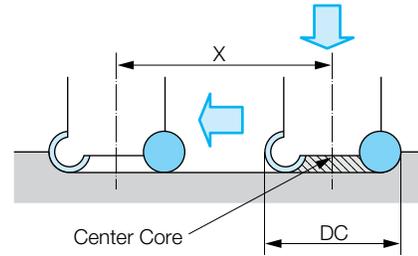
[Drilling Depth]

See Max. Cutting Depth (Pd) in the table below.

[Traversing After Drilling]

Caution when Traversing right after Drilling

- Reduce the table feed by 50% of the recommended conditions until the center core part is completely cut off. The internal cutting edge's radial rake angle is large in the negative direction.
- Min cutting length for flat bottom face (X) is in the table to the right.



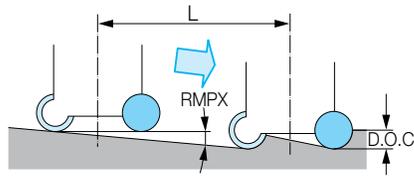
Inch					Metric				
Inch Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for flat bottom face (X)	Metric Tool Spec.		Max D.O.C.	Max. Cutting Depth (Pd)	Min. Cutting Length for flat bottom face (X)
Insert	Tool Dia.				Insert	Tool Dia. Metric			
RD..08	0.625	0.157	0.028	0.349	RD..08	16	4	0.7	9
	0.750	0.157	0.055	0.474		20	4	1.4	13
	1.000	0.157	0.055	0.724		25	4	1.4	18
RP..10	0.750	0.197	0.024	0.396	RP..10	20	5	0.6	11
	1.000	0.197	0.075	0.646		25	5	1.9	16
	1.250	0.197	0.075	0.896		32	5	1.9	23
	1.500	0.197	0.075	1.146		40	5	1.9	31
	2.000	0.197	0.075	1.646		50	5	1.9	41
	2.500	0.197	0.075	2.146		63	5	1.9	54
RP..12	1.250	0.236	0.094	0.817	RP..12	32	6	2.4	21
	1.500	0.236	0.094	1.067		40	6	2.4	29
	2.000	0.236	0.094	1.567		50	6	2.4	39
	2.500	0.236	0.094	2.067		63	6	2.4	52
	3.000	0.236	0.094	2.567		80	6	2.4	69
	4.000	0.236	0.094	3.567		100	6	2.4	89
RP..16	1.500	0.315	0.134	0.909	RP..16	40	8	3.4	25
	2.000	0.315	0.134	1.409		50	8	3.4	35
	2.500	0.315	0.134	1.909		63	8	3.4	48
	3.000	0.315	0.134	2.409		80	8	3.4	65
	4.000	0.315	0.134	3.409		100	8	3.4	85
	5.000	0.315	0.134	4.346		125	8	3.4	110

• Above value is based on the clearance of 0.039" between the tool and the workpiece.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK-CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Ramping Conditions

- Ramping angle should be under **RMPX** (maximum ramping angle) in the table below.
- Feed rate should be under 70% of the cutting conditions on [page M240](#)



Inch						Metric					
Inch Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)	Metric Tool Spec.		Max D.O.C.	Max Ramping Angle RMPX	tan RMPX	Max. Cutting Length at Max. Ramping Angle (L)
Insert	Tool Dia.					Insert	Tool Dia.				
RD..08	0.625	0.157	7°	0.123	1.282	RD..08	16	4	8°	0.141	28
	0.750	0.157	9°	0.158	0.994		20	4	9°	0.158	25
	1.000	0.157	5°	0.087	1.800		25	4	5°	0.087	45
RP..10	0.750	0.197	4°	0.070	2.816	RP..10	20	5	5°	0.087	57
	1.000	0.197	9°	0.158	1.243		25	5	10°	0.176	28
	1.250	0.197	6°	0.105	1.873		32	5	6°	0.105	47
	1.500	0.197	4°	0.070	2.816		40	5	4°	0.070	71
	2.000	0.197	3°	0.052	3.757		50	5	3°	0.052	95
	2.500	0.197	2°	0.035	5.640		63	5	2°	0.035	143
RP..12	1.250	0.236	9°	0.158	1.491	RP..12	32	6	9°	0.158	37
	1.500	0.236	6°	0.105	2.248		40	6	5°	0.087	68
	2.000	0.236	4°	0.070	3.379		50	6	4°	0.070	85
	2.500	0.236	2°	0.035	6.768		63	6	2°	0.035	171
	3.000	0.236	2°	0.035	6.768		80	6	2°	0.035	171
	4.000	0.236	1°	0.017	13.498		100	6	1°	0.017	343
RP..16	1.500	0.315	12°	0.213	1.481	RP..16	40	8	11°	0.194	41
	2.000	0.315	6°	0.105	2.997		50	8	7°	0.123	65
	2.500	0.315	4°	0.070	4.506		63	8	4°	0.070	114
	3.000	0.315	3°	0.052	6.011		80	8	3°	0.052	152
	4.000	0.315	2°	0.035	9.025		100	8	2°	0.035	229
	5.000	0.315	1°	0.017	17.998		125	8	1°	0.017	458

- Above value is based on the clearance of 0.039" between the tool and the workpiece.

Helical Milling Conditions

- Sinking depth (**h**) when helical milling should be under **Max D.O.C.** in table below. Sinking **angle α** (with trajectory of the center line of tool) should be under **RMPX** (maximum ramping angle) in cutting conditions on [page M242](#).
- Feed rate should be under 70% of cutting conditions on [page M240](#).
- Climb milling is recommended.

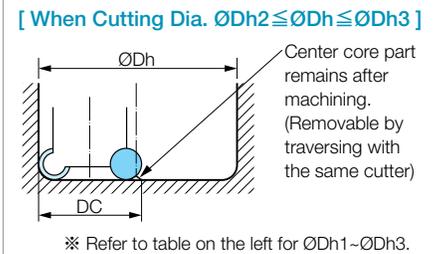
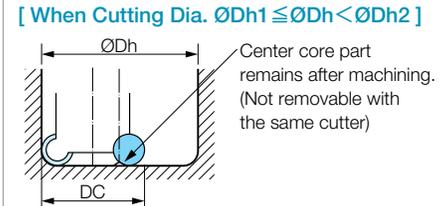
Formula for Sinking Depth (h)
 $h = \pi \times \text{ØDs} \times \text{RMPX}$
 (h should be under D.O.C.)
 (α should be under RMPX)

ØDs (Trajectory diameter of cutter's center line)
 $\text{ØDs} = \text{ØDh} - \text{DC}$

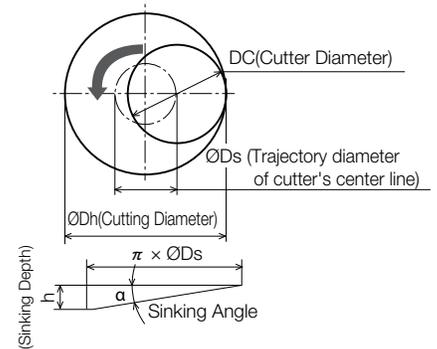
Inch						Metric					
Inch Tool Spec.		Max D.O.C.	Min. Cutting Dia. ØDh1	Min. Cutting Dia. for flat bottom facing ØDh2	Max. Cutting Dia. ØDh3	Metric Tool Spec.		Max D.O.C.	Min. Cutting Dia. ØDh1	Min. Cutting Dia. for flat bottom facing ØDh2	Max. Cutting Dia. ØDh3
Insert	Tool Dia.					Insert	Tool Dia.				
RD..08	0.625	0.157	0.787	0.935	1.171	RD..08	16	4	20	24	30
	0.750	0.157	0.984	1.185	1.421		20	4	26	32	38
	1.000	0.157	1.457	1.685	1.921		25	4	36	42	48
RP..10	0.750	0.197	0.945	1.106	1.421	RP..10	20	5	26	30	38
	1.000	0.197	1.299	1.606	1.921		25	5	33	40	48
	1.250	0.197	1.811	2.106	2.421		32	5	47	54	62
	1.500	0.197	2.323	2.606	2.921		40	5	63	70	78
	2.000	0.197	3.307	3.606	3.921		50	5	83	90	98
	2.500	0.197	4.331	4.606	4.921		63	5	109	116	124
	3.000	0.197	5.355	5.606	5.921		80	5	139	148	158
RP..12	1.250	0.236	1.654	2.028	2.421	RP..12	32	6	43	52	62
	1.500	0.236	2.165	2.528	2.921		40	6	59	68	78
	2.000	0.236	3.150	3.528	3.921		50	6	79	88	98
	2.500	0.236	4.173	4.528	4.921		63	6	105	114	124
	3.000	0.236	5.157	5.528	5.921		80	6	139	148	158
	4.000	0.236	7.165	7.528	7.921		100	6	179	188	198
	5.000	0.236	9.173	9.528	9.921		125	6	221	234	248
RP..16	1.500	0.315	1.890	2.370	2.921	RP..16	40	8	51	64	78
	2.000	0.315	2.874	3.370	3.921		50	8	71	84	98
	2.500	0.315	3.858	4.370	4.921		63	8	97	110	124
	3.000	0.315	4.882	5.370	5.921		80	8	131	144	158
	4.000	0.315	6.890	7.370	7.921		100	8	171	184	198
	5.000	0.315	8.740	9.244	9.795		125	8	221	234	248

Above value is based on the clearance of 0.039" between the tool and the workpiece.

Requirements for Removing Core



Helical Milling Factors



Case Studies

304 Stainless Steel

- Nozzle Parts
- Vc = 370 sfm
- fz = 0.006 ipt
- D.O.C. x ae = 0.039" x 2.559"
- Dry
- MRX100R-12-9T-M (9 Flutes)
- RPGT1204M0ER-SM (PR1535)

PR1535	450 pcs / Edge
Conventional	100 pcs / Edge

Cost savings with 4.5 times longer tool life with 1.5 times more insert edges. MRX prevented burr formation and improved surface finish. (User Evaluation)

H13 Tool Steel (47-49HRC)

- Mold Parts
- Vc = 410 sfm
- fz = 0.010 ipt
- D.O.C. x ae = 0.039-0.079" x 0.394"
- Dry
- MRX20-S20-08-2T (2 Flutes)
- RDGT0803M0ER-GM (PR1525)

PR1525	2 pcs with Stable Machining
Conventional	1pc with Unstable Tool Life

Conventional tool only machined 1 workpiece due to unstable tool life, but the MRX doubled the tool life with stable machining. (User Evaluation)



API Ring Groover

Kyocera is the only choice for economical ring groovers. Featuring an integral shank for maximum rigidity, Kyocera's API Ring Groovers are the most versatile ring grooving tools on the market.



ADVANTAGES

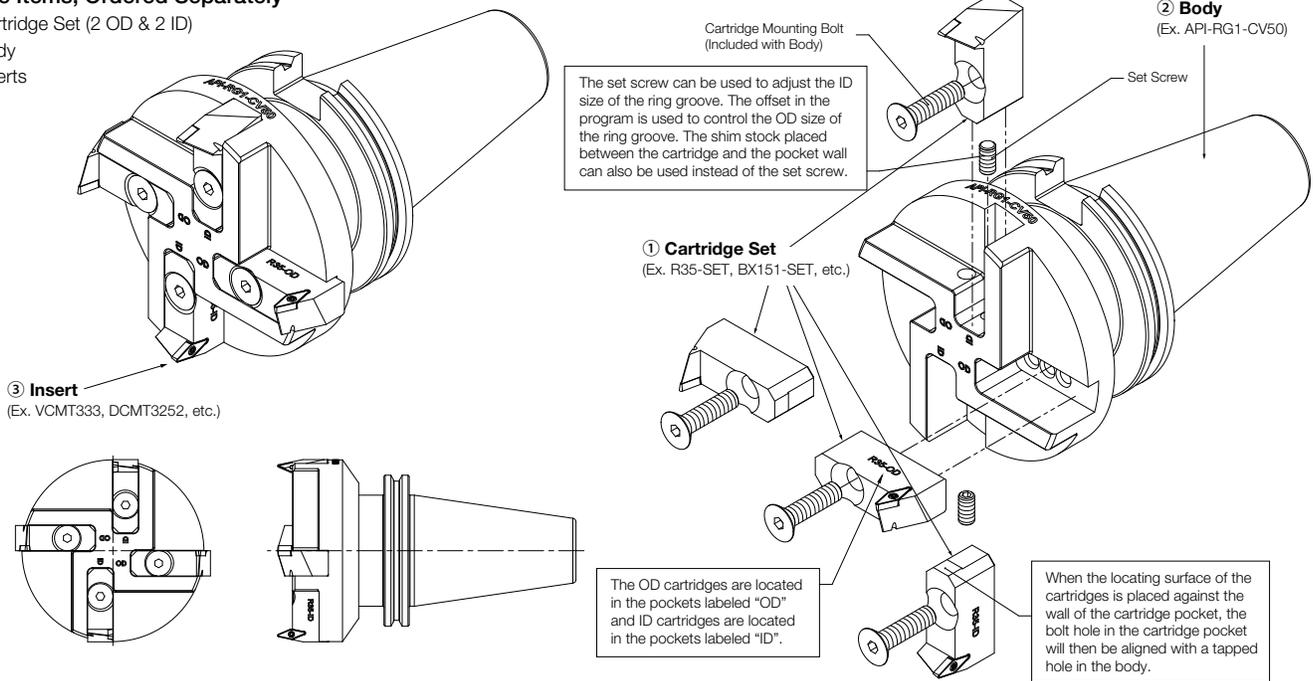
- Create ring grooves per API Spec 6A for BX, R, and RX style grooves
- Roughout and finish of inlay of API Ring Grooves
- Replaceable cartridges allow a single cutter body to produce multiple size API grooves
- Integral shank, multiple sizes and styles available

3 Line Items, Ordered Separately

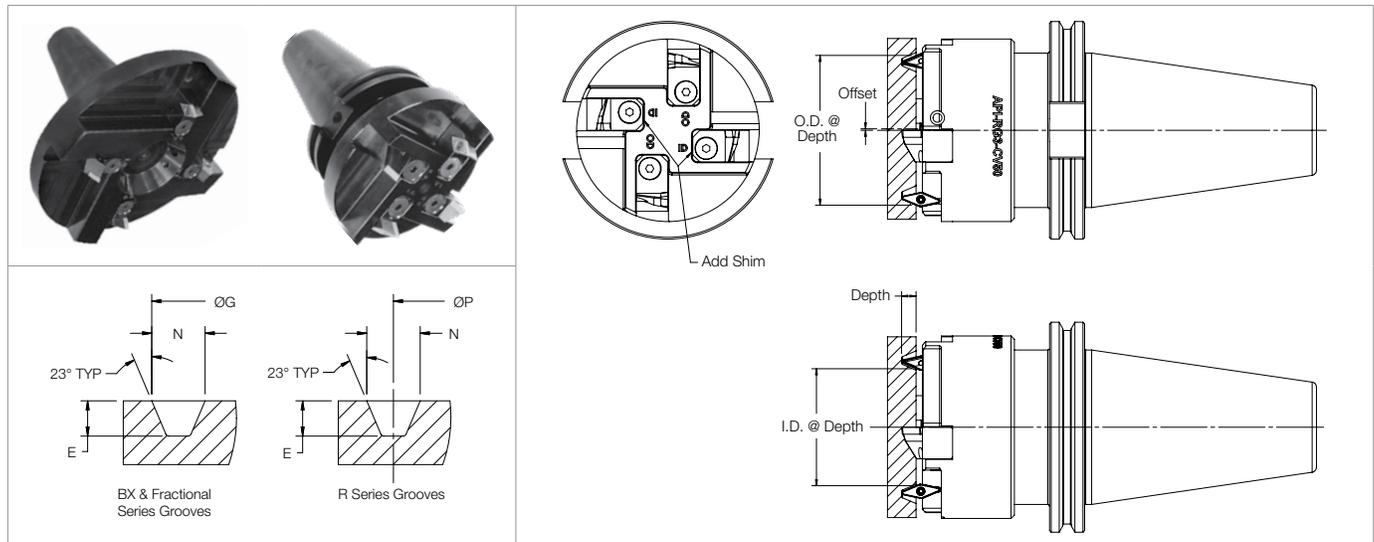
- ① Cartridge Set (2 OD & 2 ID)
- ② Body
- ③ Inserts

Inserts
45°-70° Lead Angle
75° Lead Angle
90°/88° Lead Angle
High Feed Milling
Finish Milling
Multi-Function
Slot Mill
Ball-Nose Radius
Other Applications

M
MILLING



API Ring Groover Dimensions



See Dimension Table [M245](#)

API RING GROOVER

● Ring / Cartridge Set Dimensions

Ring Specification	① Cartridge Set Part Number Choose Set	Stock	No. of Inserts	No. of Flutes	Dimensions (in)							Roughout Cartridges	Applicable Body Part Number
					Offset	Pitch	OD	Width	Depth	OD Depth	ID Depth		
						P	G	N	E				
BX-150	BX150-SET	●	4	2	0.061	-	2.893	0.450	0.220	2.771	2.115	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-150-R	BX150-R-SET	●		1	0.097	-	3.341	0.841	0.485	3.147	1.853	Yes	
BX-151	BX151-SET	●	4	2	0.065	-	3.062	0.466	0.220	2.932	2.260	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-151-R	BX151-R-SET	●	4	1	0.097	-	3.496	0.846	0.485	3.302	1.998	Yes	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
BX-152	BX152-SET	●	4	2	0.069	-	3.395	0.498	0.230	3.257	2.537	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-152-R	BX152-R-SET	●		1	0.091		3.826	0.876	0.505	3.644	2.256	Yes	
BX-153	BX153-SET	●	4	2	0.077	-	4.046	0.554	0.270	3.892	3.092	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
BX-153-R	BX153-R-SET	●		1	0.110		4.486	0.936	0.535	4.266	2.834	Yes	
BX-154	BX154-SET	●	4	2	0.083	-	4.685	0.606	0.300	4.519	3.369	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
BX-154-R	BX154-R-SET	●		1	0.112		5.116	0.971	0.570	4.892	3.398	Yes	
BX-155	BX155-SET	●	4	2	0.100	-	5.930	0.698	0.330	5.730	4.734	-	API-RG-4-CV50 API-RG-4-BT50 API-RG-4-DIN-69871
BX-155-R	BX155-R-SET	●		1	0.223		6.366	1.076	0.595	5.920	4.660	Yes	
BX-156	BX156-SET	●	4	2	0.132	-	9.521	0.921	0.440	9.257	7.943	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
BX-156-R	BX156-R-SET	●		1	0.166		9.956	1.306	0.710	9.624	7.676	Yes	
BX-169	BX169-SET	●	4	2	0.081	-	6.955	0.666	0.380	6.793	5.785	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-16	R16-SET	●	4	2	0.026	-	2.000	0.344	0.250	2.292	1.708	-	API-RG-3-CV40 API-RG-3-CV50 API-RG-3-BT50 API-RG-3-DIN-69871
R-18	R18-SET	●					2.375			2.667	2.083	-	
R-20	R20-SET	●	4	2	0.046	-	2.688	0.469	0.310	2.980	2.396	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-23	R23-SET	●					3.250			3.627	2.873	-	
R-23-R	R23-R-SET	●	4	1	0.081	-	3.300	0.469	0.310	3.994	2.606	Yes	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-24	R24-SET	●					3.750			4.127	3.373	-	
R-24-R	R24-R-SET	●	4	1	0.077	-	3.800	0.469	0.310	4.517	3.083	Yes	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-26	R26-SET	●					4.000			4.377	3.623	-	
R-27	R27-SET	●	4	2	0.046	-	4.250	0.469	0.310	4.627	3.873	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-31	R31-SET	●					4.875			5.256	4.494	-	
R-31-R	R31-R-SET	●	4	1	0.072	-	4.920	0.856	0.575	5.632	4.208	Yes	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-35	R35-SET	●					5.375			5.752	4.998	-	
R-35-R	R35-R-SET	●	4	1	0.081	-	5.420	0.856	0.575	6.114	4.726	Yes	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-37	R37-SET	●					5.875			6.252	5.498	-	
R-39	R39-SET	●	4	2	0.046	-	6.375	0.469	0.310	6.752	5.998	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-39-R	R39-R-SET	●					6.420			7.114	5.726	Yes	
R-41	R41-SET	●	4	2	0.046	-	7.125	0.469	0.310	7.502	6.748	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-44	R44-SET	●					7.625			8.002	7.248	-	
R-44-R	R44-R-SET	●	4	1	0.071	-	7.670	0.856	0.575	8.384	6.956	Yes	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
R-45	R45-SET	●					0.046			0.469	0.310	8.690		7.936	-
R-46	R46-SET	●	4	2	0.048	-	8.313	0.531	0.380	8.748	7.878	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
R-46-R	R46-R-SET	●					0.082			0.916	0.645	9.112		7.608	Yes
1-13/16	1-13/16-SET	●	4	2	0.034	-	4.373	0.377	0.258	4.305	3.687	-	API-RG-1-CV40 API-RG-1-CV50 API-RG-1-BT50 API-RG-1-BT40 API-RG-1-DIN-69871
2-1/16-10K	2-1/16-10K-SET	●					4.623			4.555	3.937	-	
2-9/16-15K	2-9/16-15K-SET	□	4	2	0.034	-	5.873	0.377	0.258	5.805	5.187	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
3-1/16-10K	3-1/16-10K-SET	●					5.748			5.680	5.062	-	
4-1/16-10K	4-1/16-10K-SET	●	4	2	0.034	-	7.123	0.377	0.258	7.055	6.437	-	API-RG-2-CV50 API-RG-2-BT50 API-RG-2-DIN-69871
5-1/8-10K	5-1/8-10K-SET	●					8.748			8.680	8.062	-	

● Applicable Body Stock

② Body Part Number Choose Body	Stock	Shank	Body Spare Parts	
			Mounting Bolt	Set Screw
			API-RG-1-CV40	●	CAT40	01-05	01-08
API-RG-1-CV50	●	CAT50		
API-RG-1-BT50	●	BT50	01-05	01-08
API-RG-1-BT40	□	BT40		
API-RG-1-DIN-69871	□	DIN69871	01-05	01-08
API-RG-2-CV50	●	CAT50		
API-RG-2-BT50	●	BT50	01-05	01-08
API-RG-2-DIN-69871	□	DIN69871		
API-RG-3-CV40	●	CAT40	01-06	01-09
API-RG-3-CV50	●	CAT50		
API-RG-3-BT50	□	BT50	01-06	01-09
API-RG-3-DIN-69871	□	DIN69871		
API-RG-4-CV50	●	CAT50	01-07	01-10
API-RG-4-BT50	□	BT50		
API-RG-4-DIN-69871	□	DIN69871		

● Note

The OD and ID dimensions are to set the cut diameter of a given cartridge set using a presetter. The dimensions are the cut diameter of the tool at the depth of the ring groove. By setting zero at the nose radius then moving the presetter to the depth of the API groove the OD and ID can be preset to the dimensions shown.

See illustration on page [M244](#)



API RING GROOVER

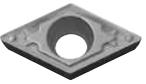
● Cartridge Set Spare Parts & Applicable Inserts

Ring Specification	Cartridge Set Part Number	Spare Parts		③ Applicable Inserts Choose Inserts		
		Clamp Screw 	Wrench 			
BX-150	BX150-SET	SCR-02	T15	DCMT3252		
BX-150-R	BX150-R-SET			DCMT3253		
BX-151	BX151-SET			DCMT3252		
BX-151-R	BX151-R-SET			DCMT3253		
BX-152	BX152-SET			DCMT3252		
BX-152-R	BX152-R-SET			DCMT3253		
BX-153	BX153-SET			DCMT3252		
BX-153-R	BX153-R-SET			DCMT3253		
BX-154	BX154-SET			DCMT3252		
BX-154-R	BX154-R-SET			DCMT3253		
BX-155	BX155-SET			DCMT3252		
BX-155-R	BX155-R-SET			VCMT333		
BX-156	BX156-SET			VCMT332		
BX-156-R	BX156-R-SET			VCMT333		
BX-169	BX169-SET			VCMT332		
R-16	R16-SET			SCR-01	T7	VCMT222
R-18	R18-SET					
R-20	R20-SET					
R-23	R23-SET	SCR-02	T15	DCMT3252		
R-23-R	R23-R-SET			VCMT333		
R-24	R24-SET			DCMT3252		
R-24-R	R24-R-SET			VCMT333		

Ring Specification	Cartridge Set Part Number	Spare Parts		③ Applicable Inserts Choose Inserts		
		Clamp Screw 	Wrench 			
R-26	R26-SET	SCR-02	T15	DCMT3252		
R-27	R27-SET					
R-31	R31-SET					
R-31-R	R31-R-SET					
R-35	R35-SET					
R-35-R	R35-R-SET					
R-37	R37-SET					
R-39	R39-SET					
R-39-R	R39-R-SET					
R-41	R41-SET					
R-44	R44-SET					
R-44-R	R44-R-SET					
R-45	R45-SET					
R-46	R46-SET					
R-46-R	R46-R-SET					
1-13/16	1-13/16-SET			SCR-01	T7	VCMT222
2-1/16-10K	2-1/16-10K-SET					
2-9/16-15K	2-9/16-15K-SET					
3-1/16-10K	3-1/16-10K-SET					
4-1/16-10K	4-1/16-10K-SET					
5-1/8-10K	5-1/8-10K-SET					

- Inserts
- 45°~70° Lead Angle
- 75° Lead Angle
- 90°/88° Lead Angle
- High Feed Milling
- Finish Milling
- Multi-Function
- Slot Mill
- Ball-Nose Radius
- Other Applications
- M** MILLING

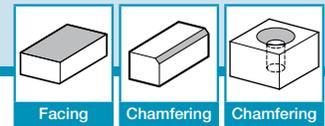
● Applicable Inserts (Inch Size)

Insert	ANSI Part Number	ISO Part Number	Dimensions (in)				Insert Grades					
							CVD Coated Carbide			MEGACOAT Coated Carbide		PVD Coated Carbide
			IC	S	D1	RE	CA525	CA6525	CA6525	PR1225	PR1425	PR660
	DCMT 3252HQ	DCMT 11T308HQ	3/8	5/32	0.173	1/32	●	●	●		△	△
							DCMT 3253CQ	DCMT 11T312CQ	3/8	5/32	0.173	3/64
	VCMT 222HQ	VCMT 110308HQ	1/4	1/8	0.110	1/32				●		
	VCMT 332HQ	VCMT 160408HQ	3/8	3/16	0.173	1/32	●	●	●			●
	333HQ	160412HQ	3/8	3/16	0.173	3/64				●		

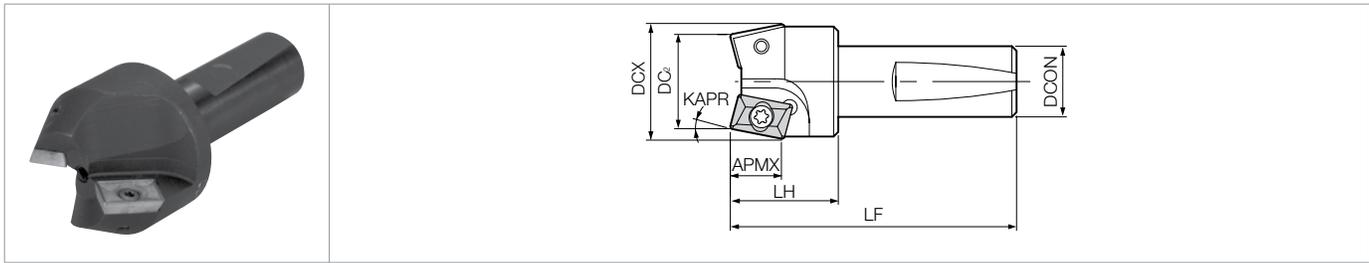
● Sample CNC Program for the API Ring Groover

<p>Sample is shown without cutter comp.</p> <p>N10 (Incremental Program)</p> <p>N20 G00 X (As required) Y (As required) Z.100 M03 S (As required)</p> <p>N30 G01 Z0.0 F100</p> <p>N40 G91 -Y (Offset) Z-.100 F (As required)</p> <p>N50 G03 J (Offset) Z-.100 F (As required)</p> <p>N60 G03 J (Offset) Z-.100</p> <p>Continue to Depth</p> <p>Last Pass</p> <p>N90 G03 J (Offset) Z0.00</p>	<p>Use 0.03 Depth in Z for Inconel and 0.04 Depth in Z for Steel</p>
--	--

CM / CM-AL CHAMFERING END MILL



CM (General Purpose) / CM-AL (For Aluminum Cutting)



Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (in)							Spare Parts		Applicable Inserts M29				
			DCX	DC ₂	DCON	LF	LH	APMX	KAPR	Clamp Screw	Wrench					
CM 0563-15-09	●	2	0.741	0.563	0.500	2.780	1.000	0.340	15.0°	SCR-04	T7	XPMT090208				
0563-20-09	●		0.795					0.330	20.0°							
0563-25-09	●		0.849					0.310	25.0°							
0563-30-09	●		0.901	0.563	0.625	2.910	1.000	0.300	30.0°	SCR-04	T7					
0563-35-09	●		0.951					0.280	35.0°							
0563-45-09	●		1.041	0.563	0.625	2.910	1.000	0.240	45.0°	SCR-01	T7					
0563-60-09	●		1.165					0.160	60.0°							
0563-75-09	●		1.217					0.080	75.0°							
CM 1000-03	●	2	1.062	1.000	0.750	3.150	1.250	0.589	3.0°	SCR-16	T10	XPMT15T3...				
1000-05	●		1.104					0.586	5.0°							
1000-10	●		1.206					0.577	10.0°							
1000-15	●		1.308					0.564	15.0°							
1000-20	●		1.408	1.000	0.750	3.150	1.250	0.547	20.0°	SCR-30	T10					
1000-25	●		1.504					0.526	25.0°							
1000-30	●		1.596					0.501	30.0°							
1000-35	●		1.686	1.000	0.750	3.150	1.250	0.472	35.0°	SCR-30	T10					
1000-37.5	●		1.744					0.456	37.5°							
1000-41	●		1.786					0.433	41.0°							
1000-45	●		1.800					0.400	45.0°							
1000-50	●		1.908	1.000	0.750	3.150	1.250	0.376	50.0°	SCR-30	T10					
1000-55	●		2.014					0.327	55.0°							
1000-60	●		2.042					0.284	60.0°							
1000-70	●		2.094					0.193	70.0°							
1000-75	●		2.168	1.000	0.750	3.250	1.350	0.146	75.0°	SCR-02	T15					
CM 1000-15-AL	●	1.316	0.613					15.0°								
1000-20-AL	●	1.416	0.595					20.0°								
1000-30-AL	●	1.608	0.544					30.0°								
0800-45-AL	●	1.66	0.800					0.750	3.250			1.350	0.440	45.0°	SCR-02	T15
0800-60-AL	●	1.856											0.308	60.0°		
0690-75-AL	●	1.872	0.690					0.750	3.250			1.350	0.158	75.0°	SCR-02	T15

Recommended Cutting Conditions (EM, EM-LE, FM, FM-AL, EM-AL)

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)									
		Cermet		MEGACOAT NANO			CVD Coated Carbide	PVD Coated Carbide			Carbide
		TN100M	TC60	PR1535	PR1525	PR1510	CA6535	PR930	PR905	PR830	KW10
Low Carbon Steel	0.003-0.006	☆ 800-1400	★ 800-1400	★ 400-800	★ 400-800	-	-	☆ 350-750	-	-	-
Carbon Steel	0.003-0.006	☆ 600-1200	★ 600-1200	★ 300-700	★ 300-700	-	-	☆ 250-650	-	-	-
Mold Steel	0.003-0.006	☆ 400-700	★ 400-700	★ 250-600	★ 250-600	-	-	☆ 250-600	-	-	-
Stainless Steel	0.002-0.006	☆ 300-800	☆ 300-800	★ 300-600	☆ 300-600	-	★ 550-950	☆ 300-500	-	☆ 300-800	-
Cast Iron	0.003-0.008	☆ 400-1200	★ 400-1200	-	-	★ 400-800	-	-	★ 400-800	-	☆ 300-500
Non-ferrous Metals	0.005-0.007	☆ 1500-1800	☆ 1500-1800	-	-	-	-	-	-	-	★ 2000-4000
Heat-resistant Alloy	0.002-0.005	-	-	☆ 70-160	-	-	★ 70-160	-	-	-	-
Titanium Alloy	0.002-0.005	-	-	★ 130-260	-	☆ 100-230	-	-	-	-	-

* Apply sufficient amount of coolant

★: 1st Recommendation ☆: 2nd Recommendation

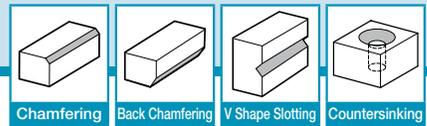
● : Standard Item △ : Phaseout Item (will be removed from next catalog)
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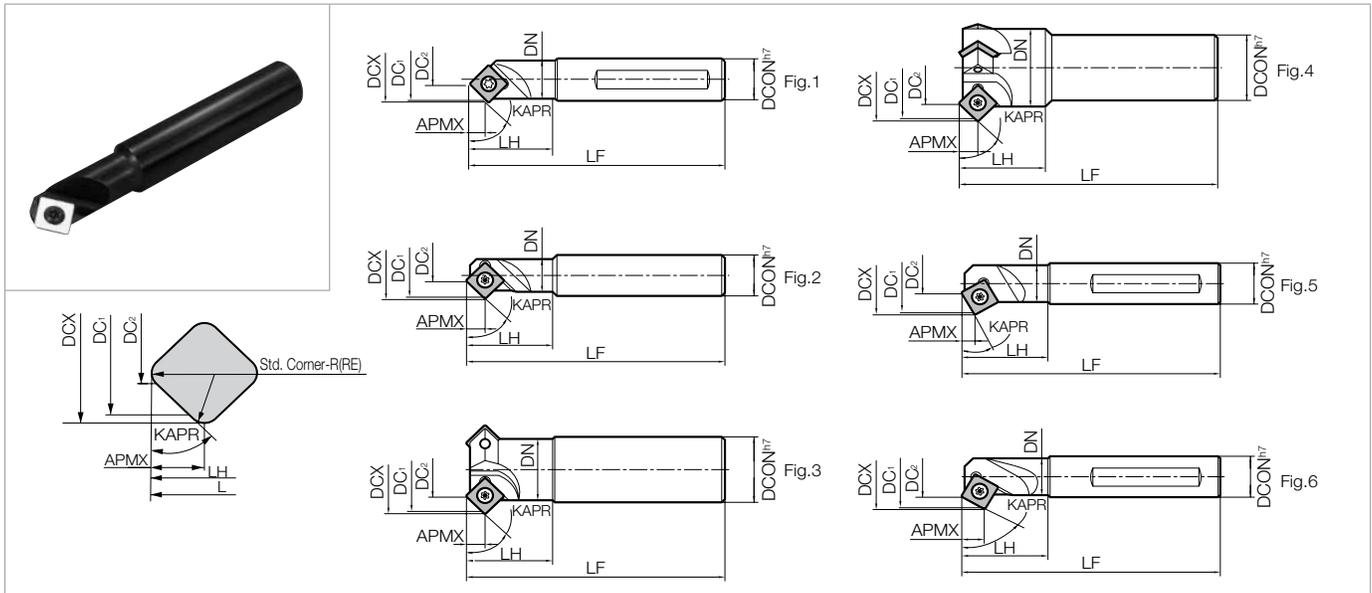
INSERT GRADES
TURNING INSERTS
GEN/PCD INSERTS
TURNING HOLDERS
SMALL TOOLS
BORING
GROOVING
CUT-OFF
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MCSE CHAMFERING END MILL



MCSE



Toolholder Dimensions

Inserts	Part Number	Stock	No. of Inserts	Dimensions (mm)							Std. Corner-R (RE)	Angle (°)		Rake Angle (°)		Drawing	Spare Parts	
				DCX	DC ₁	DC ₂	DCON	DN	LF	LH		APMX	KAPR	A.R.	R.R.		Clamp Screw	Wrench
45°~70° Lead Angle	MCSE 104	●	1	16.0	15	4	16	15	85	30	6.5	0.4	45°	0°	-4.5°	Fig.1	SB-3060TR	DT-10
75° Lead Angle	106	●	1	22.0	21	6	20	16	120	40	8.6	0.8	45°	0°	-1.0°	Fig.2	SB-5090TR	LTW-20
90°/88° Lead Angle	115	●	1	31.0	30	15	20	18	120	40	8.6				+5.0°			
High Feed Milling	227	●	2	43.0	42	27	32	30	120	40	8.6	0.8	45°	0°	+8.0°	Fig.3	SB-5090TR	LTW-20
Finish Milling	336	●	3	52.0	51	36	32	38	120	40	8.6	0.8	45°	0°	+10.0°	Fig.4	SB-5090TR	LTW-20
Multi-Function	MCSE 104-30D	●	1	19.0	18	4	16	15	85	30	4.7	0.4	30°	0°	-4.0°	Fig.5	SB-3060TR	DT-10
Slot Mill	108-30D	●	1	28.0	27	8	20	19	110	40	6.3	0.8	30°	0°	-2.5°	Fig.5	SB-5090TR	LTW-20
Ball-Nose Radius	110-30D	●	1	30.0	28	10	20	18	120	40	6.3				0.0°			
Other Applications	MCSE 108-60D	●	1	19.5	19	8	20	19	110	40	10.0	0.8	60°	0°	-3.5°	Fig.6	SB-5070TR	LTW-20
M	120-60D	●	1	31.0	30	20	20	18	120	40	10.0				0.0°				Fig.6	SB-5090TR	LTW-20

Recommended Cutting Conditions **M249**

Applicable Inserts (Metric Size)

Part Number	Applicable Inserts M26		
			
MCSE 104 104-30D	SDKW 09T204TN	SDKW 09T204FN	SDMT 31.81C
MCSE 106 115 227 336	SEKW 421TN	SEKW 421FN	SEMT 421C
MCSE 108-30D 110-30D	SEKW 422TN	SEKW 422FN	
MCSE 108-60D 120-60D			

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● : Standard Item △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

MCSE CHAMFERING END MILL

◆ Recommended Cutting Conditions

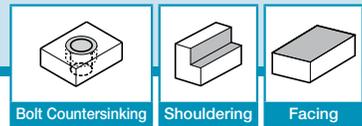
Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grades (Cutting Speed Vc: sfm)		
			Cermet	MEGACOAT	Carbide
	DC ₂ (Ø4mm~Ø20mm)	DC ₂ (Ø27mm~Ø36mm)	TN100M	PR1225	KW10
Carbon Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 390~820	-
Alloy Steel	0.002~0.010	0.008~0.016	★ 330~590	★ 330~720	-
Mold Steel	0.002~0.010	0.008~0.016	★ 330~490	★ 260~590	-
Stainless Steel	0.002~0.008	0.004~0.012	☆ 330~590	★ 390~720	-
Cast Iron	0.004~0.012	0.012~0.020	-	-	☆ 260~490
Non-ferrous Metals	0.004~0.012	0.012~0.020	-	-	★ 330~980

• Use down-cut machining.

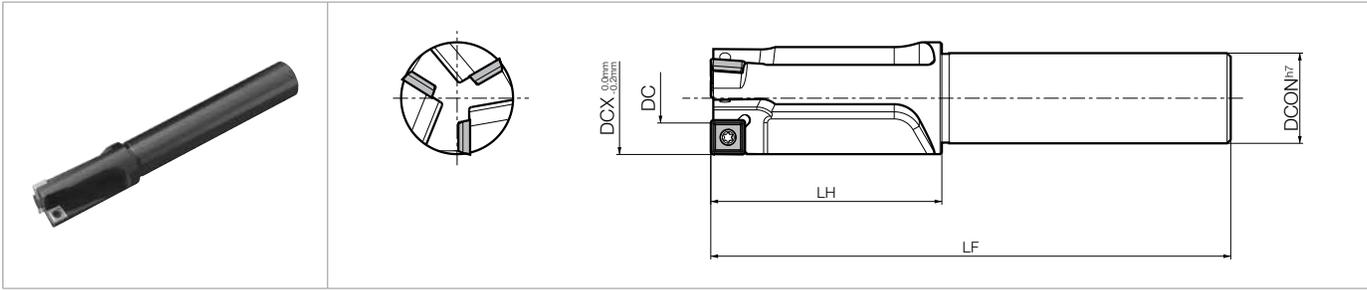
★: 1st Recommendation ☆: 2nd Recommendation

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
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MEF BOLT COUNTERSINKING END MILL



MEF



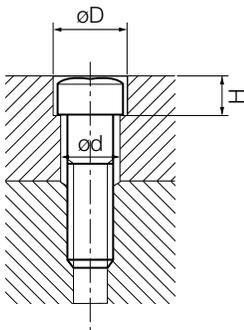
Toolholder Dimensions

Part Number	Stock	No. of Inserts	Dimensions (mm)					Std. Corner-R (RE)	Rake Angle (°)		Objective Bolt Size	Spare Parts		Applicable Inserts M28
			DCX	DC	DCON	LF	LH		A.R.	R.R.		Clamp Screw	Wrench	
MEF 11-S10	●	1	11.0	3.0	10	103	23	0.4	+5°	-13°	M6	SB-2250TR	DT-7	SPMT060204E-Z SPMT060208E-Z
14-S12	●		14.0	4.5	12	108	28				M8	SB-2260TR		
17-S16	●	2	17.5	7.3	16	115	35	0.4	+5°	-13°	M10	SB-2260TR	DT-7	
18-S16	●		18.0	7.7	16	117	38				-			
20-S16	●	3	20.0	9.5	16	120	40	0.4	+5°	-12°	M12	SB-2260TR	DT-7	
22-S20	●		22.0	11.4	20	124	44				-			
23-S20	●		23.0	12.4	20	126	46				-			
24-S20	●	3	24.0	13.4	20	128	48	0.4	+5°	-12°	-	SB-2260TR	DT-7	
25-S20	●		25.0	14.4	20	130	50				-			
26-S25	●	3	26.0	9.8	25	132	52	0.8	+5°	-13°	M16	SB-3080TR	DT-10		SPMT090304E-Z SPMT090308E-Z
27-S25	●		27.0	10.6	25	134	54				-			
28-S25	●		28.0	11.5	25	136	56				-			
29-S25	●	3	29.0	12.6	25	138	58	0.8	+5°	-13°	M18	SB-3080TR	DT-10	
30-S25	●		30.0	13.5	25	140	60				-			
32-S25	●	3	32.0	15.5	25	144	64	0.8	+5°	-12°	M20	SB-3080TR	DT-10	
35-S32	●		35.0	18.4	32	150	70				M22			
39-S32	●	4	39.0	22.5	32	158	78	0.8	+5°	-13°	M24	SB-3080TR	DT-10	
43-S32	●	4	43.0	26.2	32	166	86	0.8	+5°	-12°	M27	SB-3080TR	DT-10	
48-S32	●		48.0	31.3	32	176	96				M30			

● Although Corner-R(RE) pertains to MEF11-S10, DC = 3.0mm.

Recommended Cutting Conditions M251

Bolt Counter Sink (Hexagon Socket Head Cap Screw)



Nominal Screw Size	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
øD (mm)	11.0	14.0	17.5	20.0	23.0	26.0	29.0	32.0	35.0	39.0	43.0	48.0
H (mm)	6.5	8.6	10.8	13.0	15.2	17.5	19.5	21.5	23.5	25.5	29.0	32.0
ød (mm)	6.6	9.0	11.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	30.0	33.0
Applicable End Mill	MEF11	MEF14	MEF17	MEF20	MEF23	MEF26	MEF29	MEF32	MEF35	MEF39	MEF43	MEF48

Inch Size Counterbores and Countersinks Available on Page K116~K117

MEF BOLT COUNTERSINKING END MILL

◆ Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		MEGACOAT		Carbide
		PR1225	PR1210	KW10
Carbon Steel	0.004~0.006	★ 390~720	-	-
Alloy Steel	0.004~0.006	★ 390~720	-	-
Mold Steel	0.002~0.004	★ 330~590	-	-
Stainless Steel	0.002~0.004	★ 260~590	-	-
Cast Iron	0.004~0.008	-	★ 330~720	☆ 260~390
Non-ferrous Metals	0.004~0.008	-	-	★ 330~980

★: 1st Recommendation ☆: 2nd Recommendation

● Points at Bolt Counter Sink Milling

① Carbon Steel

Increase the feed rate to fz = 0.004~0.006 ipt for preventing long chips at low feed rates.

Chip control is good when setting Vc = 260 sfm for MEF11~MEF25, and Vc = 390 sfm for MEF26~MEF48.

Part Number	Cutting Speed Vc (sfm)	fz (ipt)
MEF11~MEF25	260	0.004~0.006
MEF26~MEF48	390	0.004~0.006

② Sticky Materials

Step feed is recommended for good chip control

Increase the feed rate to fz = 0.004~0.006 ipt for preventing long chips at low feed rate fz = 0.002 ipt.

Use cover to prevent accidents or injury by thick chips at higher feed rates.

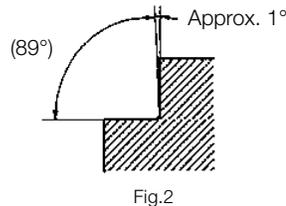
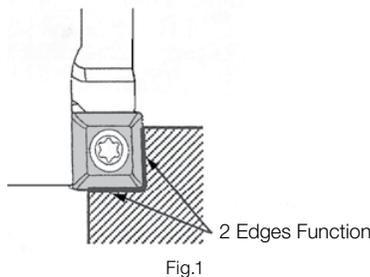
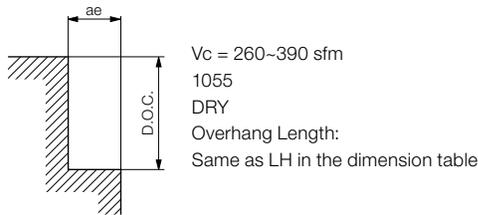
Part Number	Cutting Speed Vc (sfm)	fz (ipt)	Step Feed (inch)
MEF11~MEF48	260~490	0.004~0.006	0.020~0.059

③ Stainless Steel

Use a lower Cutting Speed. High Cutting Speeds cause chattering.

● Cutting Performance when Shouldering

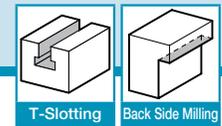
MEF Bolt Countersink End Mill is also recommended for shouldering.



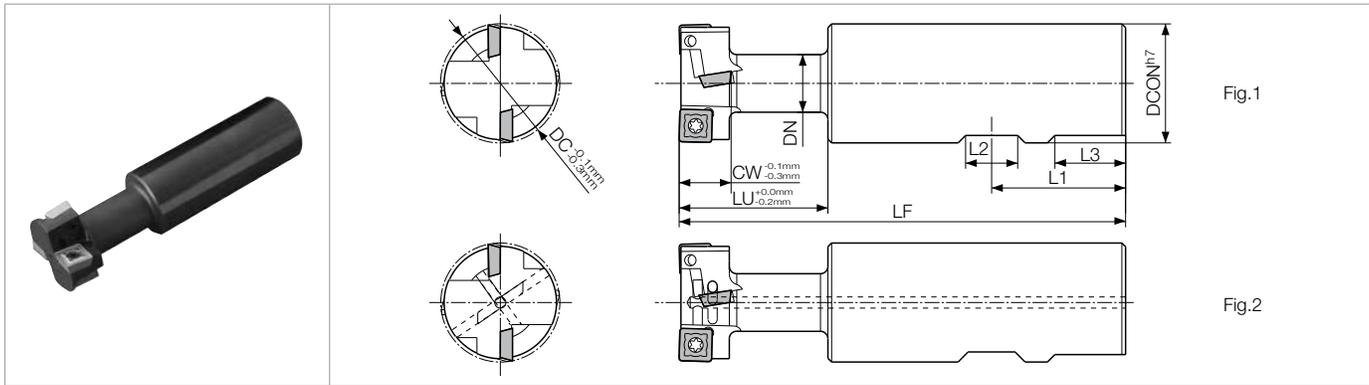
- When shouldering, both side edge and bottom edges function. Both edges wear at the same time depending on D.O.C.. The insert uses 2 edges instead of 4. (Ref. to Fig.1)
- MEF type's side edge is designed to have a slight clearance for the countersink milling. Therefore, worked side wall is approx. 1° inclined against the vertical face. (Ref. to Fig.2)

Part Number	Cutting Range
MEF11-S12 MEF14-S12 MEF17-S16 MEF18-S16	
MEF20-S16 MEF22-S20 ~ MEF25-S20	
MEF26-S25 ~ MEF32-S25 MEF35-S32	
MEF39-S32 MEF43-S32 MEF48-S32	

INSERT GRADES **A**
TURNING INSERTS **B**
GEN/PCD INSERTS **C**
TURNING HOLDERS **D**
SMALL TOOLS **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
DRILLING **K**
MILLING **M**
QUICK CHANGE TOOLING **N**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**



METS



Toolholder Dimensions

Part Number	Stock	No. of Inserts	No. of Flutes	Dimensions (mm)									Rake Angle (°)		Drawing	Spare Parts		Applicable Inserts M26
				DC	DCON	DN	CW	LF	LU	L1	L2	L3	A.R.	R.R.		Clamp Screw	Wrench	
METS 21-S25	●	2	1	21	25	10.5	9	109	29	32	12	17	+9°	-10°	Fig.1	SB-2560TR	DT-8	SDMT221E-K
25-S25	●	4	2	25		12.5	11	112	32									
32-S32	●	4	2	32	32	15.5	14	120	38	36	14	19	+9°	-10°	Fig.1	SB-3060TR	DT-10	SDMT080308E-K
40-S32	●	4	2	40	32	20.5	18	130	50	36	14	19	+9°	-12°	Fig.1	SB-4085TR	DT-15	SDMT432E-K
50-S32	●			50		26.5	22	140	60									
METS 21-S25-H	●	2	1	21	25	10.5	9	109	29	32	12	17	+9°	-10°	Fig.2	SB-2560TR	DT-8	SDMT221E-K
25-S25-H	●	4	2	25		12.5	11	112	32									
32-S32-H	●	4	2	32	32	15.5	14	120	38	36	14	19	+9°	-10°	Fig.2	SB-3060TR	DT-10	SDMT080308E-K
40-S32-H	●	4	2	40	32	20.5	18	130	50	36	14	19	+9°	-12°	Fig.2	SB-4085TR	DT-15	SDMT432E-K
50-S32-H	●			50		26.5	22	140	60									

● METS...H type has air holes

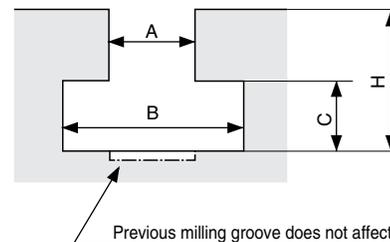
Recommended Cutting Conditions M253

Applicable Inserts

Part Number	Applicable Inserts M26
METS 21-S25	SDMT 221E-K
21-S25-H	
25-S25	
25-S25-H	
METS 32-S32	SDMT 080308E-K
32-S32-H	
METS 40-S32	SDMT 432E-K
40-S32-H	
50-S32	
50-S32-H	

JIS Standard of T-Slot (Extracted from B0952) (Unit: mm)

A (Nominal Size)	B	C	H	
			Max.	Min.
12	19 ⁺² ₀	8 ⁺¹ ₀	25	20
14	23 ⁺² ₀	9 ⁺² ₀	28	23
18	30 ⁺² ₀	12 ⁺² ₀	36	30
22	37 ⁺³ ₀	16 ⁺² ₀	45	38
28	46 ⁺⁴ ₀	20 ⁺² ₀	56	48



METS T-SLOT MILL

Recommended Cutting Conditions

Workpiece Material	fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)		
		MEGACOAT		Carbide
		PR1230	PR1210	KW10
Carbon Steel	0.004~0.006	★ 330~660	-	-
Alloy Steel	0.003~0.005	★ 330~660	-	-
Mold Steel	0.002~0.004	★ 260~490	-	-
Cast Iron	0.004~0.006	-	★ 330~660	☆ 260~390
Non-ferrous Metals	0.004~0.006	-	-	★ 330~980

★: 1st Recommendation ☆: 2nd Recommendation

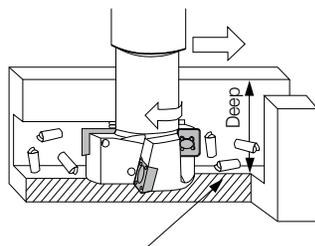
Part Number (T-Slot Nominal Size)	Steel			Cast Iron		
	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering	Groove Shape at Pre-process	T-Slotting Conditions	Conditions to Prevent Chattering
METS21-S25(-H) (Nominal Size 12)	$C = 0.039 \sim 0.118''$ 	Vc = 390 fz = 0.004 (n = 1,820) (Vf = 7.165)	Vc = 200 fz = 0.006 (n = 920) (Vf = 5.394)	$C = \text{Over } 0.039''$ 	Vc = 390 fz = 0.005 (n = 1,820) (Vf = 8.583)	Vc = 260 fz = 0.006 (n = 1,210) (Vf = 7.165)
METS25-S25(-H) (Nominal Size 14)	$C = 0.039 \sim 0.118''$ 	Vc = 390 fz = 0.004 (n = 1,530) (Vf = 12.047)	Vc = 200 fz = 0.006 (n = 760) (Vf = 8.976)	$C = \text{Over } 0.039''$ 	Vc = 390 fz = 0.005 (n = 1,530) (Vf = 14.449)	Vc = 260 fz = 0.006 (n = 1,020) (Vf = 12.047)
METS32-S32(-H) (Nominal Size 18)	$C = 0.039 \sim 0.118''$ 	Vc = 330 fz = 0.004 (n = 1,000) (Vf = 7.874)	Vc = 200 fz = 0.006 (n = 600) (Vf = 7.087)	$C = \text{Over } 0.039''$ 	Vc = 390 fz = 0.005 (n = 1,190) (Vf = 11.260)	Vc = 260 fz = 0.006 (n = 800) (Vf = 9.449)
METS40-S32(-H) (Nominal Size 22)	$C = 0.354''$ 	Vc = 260 fz = 0.006 Chattering is likely when set to shallower than $C = 0.354''$.	Vc = 200 fz = 0.006 (n = 480) (Vf = 5.669)	$C = \text{Over } 0.354''$ 	Vc = 390 fz = 0.006 (n = 960) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 640) (Vf = 7.559)
METS50-S32(-H) (Nominal Size 28)	Not recommended for steel because of chattering				Vc = 390 fz = 0.006 (n = 760) (Vf = 8.976)	Vc = 260 fz = 0.006 (n = 510) (Vf = 6.024)

[Cutting Speed : Vc (sfm), Spindle Revolution : n (min⁻¹), Feed Rate fz (ipt), Table Feed Vf (ipm)]

- Chattering is likely when fz is less than fz = 0.004 ipt. Keep feed rate between fz = 0.004~0.006 ipt. For cast iron machining, the bigger the C-dimension becomes, the less chattering occurs.

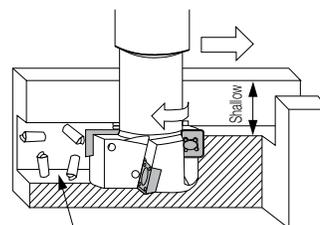
How to Prevent Damaging Chips when Steel Machining

Before Improvement (Deep Groove at Pre-Process)



Chips stay in the pre-process groove.

After Improvement (Shallow Groove at Pre-Process)



Chips are evacuated backward and chances of damaging chips are less.

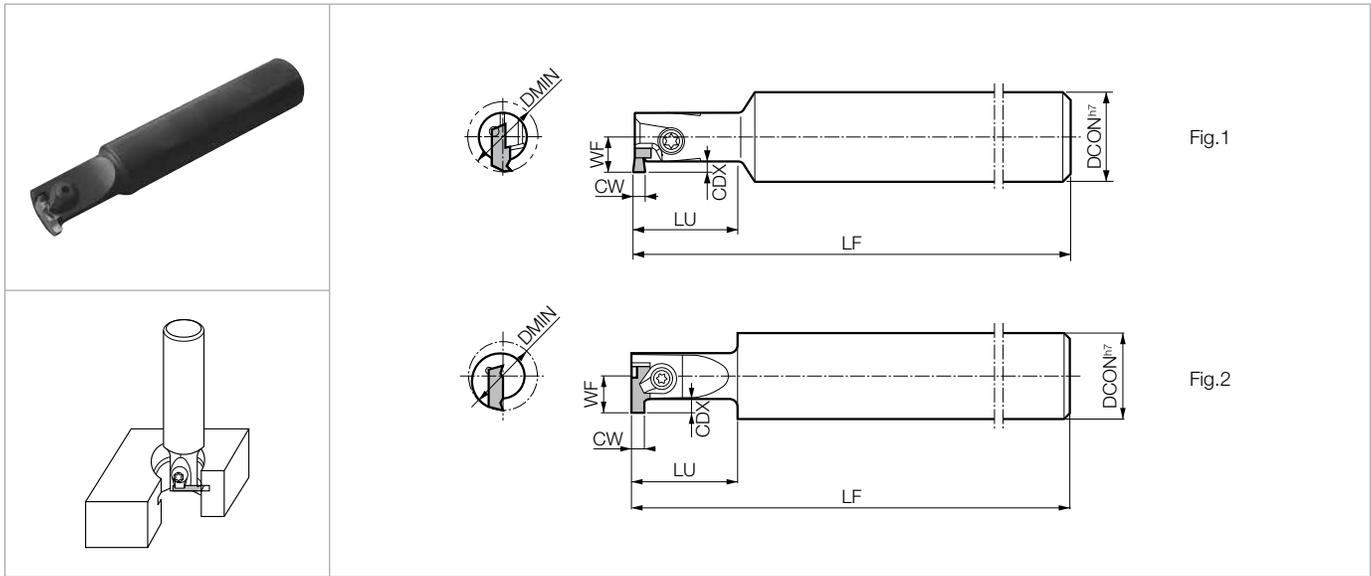
Improvement of chip biting

Make pre-process groove shallower to prevent the tool from becoming damaged from chips. Use compressed air to aid in chip evacuation.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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TECHNICAL	R
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MGI GROOVING END MILL

MGI



Toolholder Dimensions

Inserts	Part Number	Stock	Min. Bore Dia.	Dimensions (mm)					Edge Width	Drawing	Spare Parts			Applicable Inserts			
				DMIN	DCON	LF	LU	WF			CDX	CW	Clamp Set		Clamp Screw	Wrench	
													5F		6F		FT LW
45°-70° Lead Angle	MGI 1420-1SS	●	14	20	100	20	6.8	2.2	1.0-3.0	Fig.1	-	-	SB-4065TR	FT-15	GVR...-020SS		
75° Lead Angle	1620-1S	●	16	20	110	25	7.8	2.2	1.0-3.4	Fig.1	-	-	SB-4085TR	FT-15	GVR...-020S		
90°/88° Lead Angle	2020-1A	●	20	20	110	30	9.8	2.2	1.0-3.4	Fig.2	CPS-5F	-	-	FT-15	GVR...-020A GVR...-...AR		
High Feed Milling	2220-1B	●	22	20	110	30	11.0	2.8	1.45-4.0	Fig.2	CPS-5F	-	-	FT-15	GVR...-020B GVR...-...BR		
Finish Milling	3225-1C	●	32	25	120	35	16.0	5.5	2.8-4.0	Fig.2	-	CPS-6F	-	LW-3	GVR...-020C		
Multi-Function	4025-1C	△	40	25	120	40	20.0	(4.5)									

- Dimension CDX shows available grooving depth.
- **GVR280-020C, GVR300-020C** inserts are available for groove depths up to 4.5mm.
- **GVR430-020C ~ GVR500-020C** inserts can be installed into **MGI3225-1C** and **MGI4025-1C** holders, but are not recommended for steel machining because of toolholder's rigidity.

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)					
		Cermet			MEGA COAT	PVD Coated Carbide	Carbide
		TN90	TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002-0.006	★ 390-660	☆ 390-660	☆ 330-590	★ 260-490	☆ 260-490	-
Alloy Steel	0.002-0.006	★ 390-660	☆ 390-660	☆ 330-590	★ 260-490	☆ 260-490	-
Mold Steel	0.001-0.005	★ 330-590	☆ 330-590	☆ 260-490	★ 200-430	☆ 200-430	-
Stainless Steel	0.001-0.005	☆ 330-590	☆ 330-590	★ 260-490	★ 200-430	☆ 200-430	-
Cast Iron	0.002-0.008	★ 330-490	☆ 330-490	-	-	-	★ 260-490
Non-ferrous Metals	0.002-0.008	-	-	-	-	-	★ 330-980

• Use down-cut machining.

★: 1st Recommendation ☆: 2nd Recommendation

MGI GROOVING END MILL

● Applicable Inserts (Metric Size)

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Dimensions (mm)						Insert Grades								
			CW	CDX	RE	W1	INSL	S	Cermet		MEGA COAT	PVD	Carbide				
									TN90	TC40				TC60	PR1225	PR930	KW10
 1-Edge	GVR 100-020SS	GVR 100SS	1.00								△		●	●	●	●	●
	125-020SS	125SS	1.25								△		●	●	●	●	●
	145-020SS	145SS	1.45	2.3	0.2	3.6	9	3.0			△		●	●	●	●	●
	200-020SS	200SS	2.00								△		●	●	●	●	●
	250-020SS	250SS	2.50								△		●	●	●	●	●
	300-020SS	300SS	3.00								△		●	●	●	●	●
	GVR 100-020S	GVR 100S	1.00								△	●	●	●	●	●	●
	125-020S	125S	1.25								△	●	●	●	●	●	●
	145-020S	145S	1.45	2.3	0.2	4.0	11	4.0			△	●	●	●	●	●	●
	185-020S	185S	1.85								△	●	●	●	●	●	●
	200-020S	200S	2.00								△	●	●	●	●	●	●
	250-020S	250S	2.50								△	●	●	●	●	●	●
	340-020S	340S	3.40								△	●	●	●	●	●	●
	 2-Edge	GVR 100-020A	GVR 100A	1.00								△	●	●	●	●	●
125-020A		125A	1.25								△	●	●	●	●	●	●
145-020A		145A	1.45	2.3	0.2	4.0	12	5.0			△	●	●	●	●	●	●
185-020A		185A	1.85								△	●	●	●	●	●	●
200-020A		200A	2.00								△	●	●	●	●	●	●
250-020A		250A	2.50								△	●	●	●	●	●	●
300-020A		300A	3.00								△	●	●	●	●	●	●
340-020A		340A	3.40								△	●	●	●	●	●	●
GVR 145-020B		GVR 145B	1.45	2.8	0.2	4.5	15	5.5			△	●	●	●	●	●	●
185-020B		185B	1.85								△	●	●	●	●	●	●
200-020B		200B	2.00								△	●	●	●	●	●	●
230-020B		230B	2.30	3.2	0.2	4.5	15	5.5			△	●	●	●	●	●	●
250-020B		250B	2.50								△	●	●	●	●	●	●
280-020B		280B	2.80								△	●	●	●	●	●	●
300-020B		300B	3.00								△	●	●	●	●	●	●
340-020B		340B	3.40	4.2	0.2	4.5	15	5.5			△	●	●	●	●	●	●
400-020B		400B	4.00								△	●	●	●	●	●	●
GVR 280-020C		GVR 280C	2.80	4.5	0.2	5.8	21	6.5			△	●	●	●	●	●	●
300-020C		300C	3.00								△	●	●	●	●	●	●
340-020C	340C	3.40	5.5	0.2	5.8	21	6.5			△	●	●	●	●	●	●	
400-020C	400C	4.00								△	●	●	●	●	●	●	
(430-020C)	(430C)	4.30								△	●	●	●	●	●	●	
(460-020C)	(460C)	4.60	6.3	0.2	5.8	21	6.5			△	●	●	●	●	●	●	
(500-020C)	(500C)	5.00								△	●	●	●	●	●	●	
 2-Edge Full-R	GVR 200-100AR	GVR 100AR	2.00	2.3	1.00								●	●	●	●	
	250-125AR	125AR	2.50	2.3	1.25	4.0	12	5.0					●	●	●	●	
	300-150AR	150AR	3.00	2.3	1.50								●	●	●	●	
	GVR 200-100BR	GVR 100BR	2.00	3.2	1.00						△			●	●	●	●
	300-150BR	150BR	3.00	4.2	1.50	4.5	15	5.5			△			●	●	●	●

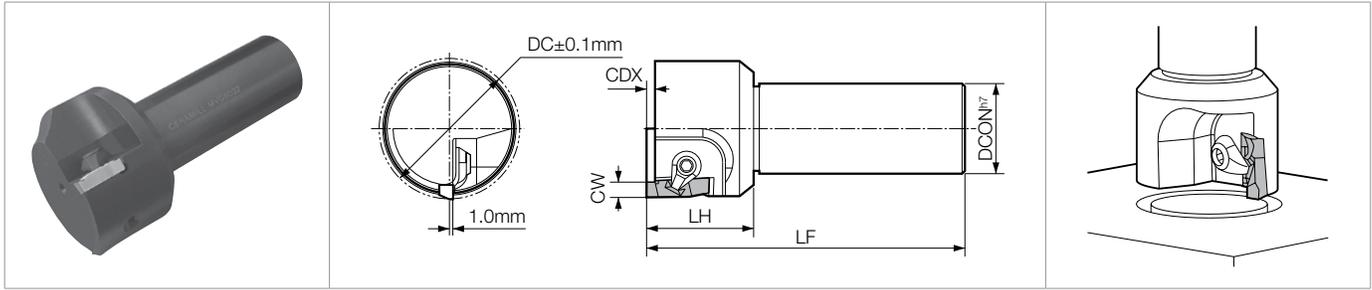
- : Only Right-hand insert is applicable.
- : GVR280-020C, GVR300-020C inserts are available for groove depths up to 4.5mm.
- : GVR430-020C ~ GVR500-020C inserts can be installed into MGI3225-1C and MGI4025-1C holders, but are not recommended for steel machining because of toolholder's rigidity.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MVG RING GROOVING END MILL



MVG



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)					Edge Width	Spare Parts	
		DC	DCON	LF	LH	CDX		CW	Clamp Set	Wrench
MVG 3032	●	30	32	120	40	5.2	4.00 ~ 4.90	CPS-6V	LW-3
3532	●	35							
4032	●	40							
4532	●	45							
5032	●	50							
5532	●	55							
6032	●	60							

• Dimension CDX shows available grooving depth.

Applicable Inserts

Insert Right-handed Insert Shown	Part Number	Previous Part Number	Dimensions (mm)						Insert Grades						
			CW	CDX	RE	W1	INSL	S	Cermet		MEGA COAT	PVD	Carbide		
									TN90	TC40				TC60	PR1225	PR930	KW10
	GVFR 400-020B	GVFR 400B	4.00							△	●	●	●	●	●
	430-020B	430B	4.30								●	●	●	●	●
	460-020B	460B	4.60	5.3	0.2	5.8	20	5.0			●	●	●	●	●
	490-020B	490B	4.90								●	●	●	●	●

- GVFR430B-020B inserts are applicable for sealing groove of G-series
For other ring grooving applications, GVFR400B-020B - GVFR490B-020B are applicable.
- Only Right-hand insert is applicable.

Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)	Recommended Insert Grades (Cutting Speed Vc: sfm)					
		Cermet			MEGACOAT	PVD Coated Carbide	Carbide
		TN90	TC40	TC60	PR1225	PR930	KW10
Carbon Steel	0.002-0.006	-	★ 390-660	☆ 330-590	★ 260-560	☆ 260-490	-
Alloy Steel	0.002-0.006	-	★ 390-660	☆ 330-590	★ 260-560	☆ 260-490	-
Mold Steel	0.001-0.005	-	★ 330-590	☆ 260-490	★ 200-490	☆ 200-430	-
Stainless Steel	0.001-0.005	-	☆ 330-590	☆ 260-490	★ 200-490	☆ 200-430	-
Cast Iron	0.002-0.008	-	-	-	-	-	★ 260-490
Non-ferrous Metals	0.002-0.008	-	-	-	-	-	★ 330-980

★: 1st Recommendation ☆: 2nd Recommendation

QUICK CHANGE TOOLING

N

N1 - N26

QUICK CHANGE SYSTEMS N2 - N22

KPC-SERIES	Polygon Shank Holders	N2
HSK-T TOOLING	(ICTM Standard)	N12
KQC	Flower Petal Adapter	N21

CARTRIDGE N23 - N26

LEVER LOCK	PS / PT	N24
TOP CLAMP	CT	N25
SCREW CLAMP	ST	N26

LEVER LOCK PARTS COMPATIBILITY R72

KPC-Series

Polygon Taper Shank Holders

Polygon taper shank with high rigidity and high precision

PSC Shank Tools

JIS B 6066-1 Dual contact between polygon taper shank and the main spindle face
 ISO26623-1 Polygonal taper interface with flange contact surface



1 High Rigidity

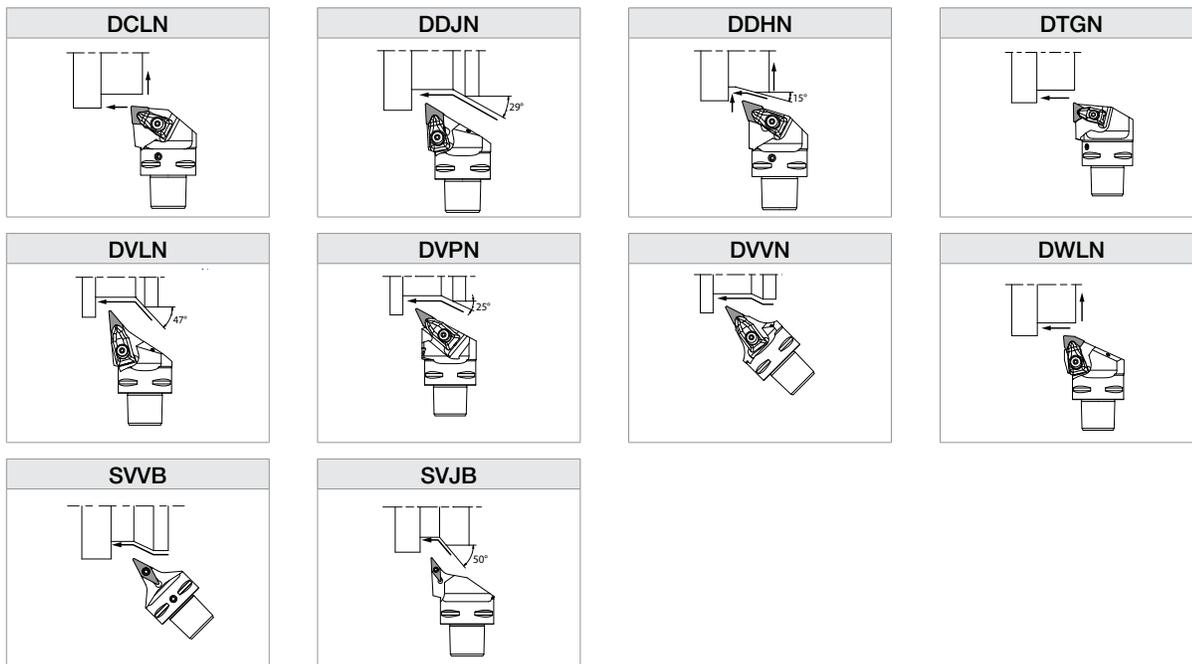
Polygon taper design and dual contact between the taper and the flange face for high rigidity

2 High Precision

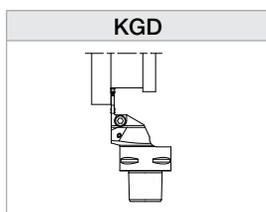
Locational accuracy within $\pm 2\mu\text{m}$

Distributes cutting forces evenly between 3 faces for enhanced rigidity and centering accuracy

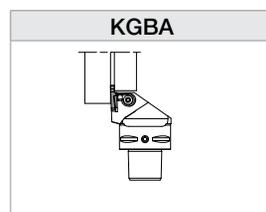
Turning



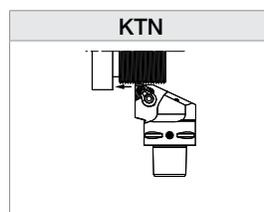
Grooving / Cut-Off



Shallow Grooving



Threading



N QUICK CHANGE TOOLING

DCLN (External / Facing)

Fig.1 Fig.2

Applicable Inserts	
CN□A CN□G CN□M	43..

Side Rake Angle	-6°
Angle of Inclination	-6°

Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts					
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench
KPC3-DCLN% 22045-12A	●	●	Yes	32	45	22	60	121	0.8	Fig.1	CP-3D-S	CS-3D-TR	SP-3D	SP-441P *(SP-441P-C)	M3X8	FT-15
KPC4-DCLN% 27050-12A	●	●		40	50	27	110	140						DC-44 *(DC-44-C)	SB-4085TR	
KPC5-DCLN% 35060-12A	●	●		50	60	35	110	165								
KPC3-DCLN% 22045-12S	●	●	No	32	45	22	60	121	0.8	Fig.2	CP-3D-S	CS-3D-TR	SP-3D	SP-441P *(SP-441P-C)	M3X8	FT-15
KPC4-DCLN% 27050-12S	●	●		40	50	27	110	140						DC-44 *(DC-44-C)	SB-4085TR	
KPC5-DCLN% 35060-12S	●	●		50	60	35	110	165								

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
 * 3 SX chipbreaker inserts require a different shim (sold separately)
 * 4 Recommended tightening torque 3.9 Nm

Identification System (for External Holders)

KPC3

Interface Size
KPC3 : PSC32 DCSFMS=32mm
KPC4 : PSC40 DCSFMS=40mm
KPC5 : PSC50 DCSFMS=50mm

D

Clamping System
D : Double Clamp
S : Screw Clamp

C

Insert Shape
C : 80° Diamond
D : 55° Diamond
T : 30° Triangle
V : 35° Diamond
W : 80° Trigon

L

Insert Relief Angle
B : 5°
N : 0°

R

Hand of Tool
R : Right-hand
L : Left-hand
N : Neutral

22

Cutting Edge Offset
WF Dimension

045

Toolholder Length (Length from Gauge Line)
LF Dimension

12

Coolant Hole
A : With
S : Without

A

Cutting Edge Angle

Angle	Shape
95°	L
93°	J
107.5°	H
90°	G
117.5°	P
72.5°	V

Insert Size

Shape	Dimensions
C	L, L
D	L, L
T	L, L
V	L, L

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DDJN (External / Copying)

Right-hand Shown

Applicable Inserts	
DN□A	43.. (44..)
DN□G	
DN□M	
DNMX	

Side Rake Angle	-6°
Angle of Inclination	-7°

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts					
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench
KPC3-DDJN% 22050-15A	●	●	Yes	32	50	22	110	121	0.8	Fig.1	CP-3D-S	CS-3D-TR	SP-3D	DD-44 *(DD-43)	SB-4085TR	FT-15
KPC4-DDJN% 27055-15A	●	●		40	55	27	110	145								
KPC5-DDJN% 35060-15A	●	●		50	60	35	110	165								
KPC3-DDJN% 22050-15S	●	●	No	32	50	22	110	121	0.8	Fig.2	CP-3D-S	CS-3D-TR	SP-3D	DD-44 *(DD-43)	SB-4085TR	FT-15
KPC4-DDJN% 27055-15S	●	●		40	55	27	110	145								
KPC5-DDJN% 35060-15S	●	●		50	60	35	110	165								

- * 1 Pressure Resistance : up to 1,015 psi
- * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
- * 3 Shims in parentheses () must be purchased separately for thicker inserts
- * 4 Recommended tightening torque 3.9 Nm

DDHN (External / Copying)

Right-hand Shown

Applicable Inserts	
DN□A	43.. (44..)
DN□G	
DN□M	

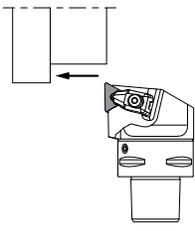
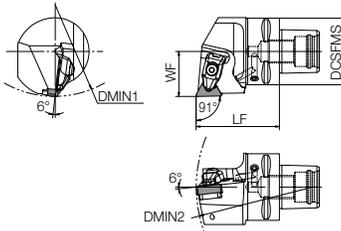
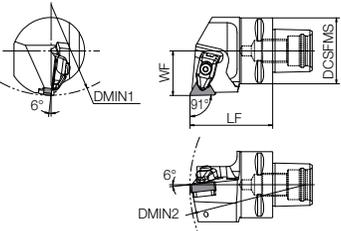
Side Rake Angle	-6°
Angle of Inclination	-6°

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts					
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench
KPC3-DDHN% 22050-15A	●	●	Yes	32	50	22	110	121	0.8	Fig.1	CP-3D-S	CS-3D-TR	SP-3D	DD-44 *(DD-43)	SB-4085TR	FT-15
KPC4-DDHN% 27055-15A	●	●		40	55	27	110	145								
KPC5-DDHN% 35060-15A	●	●		50	60	35	110	165								
KPC3-DDHN% 22050-15S	●	●	No	32	50	22	110	121	0.8	Fig.2	CP-3D-S	CS-3D-TR	SP-3D	DD-44 *(DD-43)	SB-4085TR	FT-15
KPC4-DDHN% 27055-15S	●	●		40	55	27	110	145								
KPC5-DDHN% 35060-15S	●	●		50	60	35	110	165								

- * 1 Pressure Resistance : up to 1,015 psi
- * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
- * 3 Shims in parentheses () must be purchased separately for thicker inserts
- * 4 Recommended tightening torque 3.9 Nm

DTGN (External)

Applicable Inserts	
TN□A TN□G TN□M TNMX	33..

Side Rake Angle	-6°
Angle of Inclination	-6°

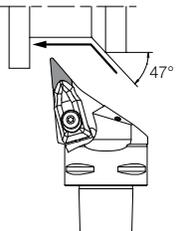
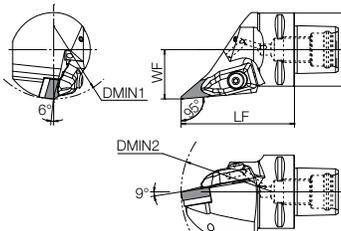
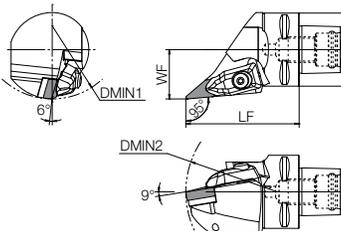
Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts						
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench For Clamp	Wrench (Sold Separately) For Shim
KPC3-DTGN% 22040-16A	●	●	Yes	32	40	22	110	116	0.8	Fig.1							
KPC4-DTGN% 27050-16A	●	●		40	50	27	110	140									
KPC5-DTGN% 35060-16A	●	●		50	60	35	110	165									
KPC3-DTGN% 22040-16S	●	●	No	32	40	22	110	116	0.8	Fig.2							
KPC4-DTGN% 27050-16S	●	●		40	50	27	110	140									
KPC5-DTGN% 35060-16S	●	●		50	60	35	110	165									

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) greater than 1/16" (1.6mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
 * 3 Recommended tightening torque 3.9 Nm

DVLN (External / Copying)

Applicable Inserts	
VN□A VN□G VN□M	33..

Side Rake Angle	-6°
Angle of Inclination	-9°

Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts					
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench
KPC3-DVLN% 22058-16A	●	●	Yes	32	58	22	80	100	0.8	Fig.1						
KPC4-DVLN% 27062-16A	●	●		40	62	27	80	100								
KPC5-DVLN% 35065-16A	●	●		50	65	35	80	100								
KPC3-DVLN% 22058-16S	●	●	No	32	58	22	80	100	0.8	Fig.2						
KPC4-DVLN% 27062-16S	●	●		40	62	27	80	100								
KPC5-DVLN% 35065-16S	●	●		50	65	35	80	100								

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
 * 3 Recommended tightening torque 3.9 Nm

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DVPN (External / Facing / Copying / Undercutting)

Applicable Inserts	
VN□A VN□G VN□M	33..

Side Rake Angle	-13°
Angle of Inclination	-10°

Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts					
	R	L		DCSFMS	LF	WF	DMIN1	DMIN2			Clamp	Screw	Spring	Shim	Shim Screw	Wrench
	KPC3-DVPN% 22055-16A	●		●	Yes	32	55	22			110	130	0.8	Fig.1		
KPC4-DVPN% 27060-16A	●	●	40	60		27	110	145								
KPC5-DVPN% 35065-16A	●	●	50	65		35	110	165								
KPC3-DVPN% 22055-16S	●	●	No	32	55	22	110	130	0.8	Fig.2						
KPC4-DVPN% 27060-16S	●	●		40	60	27	110	145								
KPC5-DVPN% 35065-16S	●	●		50	65	35	110	165								

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
 * 3 Recommended tightening torque 3.9 Nm

DVNN (External / Copying)

Applicable Inserts	
VN□A VN□G VN□M	33..

Back Rake Angle	-11°
-----------------	------

Toolholder Dimensions

Part Number	Stock			Coolant Hole	Dimensions (mm)					Standard Corner-R (RE)	Drawing	Spare Parts						
	R	N	L		DCSFMS	LF	WF	B1 ³	B2 ³			DMIN2	Clamp	Screw	Spring	Shim	Shim Screw	Wrench
	KPC4-DVNN00062-16A	●				Yes	40	62	0			61	63	152	0.8	Fig.1		
KPC5-DVNN00065-16A	●			50	65		0	59	59	170								
KPC3-DVNN00058-16S	●			32	58		0	68	68	140								
KPC4-DVNN00062-16S	●			No	40	62	0	61	63	152	0.8	Fig.2						
KPC5-DVNN00065-16S	●				50	65	0	59	59	170								

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) greater than 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
 * 3 Angle B1 and B2 show the area of interference between the holder and the cutting edge

QUICK CHANGE TOOLING

DWLN (External / Facing)

Applicable Inserts	
WN□A WN□G WN□M	43..

Side Rake Angle	-6°
Angle of Inclination	-6°

Right-hand Shown

Toolholder Dimensions

Part Number	Stock			Coolant Hole	Dimensions (mm)						Standard Corner-R (RE)	Drawing	Spare Parts					
	R	N	L		DCSFMS	LF	WF	DMIN1	DMIN2	Clamp			Screw	Spring	Shim	Shim Screw	Wrench	
KPC3-DWLN% 22047-08A	●	●		Yes	32	47	22	110	121	0.8	Fig.1							
KPC4-DWLN% 27050-08A	●	●			40	50	27	110	140									
KPC5-DWLN% 35060-08A	●	●			50	60	35	110	165									
KPC3-DWLN% 22047-08S	●	●		No	32	47	22	110	121	0.8	Fig.2							
KPC4-DWLN% 27050-08S	●	●			40	50	27	110	140									
KPC5-DWLN% 35060-08S	●	●			50	60	35	110	165									

* 1 Pressure Resistance : up to 1,015 psi
 * 2 Recommended tightening torque 3.9 Nm

SVVB (External / Copying)

Applicable Inserts	
VB□□ VCGT	33..

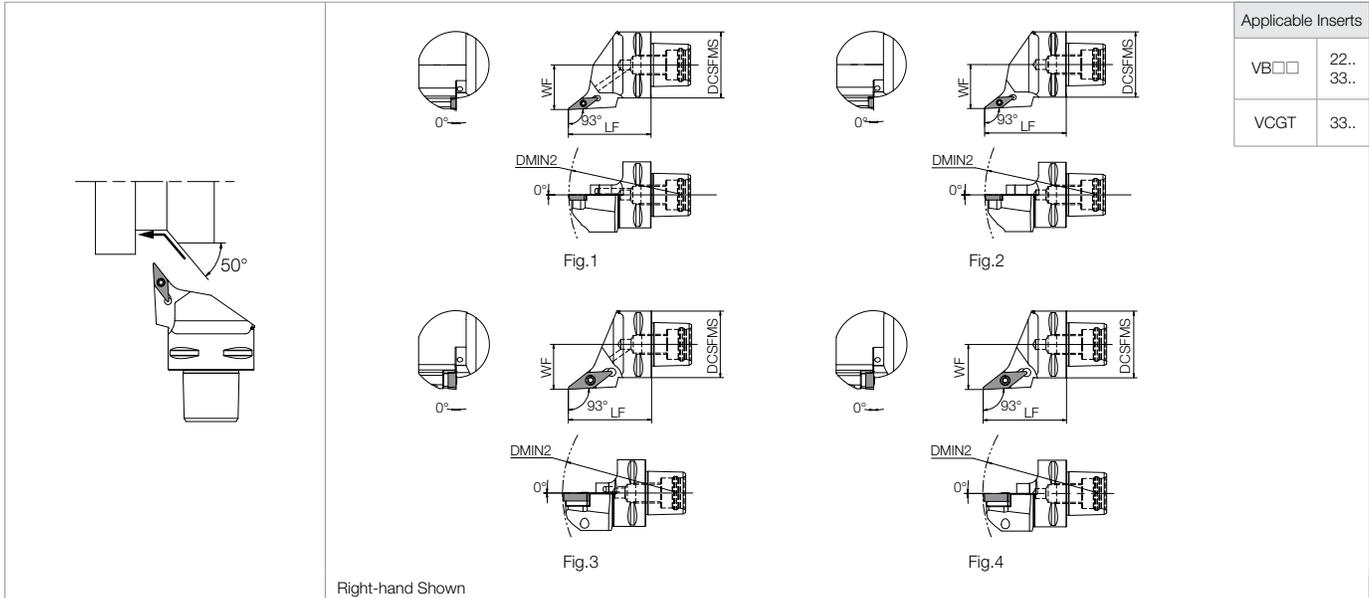
Toolholder Dimensions

Part Number	Stock			Coolant Hole	Dimensions (mm)						Standard Corner-R (RE)	Drawing	Spare Parts				
	R	N	L		DCSFMS	LF	WF	B1 ^{1,3}	B2 ³	DMIN2			Insert Screw	Wrench	Shim	Shim Screw	Wrench
KPC3-SVVB00048-16A	●			Yes	32	48	0	62	62	0.8	Fig.1						
KPC4-SVVB00052-16A	●				40	52	0	59	59								140
KPC5-SVVB00060-16A	●				50	60	0	56	56								165
KPC3-SVVB00048-16S	●			No	32	48	0	62	62	0.8	Fig.2	SB-40125TRN	FT-15	SVN-32N *2(SVN-32S)	SS-4N	LW-4	
KPC4-SVVB00052-16S	●				40	52	0	59	59								140
KPC5-SVVB00060-16S	●				50	60	0	56	56								165

* 1 Pressure Resistance : up to 1,015 psi
 * 2 When using inserts with corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim in parentheses is recommended (sold separately)
 * 3 Angle B1 and B2 show the area of interference between the holder and the cutting edge
 * 4 Recommended tightening torque 3.9 Nm

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SVJB (External / Facing / Copying / Undercutting)



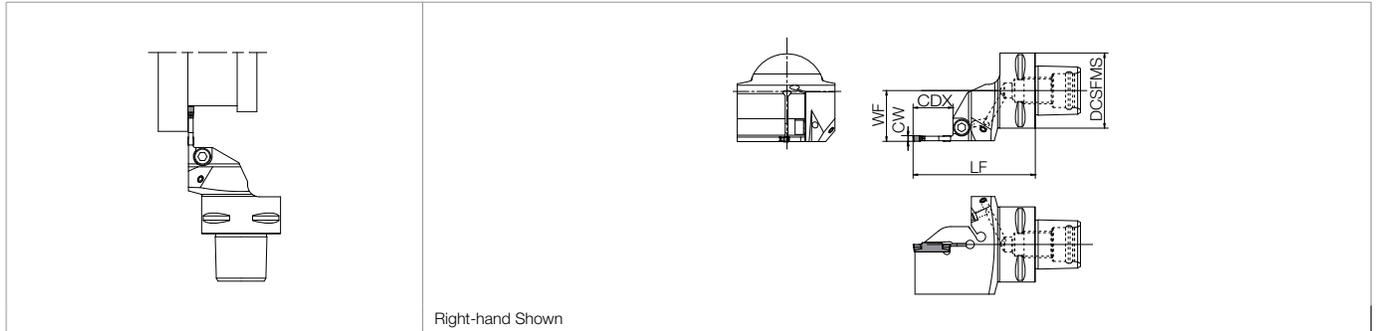
Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)				Standard Corner-R (RE)	Drawing	Spare Parts				
	R	L		DCSFMS	LF	WF	DMIN2			Insert Screw	Wrench	Shim	Shim Screw	Wrench
*1 KPC3-SVJB% 22040-11A	●	●		32	40	22	116							
*1 KPC4-SVJB% 27050-11A	●	●	Yes	40	50	27	140	0.4	Fig.1	SB-2570TR	FT-8	-	-	-
*1 KPC5-SVJB% 35060-11A	●	●		50	60	35	165							
*1 KPC3-SVJB% 22040-11S	●	●		32	40	22	116							
*1 KPC4-SVJB% 27050-11S	●	●	No	40	50	27	140	0.4	Fig.2	SB-2570TR	FT-8	-	-	-
*1 KPC5-SVJB% 35060-11S	●	●		50	60	35	165							
*2 KPC3-SVJB% 22047-16A	●	●		32	47	22	116							
*2 KPC4-SVJB% 27050-16A	●	●	Yes	40	50	27	140	0.8	Fig.3	SB-40125TRN	FT-15	SVN-32N *(SVN-32S)	SS-4N	LW-4
*2 KPC5-SVJB% 35060-16A	●	●		50	60	35	165							
*2 KPC3-SVJB% 22047-16S	●	●		32	47	22	116							
*2 KPC4-SVJB% 27050-16S	●	●	No	40	50	27	140	0.8	Fig.4	SB-40125TRN	FT-15	SVN-32N *(SVN-32S)	SS-4N	LW-4
*2 KPC5-SVJB% 35060-16S	●	●		50	60	35	165							

- Pressure Resistance : up to 1,015 psi
- Recommended tightening torque is 1.2 Nm for VB □□ 22.. inserts and 3.5Nm for VB(C) □□ 33.. inserts
- * 1 When using inserts with corner-R (RE) of 1/32" (0.8mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
- * 2 When using inserts with corner-R (RE) of 3/64" (1.2mm), additional modifications to the toolholder or shim may be necessary to prevent interference with workpiece
- * 3 When using inserts with corner-R (RE) of 0.008" and 1/64" (0.2mm and 0.4mm), shim in parentheses is recommended (sold separately)

QUICK CHANGE TOOLING

KGD (Grooving / Cut-Off)



Toolholder Dimensions

Groove Width CW (mm)	Available Grooving Depth CDX (mm)	Part Number	Stock		Coolant Hole	Dimensions (mm)				Width CW (mm)		Spare Parts		Applicable Inserts G26, G27
			R	L		DCSFMS	LF	WF	CDX	MIN	MAX	Clamp Bolt	Wrench	
2	10	KPC3-KGD 22050-2T10	●	●	Yes	32	50	22	10	2.0	3.0	HH5X16	LW-4	GDM Type GDG Type
		KPC4-KGD 27055-2T10	●	●		40	55	27						
		KPC5-KGD 35060-2T10	●	●		50	60	35						
	17	KPC3-KGD 22055-2T17	●	●	Yes	32	55	22	17					
		KPC4-KGD 27060-2T17	●	●		40	60	27						
		KPC5-KGD 35060-2T17	●	●		50	60	35						
3	10	KPC3-KGD 22050-3T10	●	●	Yes	32	50	22	10	3.0	4.0			
		KPC4-KGD 27055-3T10	●	●		40	55	27						
		KPC5-KGD 35060-3T10	●	●		50	60	35						
	20	KPC3-KGD 22060-3T20	●	●	Yes	32	60	22	20					
		KPC4-KGD 27065-3T20	●	●		40	65	27						
		KPC5-KGD 35065-3T20	●	●		50	65	35						
4	10	KPC3-KGD 22050-4T10	●	●	Yes	32	50	22	10	4.0	5.0			
		KPC4-KGD 27055-4T10	●	●		40	55	27						
		KPC5-KGD 35060-4T10	●	●		50	60	35						
	20	KPC4-KGD 27065-4T20	●	●	Yes	40	65	27	20					
		KPC5-KGD 35065-4T20	●	●		50	65	35						
		25	KPC4-KGD 27070-4T25	●		●	Yes	40				70	27	25
KPC5-KGD 35070-4T25	●		●	50	70	35								
5	10	KPC4-KGD 27055-5T10	●	●	Yes	40	55	27	10	5.0	6.0			
		KPC5-KGD 35060-5T10	●	●		50	60	35						
	17	KPC4-KGD 27060-5T17	●	●	Yes	40	60	27	17					
		KPC5-KGD 35060-5T17	●	●		50	60	35						

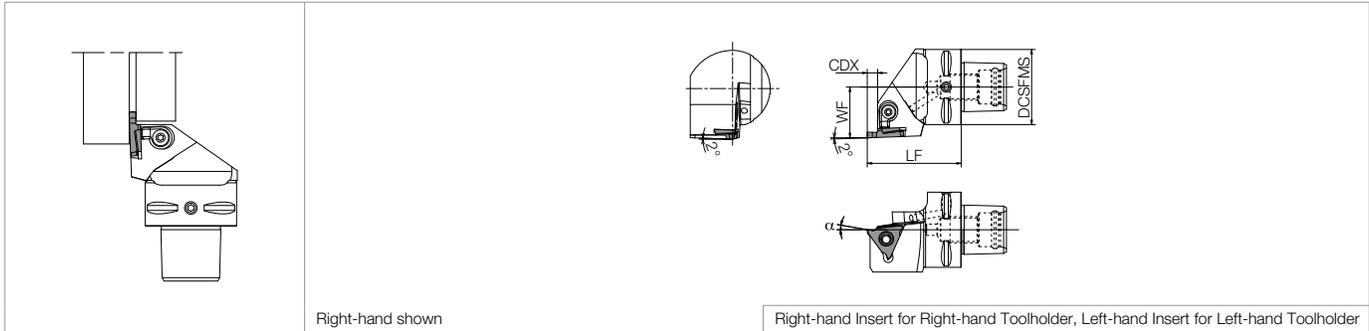
* 1 Pressure Resistance : up to 1,015 psi

* 2 Recommended tightening torque 6.5 Nm

* 3 CDX dimension shows available grooving depth (if CDX dimension is 20mm or more, using a 2-edge insert, the maximum grooving depth is 18mm)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

KGBA (External Shallow Grooving)



Right-hand shown

Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)				Spare Parts		Applicable Inserts G6~G10	
	R	L		DCSFMS	LF	WF	CDX	Clamp Set	Wrench		
KPC3-KGBA 22040-16	●	●	Yes	32	40	22	2.5	LGBA-16RS	FT-15	GBA32% Type	
KPC4-KGBA 27050-16	●	●		40	50	27					
KPC5-KGBA 35060-16	●	●		50	60	35					
KPC3-KGBA 22040-2215	●	●	No	32	40	22	4.0	LGBA-22RS		GBA43% Type	
KPC4-KGBA 27050-2215	●	●		40	50	27					
KPC5-KGBA 35060-2215	●	●		50	60	35					
KPC3-KGBA 22040-2225	●	●	Yes	32	40	22	5.5				LGBA-22RS
KPC4-KGBA 27050-2225	●	●		40	50	27					
KPC5-KGBA 35060-2225	●	●		50	60	35					
KPC3-KGBA 22040-2235	●	●	No	32	40	22	5.5					LGBA-22RS
KPC4-KGBA 27050-2235	●	●		40	50	27					
KPC5-KGBA 35060-2235	●	●		50	60	35					

* 1 Pressure Resistance : up to 1,015 psi

* 2 CDX dimension shows the distance from the holder to the cutting edge. Actual grooving depth is the CDX dimension of the insert

* 3 Use clamp set LGBA-..RS for right-hand (R) holder and LGBA-..LS for left-hand (L) holder

* 4 See tables below for rake angle of the insert after installing in the holder

GBA-GM Rake Angle (α) after Installment

α	Insert Part Number
10°	GBA43% 150-020GM
15°	GBA43% 175-020GM ~ GBA43% 265-030GM
12°	GBA43% 300-030GM ~ GBA43% 400-040GM

α indicates the rake angle from the center of the groove width when installed

GBA-MY Rake Angle (α) after Installment

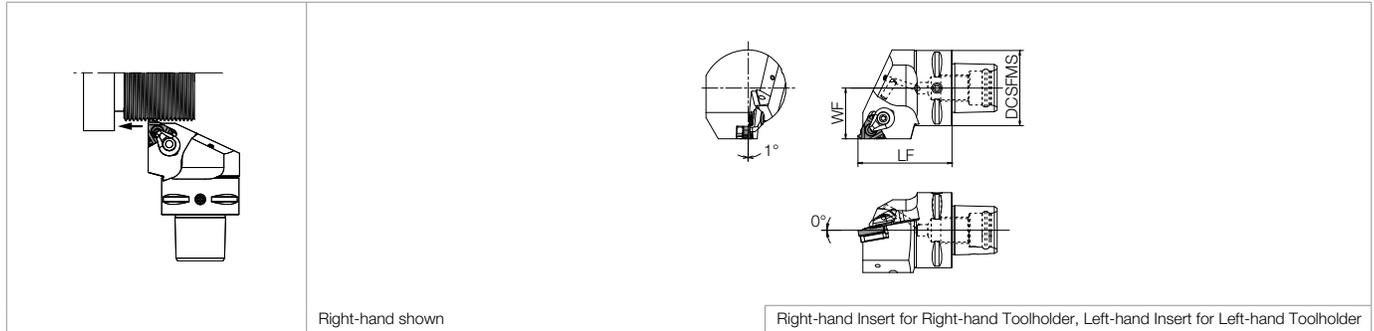
α	Insert Part Number
15°	GBA43% 175-020MY ~ GBA43% 350-030MY
14°	GBA43% 400-040MY

α indicates the rake angle from the center of the groove width when installed

GBA Rake Angle (α) after Installment

GBA32% 000-000		GBA43% 000-000		GBA32% 000-000R (Full-R)	
α	Insert Grade	α	Insert Grade	α	Full-R
10°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR1625, PR905 KPD001, KPD010	0°	KBN510, KBN525	10°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR1625, PR905 050R ~ 150R
		10°	TN620, TC40, TN90, PV7040 PR930, PR1115, PR1215, PR1625 PR905, KPD001, KPD010	14°	TN620, TN90, PV7040, PR930 PR1115, PR1215, PR1625, PR905 200R
20°	KW10	20°	KW10		KW10 050R ~ 200R

KTN (External Threading)



Toolholder Dimensions

Part Number	Stock		Coolant Hole	Dimensions (mm)			Spare Parts				Applicable Inserts ● J6, J8, J10, J12, J14, J16, J18
	R	L		DCSFMS	LF	WF	Clamp Set	Wrench	Shim	Shim Screw	
											
KPC3-KTN 1/2 22040-16	●	●		32	40	22					
KPC4-KTN 1/2 27050-16	●	●	Yes	40	50	27	CPS-5S	FT-15	TN-32	SP3X8	16E% Type
KPC5-KTN 1/2 35060-16	●	●		50	60	35					

* 1 Pressure Resistance : up to 1,015 psi

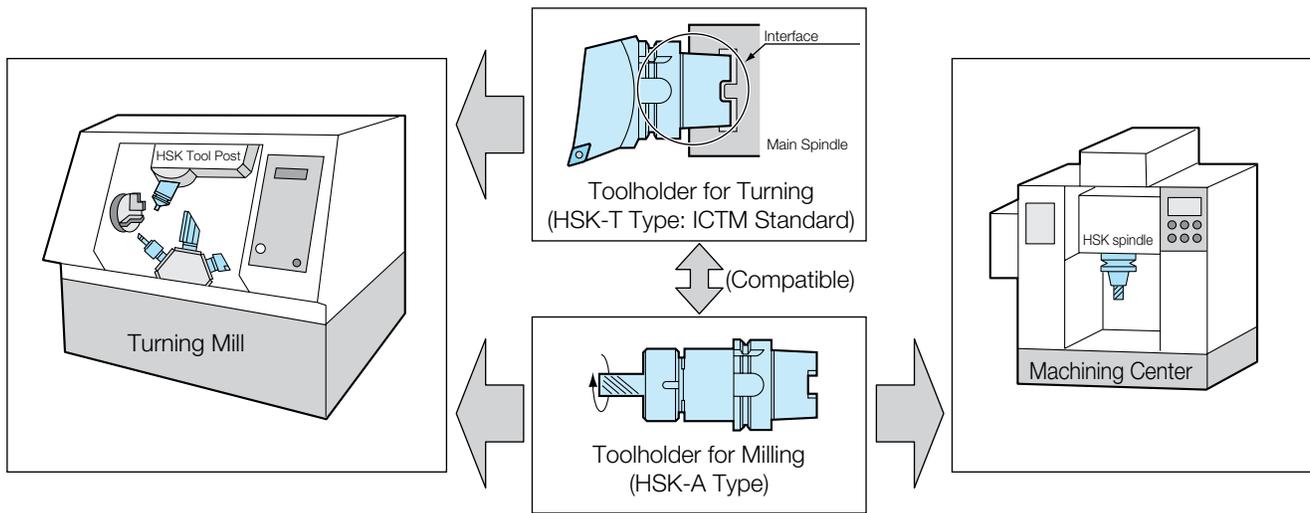
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

HSK Tooling

- The turning mill is a machine that combines turning and milling functions. Now an interface (between workpiece and toolholder - similar to a milling arbor) is available for the turning mill that fulfils the ICTM standard.
- ICTM standard was developed by 16 companies in Japan, as the interface between turning mill machines. It is based on the two-face restraint type standard "ISO 12164-1:2001 HSK Standard Shank"
- This standard became an International Standard as ISO Standard "ISO12164-3:2008" in 2008. Description is indicated as HSK-T $\circ\circ$.

Features

- ① Compatible with HSK-A type for Machining Centers



- ② Machining precision for turning is improved by minimizing the gap between the drive key slot on the toolholder side and the drive key on the toolpost side.

Table 1: Gap Comparison of a Key and Key Slot

(Unit: mm)

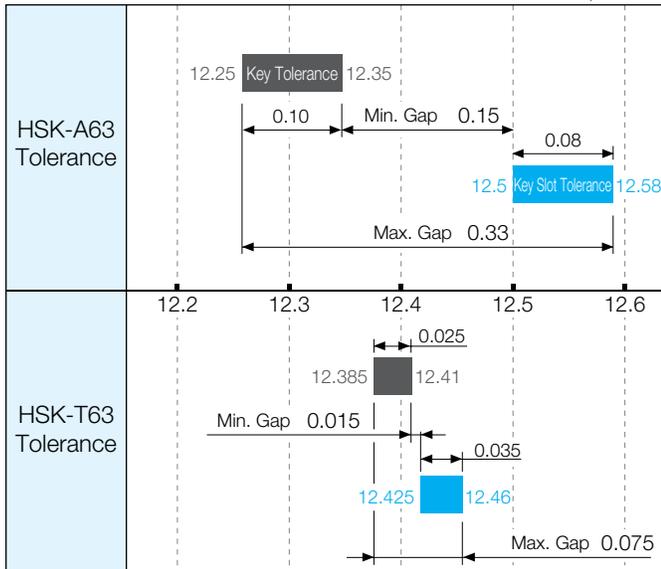
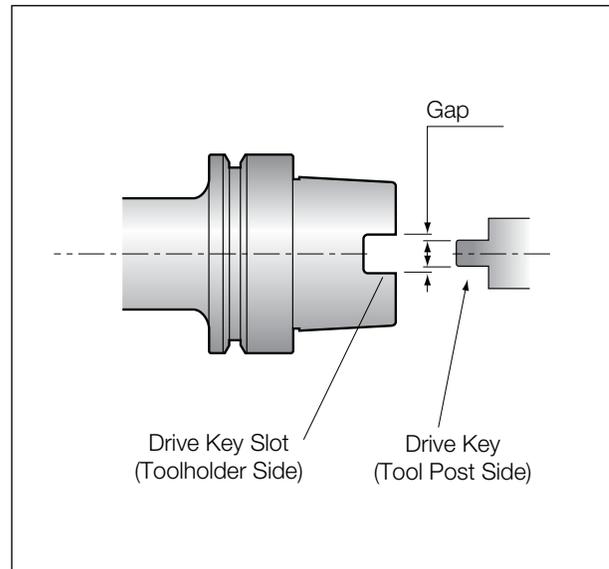
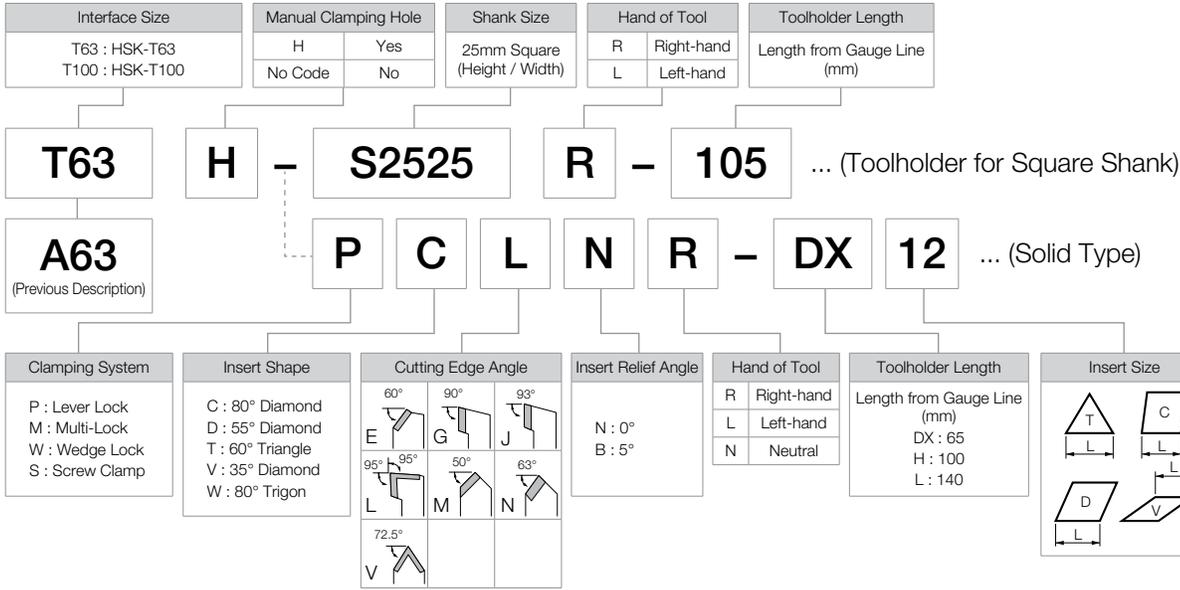


Table 2: Gap Effect

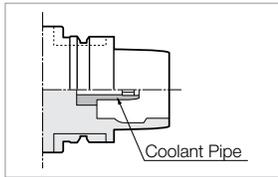


N QUICK CHANGE TOOLING

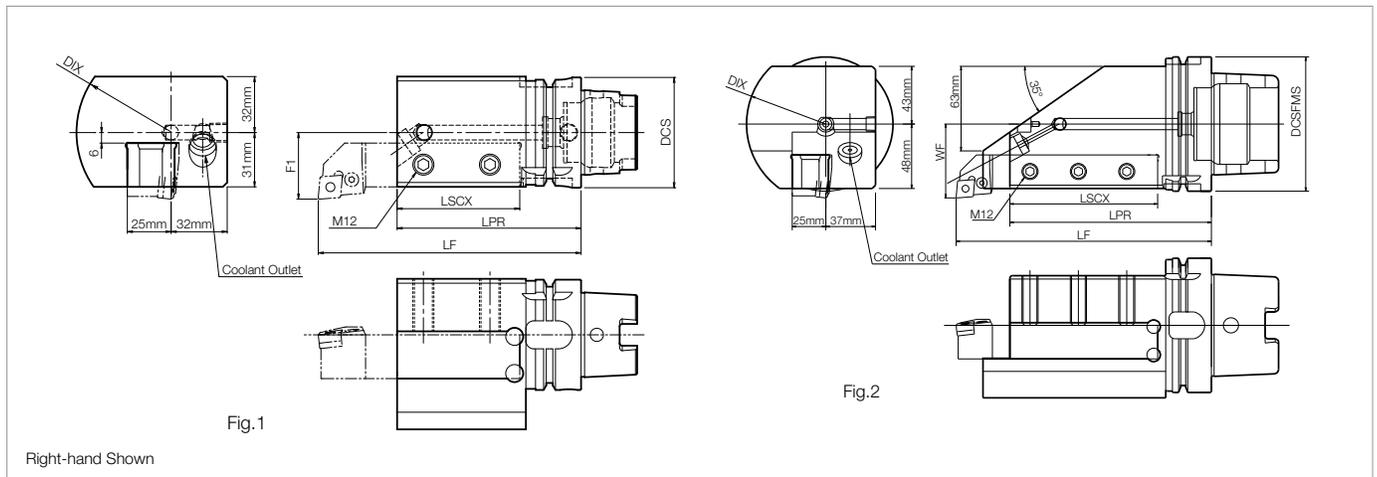
Identification System (for External)



Coolant Pipe is Built into Toolholder



Toolholder for Square Shank (for External / Facing)



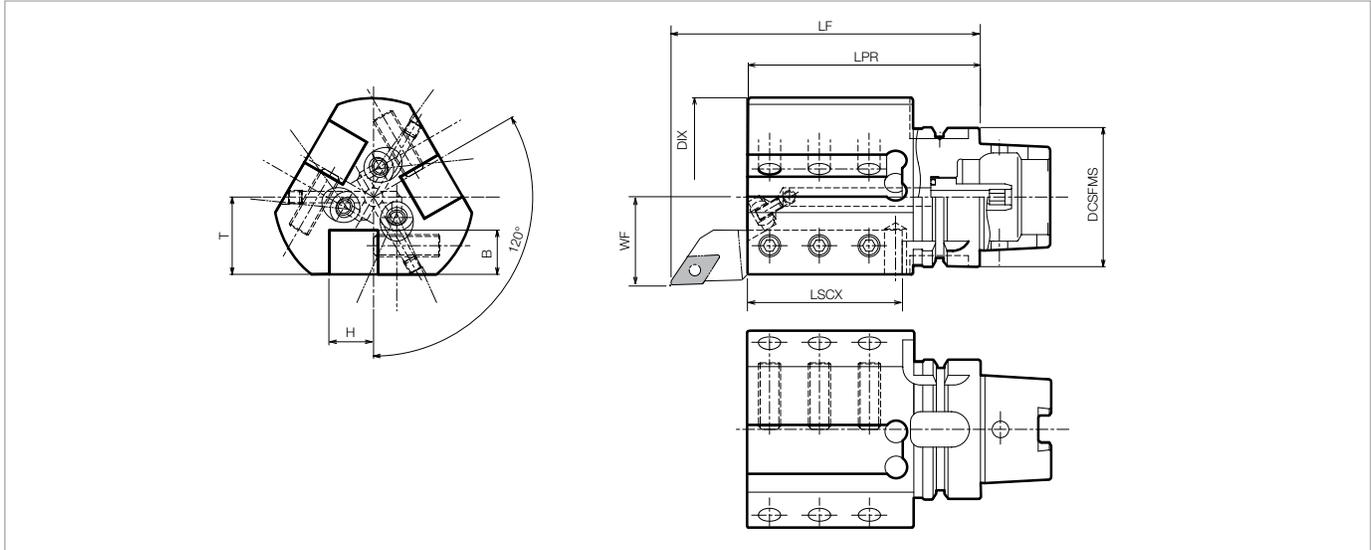
Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)							Drawing	Spare Parts		
			DCSFSM	DIX	LF	LPR	LSCX	WF	Clamp Screw		Wrench	Coolant Pipe	
T63H- S2525R-105	A63-WH- S2525R-105	●	63	108	150	105	70	38	Fig.1	HS12X25	LW-6	CL63-1	
S2525L-105	S2525L-105	●										CL100-1	
T100H- S2525R-150	-	□	100	118	190	150	110	55	Fig.2	HS12X30	LW-6	CL100-1	
S2525L-150	-	□										CL100-1	

- Coolant Outlet Direction is Adjustable
- For 25mm Square Shank

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Toolholder for Square Shank (for External / Facing)

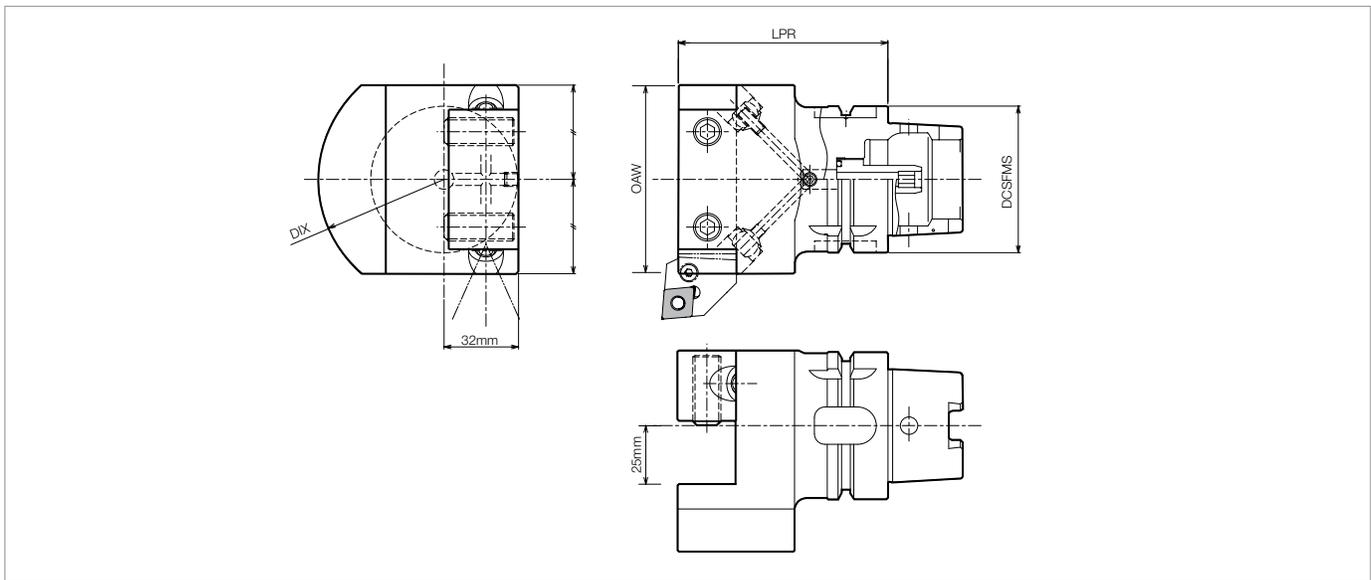


Toolholder Dimensions

Part Number	Attachment Toolholder Shank Dimension	Stock	Dimensions (mm)									Spare Parts		
			DCSFMS	DIX	H	B	T	LF	LPR	LSCX	WF	Clamp Screw	Wrench	Coolant Pipe
T63H- S2020R-105T	(20mm Square)	☐	63	90	20	20	35	150	105	70	40	HS12X30	LW-6	CL63-1
T100H- S2525R-150T	(25mm Square)	☐	100	118	25	25	48	190	150	110	55	HS12X35		CL100-1

• Coolant Outlet Direction is Adjustable

Toolholder for Square Shank (for Facing / External)

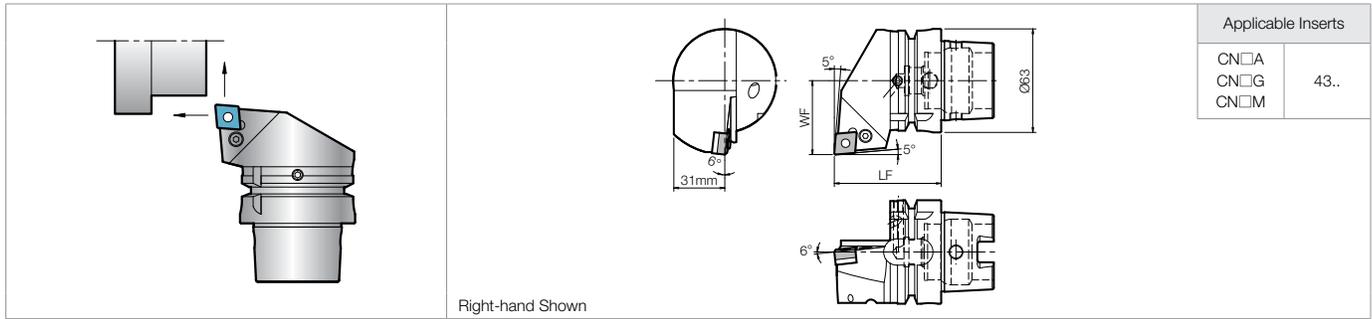


Toolholder Dimensions

Part Number	Attachment Toolholder Shank Dimension	Stock	Dimensions (mm)				Spare Parts					
			DCSFMS	DIX	LPR	OAW	Clamp Screw	Wrench	Coolant Pipe			
T63H- S2525-90F	(25mm Square)	☐	63	108	90	81	HS12X30	LW-6	CL63-1			
S2525-120F		△			120							
T100H- S2525-105F	(25mm Square)	☐	100	118	105	96				HS12X30	LW-6	CL100-1
S2525-150F		△			150							

• Coolant Outlet Direction is Adjustable

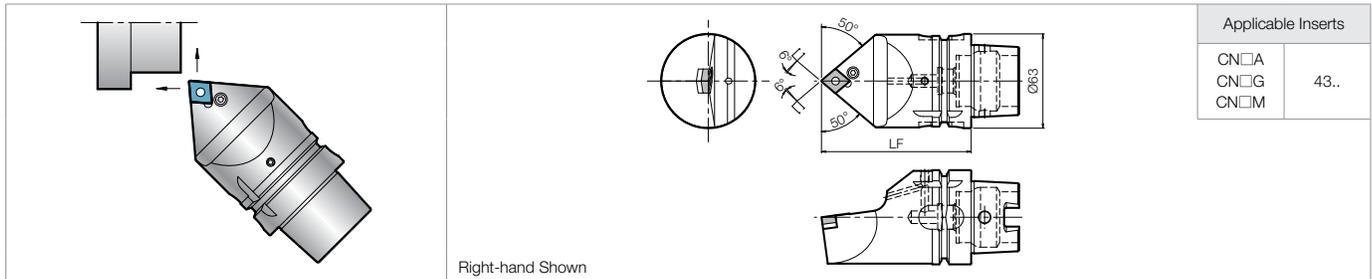
PCLN (External / Facing)



Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PCLNR-DX12 PCLNL-DX12	A63-WH- PCLNR-DX12	□	65	45	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3	CL63-1
	A63-WH- PCLNL-DX12	□									

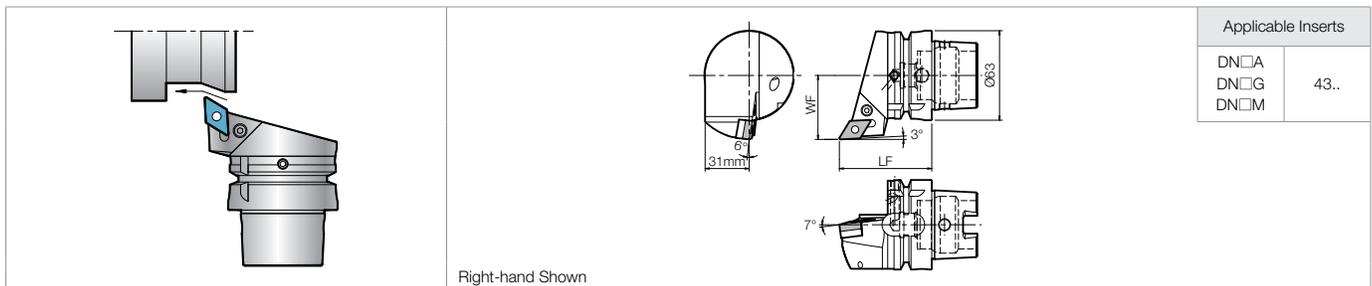
PCMN (External / Facing)



Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PCMNN-H12 PCMNN-L12	A63-WH- PCMNN-H12	●	100	140	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3	CL63-1
	A63-WH- PCMNN-L12	□									

PDJN (External / Copying)

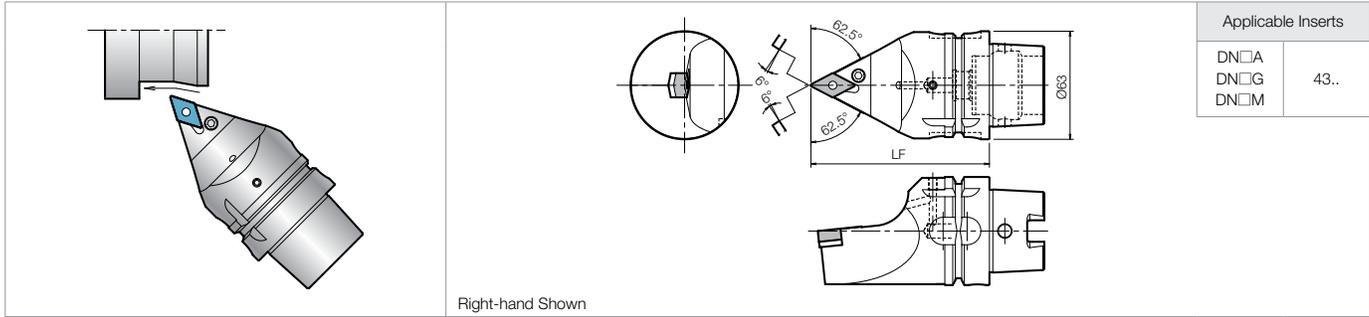


Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PDJNR-DX15 PDJNL-DX15	A63-WH- PDJNR-DX15	●	65	45	LL-3N	LS-2N	LD-42 *LD-42-20	LSP-2	PC-2	LW-3	CL63-1
	A63-WH- PDJNL-DX15	□									

● When using inserts whose corner-R(re) is greater than 1.6mm, please purchase shim with * mark and use it in order to prevent workpiece and shim from interfering with each other.

PDNN (External / Copying)



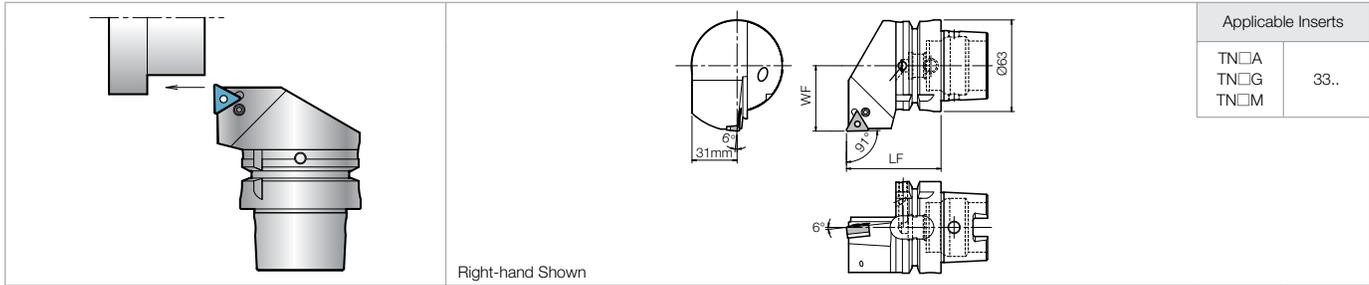
Applicable Inserts	
DN□A DN□G DN□M	43..

Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PDNNN-H15	A63-WH- PDNNN-H15	□	100								
PDNNN-L15	PDNNN-L15	□	140		LL-3N	LS-2N	LD-42 *LD-42-20	LSP-2	PC-2	LW-3	CL63-1

• When using inserts whose corner-R(re) is greater than 1.6mm, please purchase shim with * mark and use it in order to prevent workpiece and shim from interfering with each other.

PTGN (External)



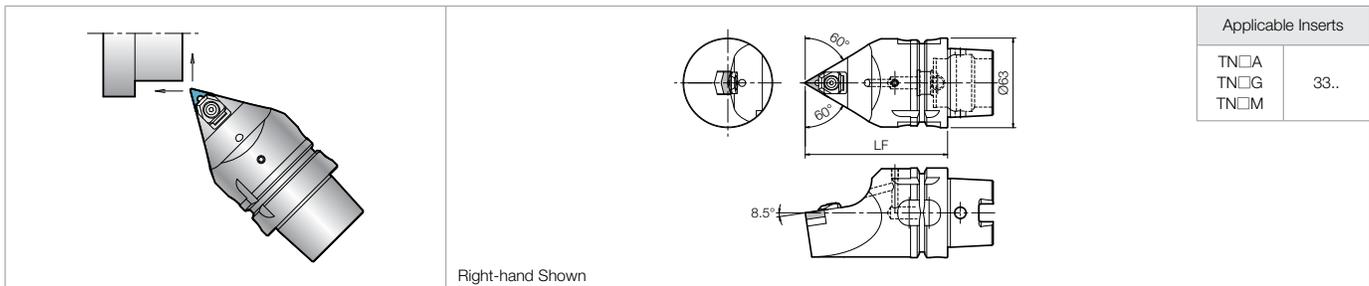
Applicable Inserts	
TN□A TN□G TN□M	33..

Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PTGNR-DX16	A63-WH- PTGNR-DX16	□	65								
PTGNL-DX16	PTGNL-DX16	□	45		LL-1N	LS-1N	LT-32N *LT-32N-20	LSP-1	PC-1	FH-2.5	CL63-1

• When using inserts whose corner-R(re) is greater than 1.6mm, please purchase shim with * mark and use it in order to prevent workpiece and shim from interfering each other.

WTEN (External)

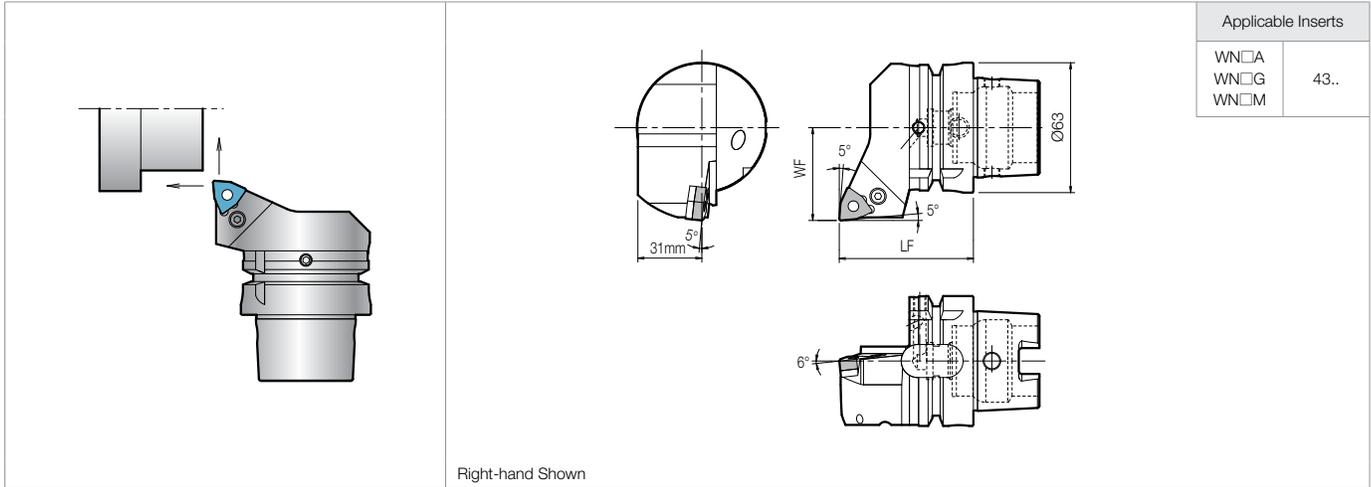


Applicable Inserts	
TN□A TN□G TN□M	33..

Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Spear	Coolant Pipe
T63H- WTENN-H16	A63-WH- WTENN-H16	□	100								
WTENN-L16	WTENN-L16	□	140		WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1	CL63-1

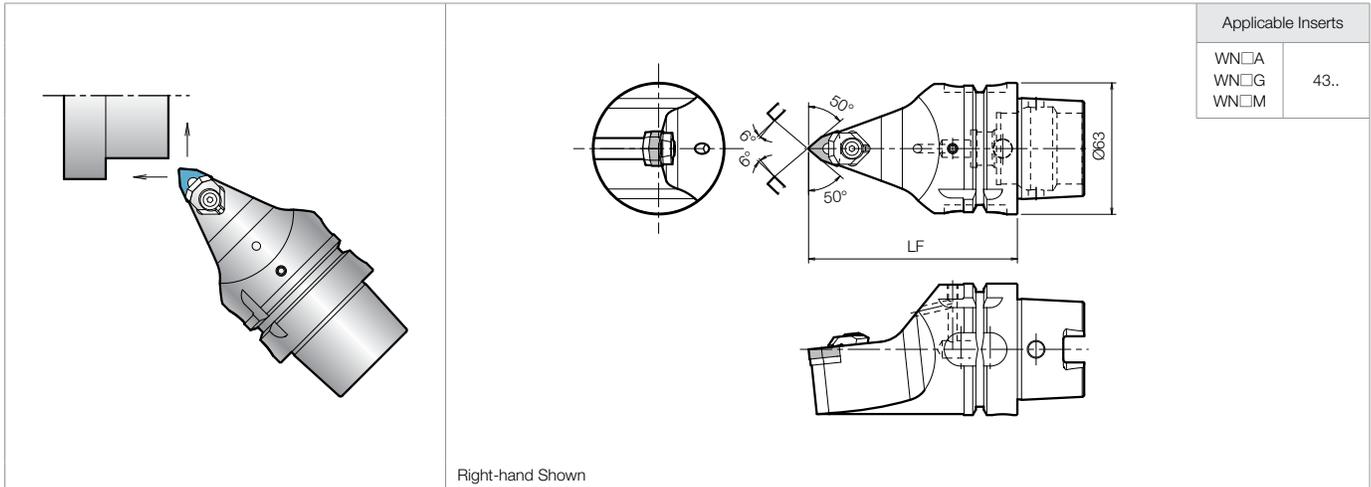
PWLN (External / Facing)



● Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts						
			LF	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Coolant Pipe
T63H- PWLNR-DX08 PWLNL-DX08	A63-WH- PWLNR-DX08	<input type="checkbox"/>	65	45							
	A63-WH- PWLNL-DX08	<input type="checkbox"/>			LL-2N	LS-2N	LW-42N	LSP-2	PC-2	LW-3	CL63-1

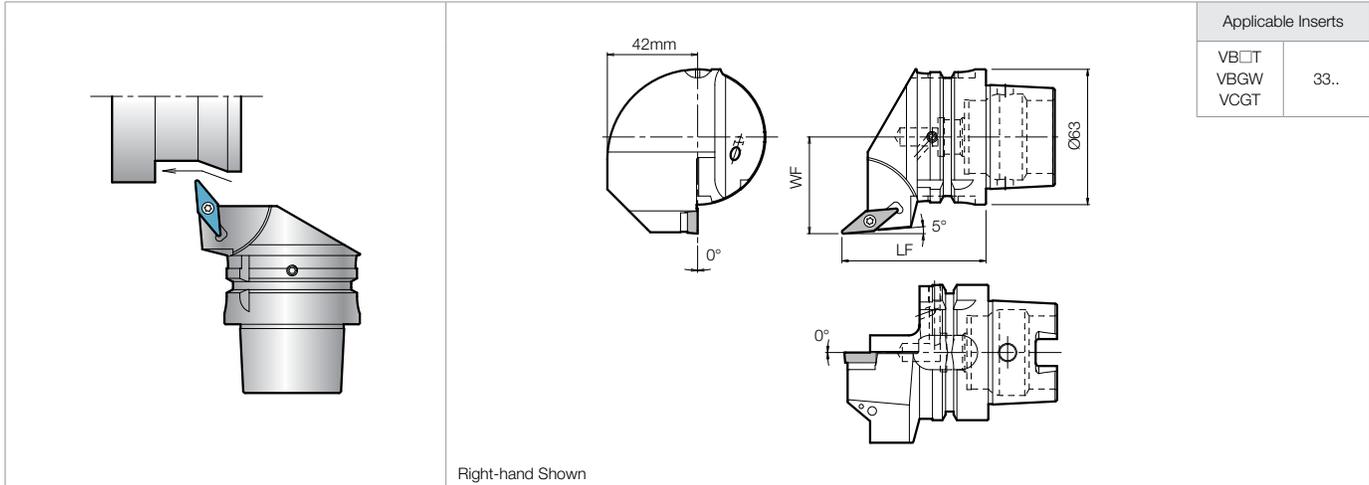
WWMN (External / Facing)



● Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts					
			LF		Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Coolant Pipe
T63H- WWMNN-H08 WWMNN-L08	A63-WH- WWMNN-H08	<input type="checkbox"/>	100							
	A63-WH- WWMNN-L08	<input type="checkbox"/>			140	WCS-8	WWN-42	WP5X15	WN-1	LW-3	CL63-1

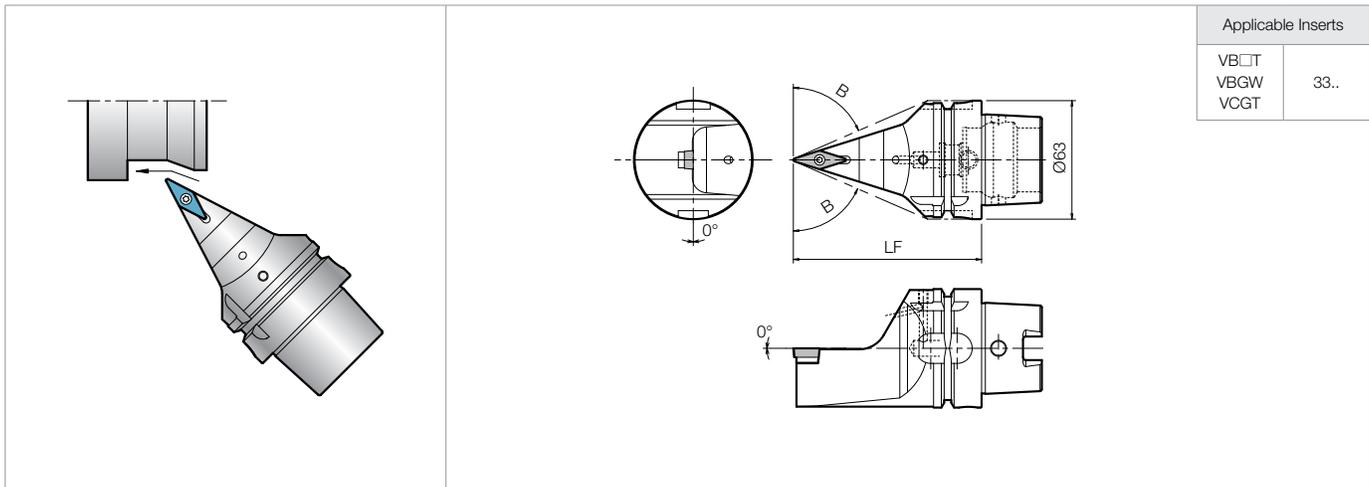
SVLB (External / Copying)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)		Spare Parts					
		LF	WF	Clamp Screw	Wrench	Shim	Shim Screw	Wrench	Coolant Pipe
T63H- SVLBR-DX16N	<input type="checkbox"/>	65	45						
SVLBL-DX16N	<input type="checkbox"/>								

SVVB (External / Copying)



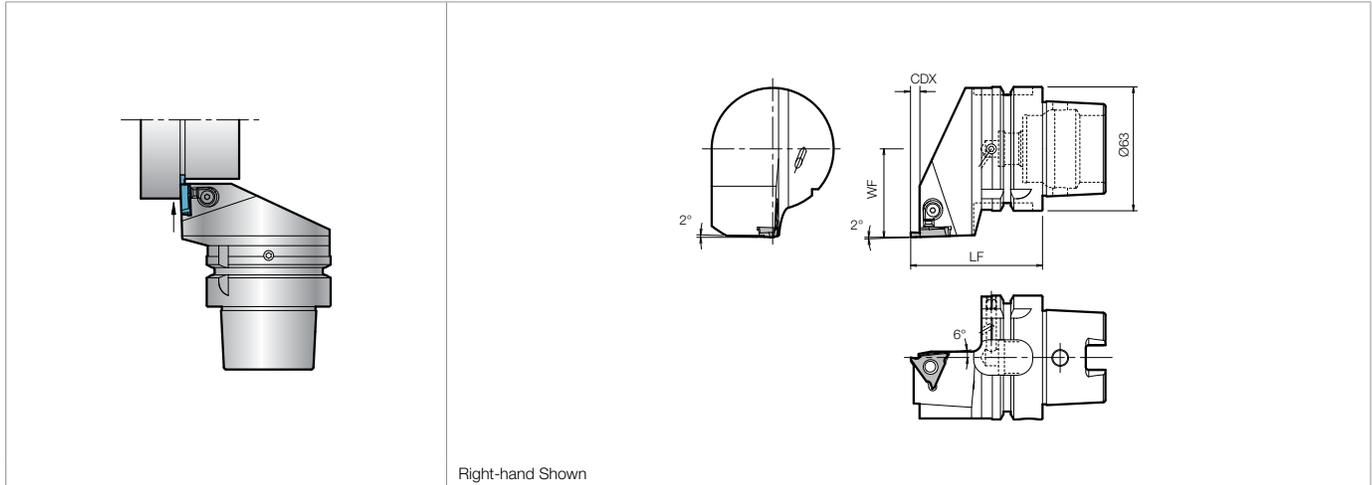
Toolholder Dimensions

Part Number	Stock	Dimensions (mm)		Spare Parts					
		LF	* B (°)	Clamp Screw	Wrench	Shim	Shim Screw	Wrench	Coolant Pipe
T63H- SVVBN-H16N	●	100	66.5						
SVVBN-L16N	●	140	72.5						

• Angle B shows the interference angle from the line of cutting edge point and toolholder.

QUICK CHANGE TOOLING

■ KGBA (External Grooving)

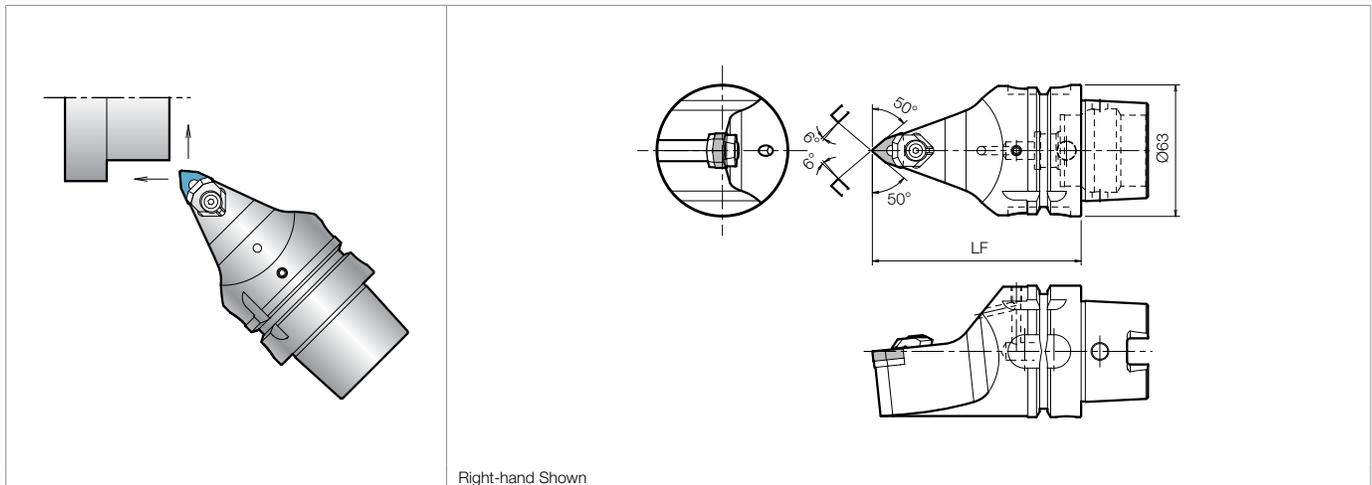


● Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)			Spare Parts			Applicable Inserts ➔ G6-G10
			LF	WF	CDX	Clamp Set	Wrench	Coolant Pipe	
T63H- KGBAR-16 KGBAR-22-15 KGBAR-22-25 KGBAR-22-35	A63-WH- KGBAR-16 KGBAR-22-15 KGBAR-22-25 KGBAR-22-35	<input type="checkbox"/>	67	45	2.5	LGBA-16RS	FT-15	CL63-1	GBA32R Type
		<input type="checkbox"/>			4.0				
		<input type="checkbox"/>			4.5				
		<input type="checkbox"/>			5.5				
T63H- KGBAL-16 KGBAL-22-15 KGBAL-22-25 KGBAL-22-35	A63-WH- KGBAL-16 KGBAL-22-15 KGBAL-22-25 KGBAL-22-35	<input type="checkbox"/>	67	45	2.5	LGBA-16LS	FT-15	CL63-1	GBA32L Type
		<input type="checkbox"/>			4.0				
		<input type="checkbox"/>			4.5				
		<input type="checkbox"/>			5.5				

● Dimension CDX shows the distance from the toolholder to the cutting edge.

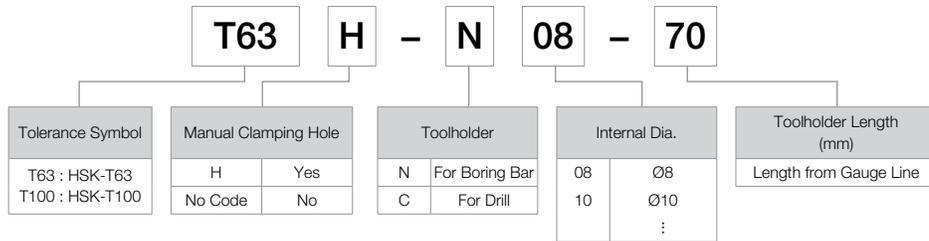
■ KTN (Threading)



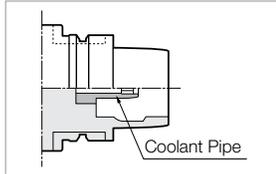
● Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)		Spare Parts					Applicable Inserts ➔ J6, J8, J10, J12, J14, J16, J18
			L1	F1	Clamp Set	Wrench	Shim	Shim Screw	Coolant Pipe	
T63H- KTNR-16 KTNR-22	A63-WH- KTNR-16 KTNR-22	<input type="checkbox"/>	67	45	CPS-5S	FT-15	TN-32	SP3X8	CL63-1	16ER Type
		<input type="checkbox"/>			CPS-6S	LW-3	TN-43			22ER Type

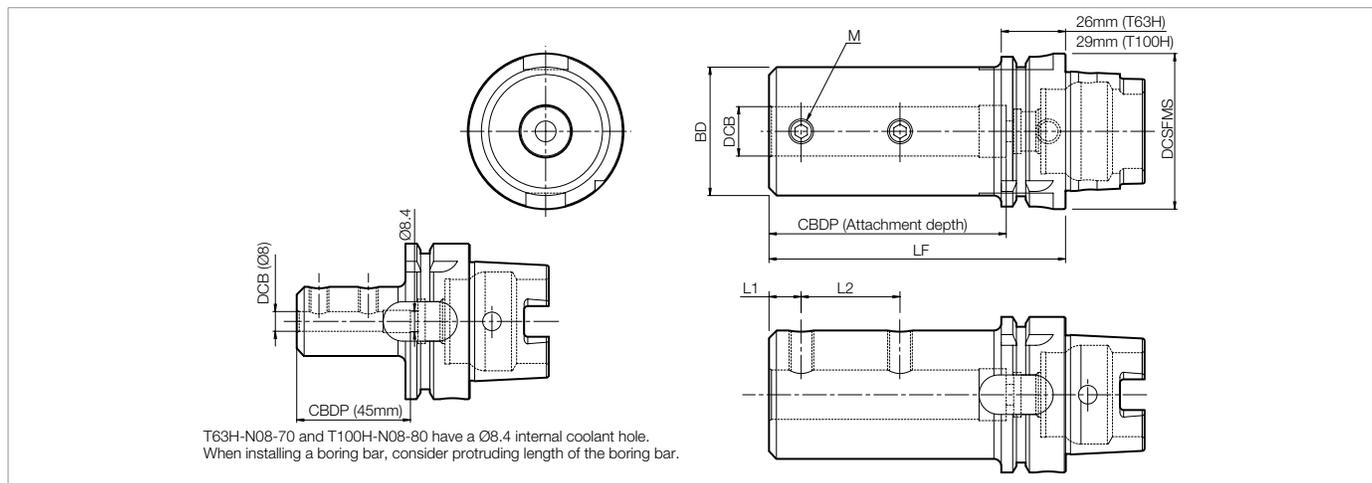
Identification System (Boring Bar / Drill)



Coolant Pipe is Built into Toolholder



Toolholder for Boring Bars and Drills



Toolholder Dimensions

Part Number	Previous Part Number	Stock	Dimensions (mm)									Spare Parts			Notes
			DCB	DCSFMS	BD	L1	L2	L3	L4	M	Clamp Screw	Wrench	Coolant Pipe		
T63H- N08-70	A63-WH- N08-70	☐	8	63	28	70	45	9	20	M8	HS8X10	LW-4	CL63-1	For Boring Bar	
	N10-80	☐	10		35	80	55	9	22		HS8X12				
	N12-90	☐	12		42	90	65	9	22						
	N16-100	☐	16		48	100	75	11	30	M10	HS10X16	LW-5			
	N20-120	☐	20		52	120	95	13	40	M12	HS12X16	LW-6			
	N25-140	☐	25		56	140	115	13	50		HS12X12				
	N32-160	☐	32		56	160	135	13	60	M16	HS16X12	LW-8			
T63H- C20-75	A63-WH- C20-75	☐	20	63	52	75	50	13	22	M10	HS10X16	LW-5	CL63-1	*For Drill	
	C25-85	☐	25		56	85	58	15	28	M12	HS12X16	LW-6			
	C32-90	☐	32		56	90	62	15	30		HS12X12				
	C40-100	☐	40		68	100	72	18	35	M16	HS16X12	LW-8			
T100H- N08-80	-	☐	8	100	28	80	45	9	20	M8	HS8X10	LW-4	CL100-1	For Boring Bar	
		☐	10		35	90	55	9	22		HS8X12				
		☐	12		42	100	65	9	22						
		☐	16		48	110	75	11	30	M10	HS10X16	LW-5			
		☐	20		52	130	95	13	40	M12	HS12X18	LW-6			
		☐	25		62	150	115	13	50		HS12X20				
		☐	32		72	170	135	13	60						
T100H- C20-85	-	☐	20	100	52	85	50	13	22	M10	HS10X16	LW-5	CL100-1	*For Drill	
		☐	25		62	90	58	15	20	M16	HS16X18	LW-8			
		☐	32		72	95	62	15	20						
		☐	40		82	105	72	15	25	M16	HS16X20	LW-8			

* Shorter than boring bar toolholder.

(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
 Visit us online at KyoceraPrecisionTools.com

● : Standard Item ☐ : Made to Order △ : Phaseout Item (will be removed from next catalog)
 Contact your local Kyocera sales engineer to upgrade old products to new technology

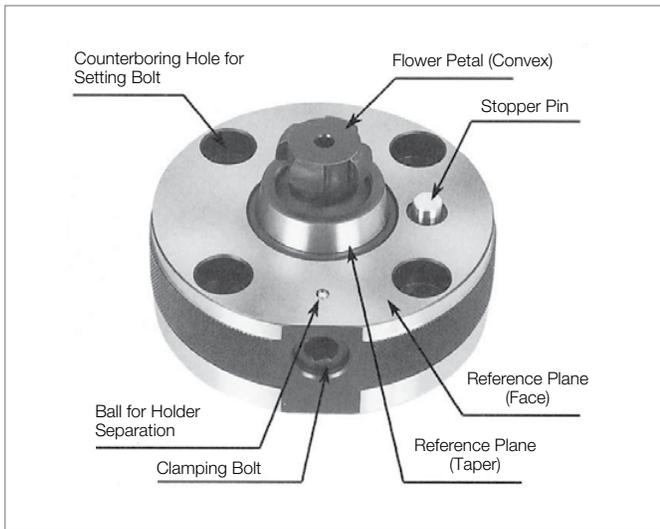
KQC Series



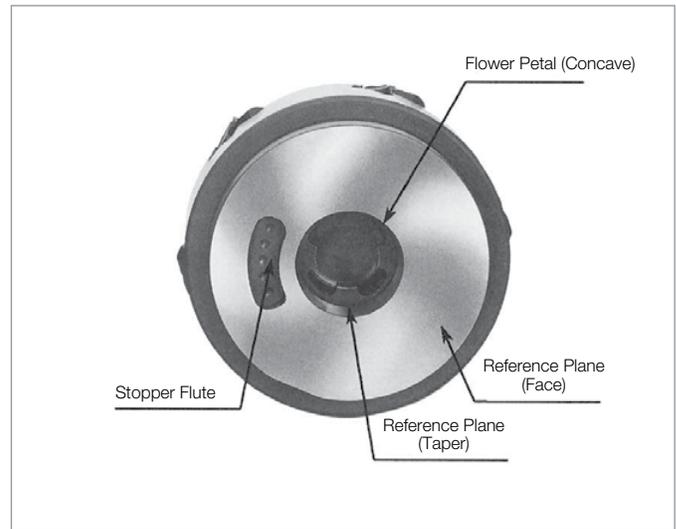
Features

1. The way to assemble holder is turn the clamping bolt 1 revolution. Tool exchange time is less than 1 minute.
2. Junction of adapter and attachment touch both taper part and face part. And repeatability is less than 2 μ m.
3. Applicable to Various Tools.
 - Boring Tool (Rough & Fine)
 - Face Milling (Min. \varnothing 63, Max. \varnothing 160 is possible)
 - Centering Tool
 - External Turning
 - Applicable to Tools with Coolant Hole

Clamping System



Adapter Side



Attachment Side

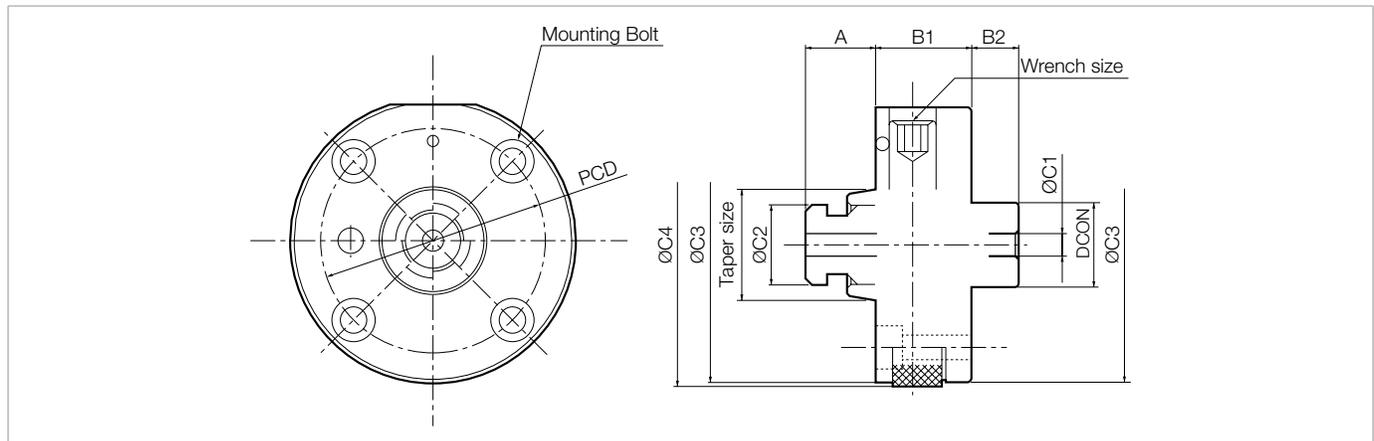
How to Use Clamping System

1. Combine flower petal of adapter side with that of attachment side and insert the attachment.
2. Turn the attachment 45 degrees until stop (clockwise direction).
3. Turn the clamping bolt attached to adapter side 1 revolution and tighten by hexagon wrench.

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

QUICK CHANGE SYSTEM OF FLOWER PETAL ADAPTER

Adapter

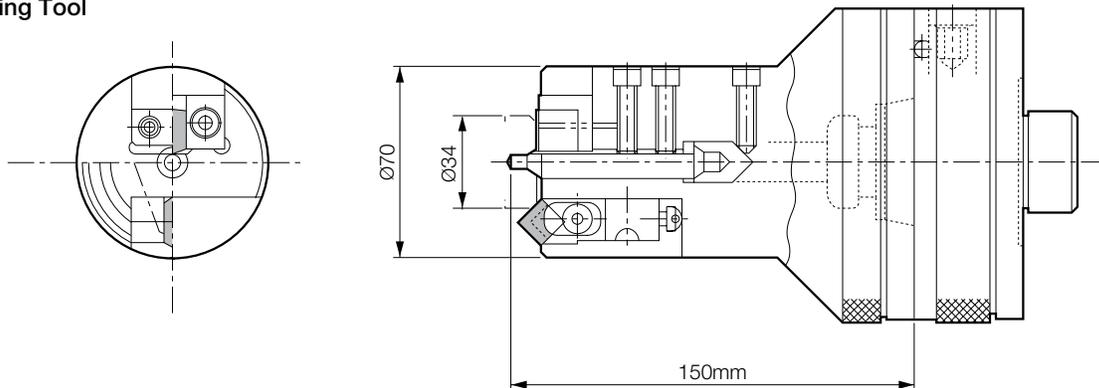


Toolholder Dimensions (mm)

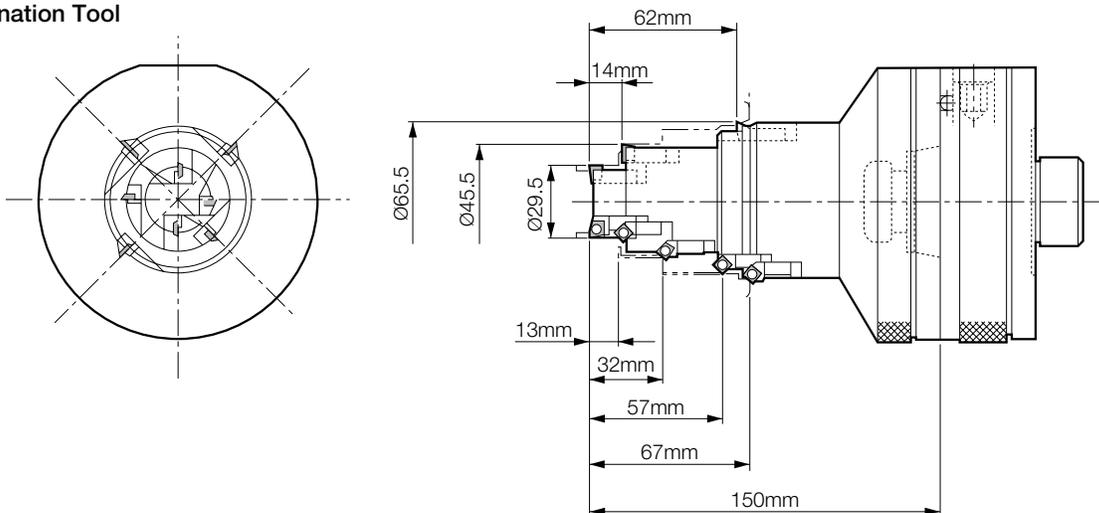
Part Number	Taper Size	A	B1	B2	ØC1	ØC2	ØC3	ØC4	DCON	PCD	Wrench Size	Mounting Bolt
KQC28	Ø28	23	25 Over	15 Over	4	24	60 Over	62 Over	20	43 Over	6	6-8
KQC35	Ø35	27	30 Over	15 Over	6	28	75 Over	77 Over	25	54 Over	8	8-10
KQC45	Ø45	30	40 Over	15 Over	8	32	90 Over	92 Over	25	66 Over	10	8-12
KQC70	Ø70	33	50 Over	15 Over	10	40	130 Over	132 Over	25	100 Over	12	10-16

Toolholder (Attachment) Reference Example

Centering Tool

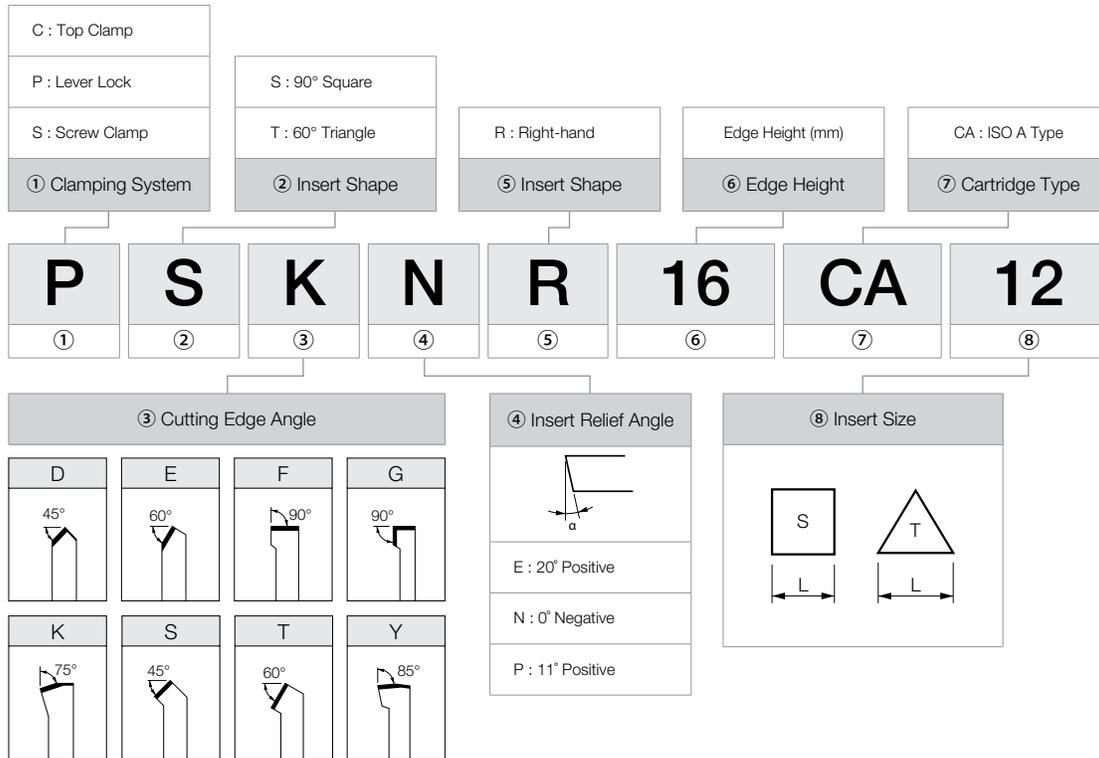


Combination Tool



• Applicable to various tooling (also with coolant hole)

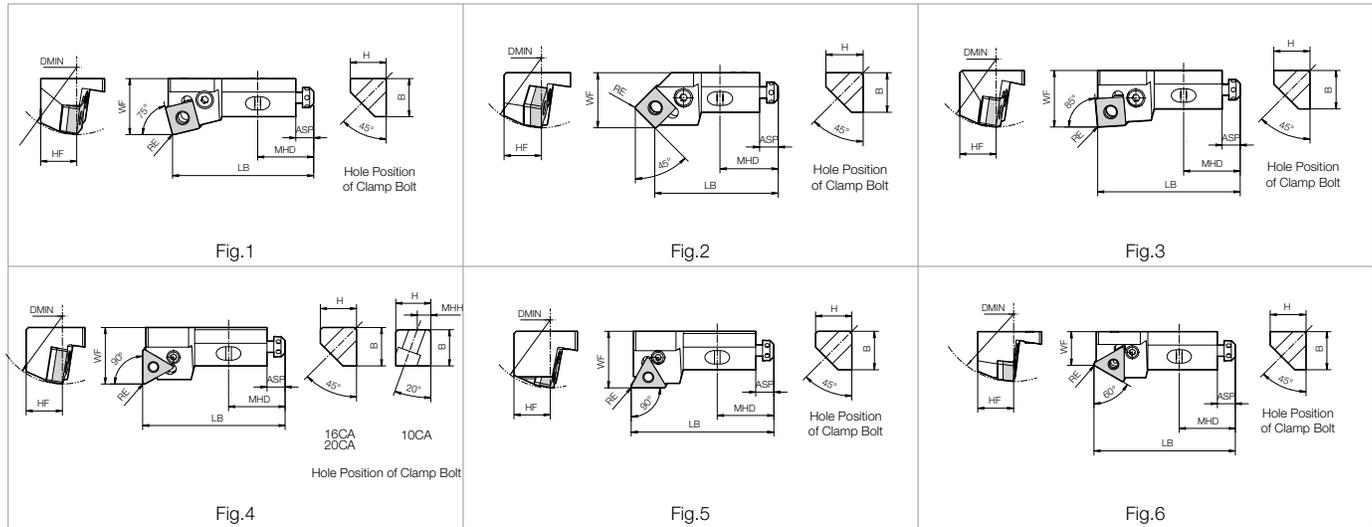
Identification System for Cartridge (Square Shank)



Clamping System

Series	Design	Features	Series	Design	Features
Top Clamp (C)		<ul style="list-style-type: none"> Rigid Clamping Negative Insert : Medium to Heavy Machining (Mainly for Ceramic Insert) Positive Insert : Low Cutting Force 	Lever Lock (P)		<ul style="list-style-type: none"> Easy Insert Replacement General Use
Screw Clamp (S)		<ul style="list-style-type: none"> Simple Mechanism Fewer Parts Finishing to Medium Machining 			

■ Lever Lock (Right-hand Shown)



● Toolholder Dimensions

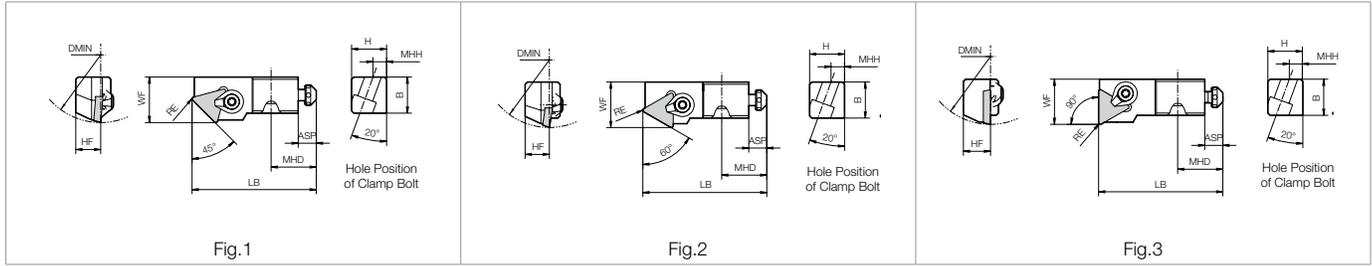
Part Number	Stock	Dimensions (mm)								Standard Corner-R (RE)	Min. Bore Dia. DMIN (mm)	Drawing	Applicable Inserts	Applicable Inserts Ref. Page
		H	B	LB	MHD	ASP	MHH	HF	WF					
PSKNR 16CA12	□	16	17	63	25	8	-	16	25	0.8	60	Fig.1	SN□A SN□G 43.. SN□M	B32 - B35 B109 C10
PSSNR 16CA12	□			53					15			Fig.2		
PSYNR 16CA12	□			63					25			Fig.3		
PTFNR 10CA11	□	12.5	11	50	20	8	5	10	14	0.4	40	Fig.4	TN□A TN□G 22..	B40 B42
16CA16	□	15.5	16	63	25	8	-	16	25	0.8	60		33..	B36 - B43 B111 C10 C11 C23
20CA22	□	20	19	70	30	10	20	70			TN□A TN□G 43.. TN□M			
PTGNR 16CA16	□	16	17	63	25	8	-	16	25	0.8	60	Fig.5	33..	
PTTNR 16CA16	□								15		70	Fig.6		

● Spare Parts

Part Number	Lever	Lock	Shim	Shim Pin	Punch	Wrench	Radial Adjustment Screw	Axial Adjustment Screw	Wrench	Axial Screwdriver	Plate	Clamp Bolt	Wrench
PSKNR 16CA12													
PSSNR 16CA12	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3	HS4X4	AJM5F	LW-2	SW-1.8	SM0816B SM1016B	HH8X25	LW-6
PSYNR 16CA12													
PTFNR 10CA11	LL-03N	LS-03N	-	P-03	-	FH-2	HS4X4	AJM5F	LW-2	SW-1.8	SM0810A SM1010A	HH6X16	LW-5
16CA16	LL-1N	LS-1N	LT-32N	LSP-1	PC-1	FH-2.5	AJM6		LW-2.5		SM0816B SM1016B	HH8X25	LW-6
20CA22	LL-2N	LS-2N	LT-42N	LSP-2	PC-2	LW-3					HS5X5	SM0820B SM1020B		HH8X30
PTGNR 16CA16	LL-1N	LS-1N	LT-32N	LSP-1	PC-1	FH-2.5	AJM5F	LW-2.5	SW-1.8	SM0816B SM1016B	HH8X25	LW-6	
PTTNR 16CA16													

Note) Plate includes a set of two pieces for each toolholder.

Top Clamp (Right-hand Shown)



Toolholder Dimensions

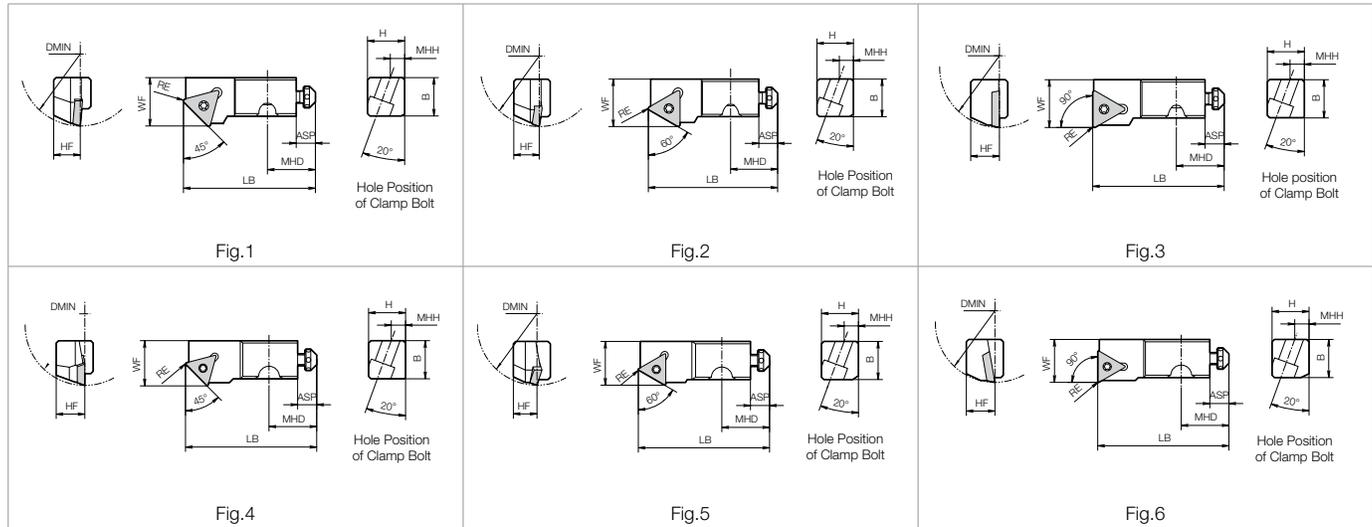
Part Number	Stock	Dimensions (mm)								Standard Corner-R (RE)	Min. Bore Dia. DMIN (mm)	Drawing	Applicable Inserts	Applicable Inserts Ref. Page	
		H	B	LB	MHD	ASP	MHH	HF	WF						
CTDPR 10CA11	□	12.5	11	50	20	8	5	10	7	0.4	38	Fig.1	22..	B87 B88 B113 C18 C29	
12CA16	□	15.5	16	55			6	12	10	0.8	50		32..		
CTEPR 10CA11	□	12.5	11	50			5	10	9	0.4	38	Fig.2	TP□N TP□R		22..
12CA16	□	15.5	16	55			6	12	13	0.8	50		32..		
CTFPR 10CA11	□	12.5	11	50			5	10	14	0.4	38	Fig.3	22..		
12CA16	□	15.5	16	55			6	12	20	0.8	50		32..		

Spare Parts

Part Number	Clamp Set	Wrench	Radial Adjustment Screw	Axial Adjustment Screw	Wrench	Axial Screwdriver	Plate	Clamp Bolt	Wrench
CTDPR 10CA11	CPS-4V	FT-10	HS4X4	AJM5F	LW-2	SW-1.8	SM0810A SM1010A	HH6X16	LW-5
12CA16	CPS-5V	FT-15	HS5X5		LW-2.5		SM0812A SM1012A	HH6X20	
CTEPR 10CA11	CPS-4V	FT-10	HS4X4		LW-2		SM0810A SM1010A	HH6X16	
12CA16	CPS-5V	FT-15	HS5X5		LW-2.5		SM0810A SM1010A	HH6X20	
CTFPR 10CA11	CPS-4V	FT-10	HS4X4		LW-2		SM0810A SM1010A	HH6X16	
12CA16	CPS-5V	FT-15	HS5X5		LW-2.5		SM0812A SM1012A	HH6X20	

Note) Plate includes a set of two pieces for each toolholder.

Screw Clamp (Right-hand Shown)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)									Standard Corner-R (RE)	Min. Bore Dia. DMIN (mm)	Drawing	Applicable Inserts	Applicable Inserts Ref. Page
		H	B	LB	MHD	ASP	MHH	HF	WF						
STDPR 10CA11	☐	12.5	11	50	20	8	5	10	7	0.4	38	Fig.1	22..	B80 ~ B86 C16 C26 ~ C28	
12CA16	☐	15.5	16	55			6	12	10	0.8	50		32..		
STEPR 10CA11	☐	12.5	11	50			5	10	9	0.4	38	Fig.2	TPCH 22..		
12CA16	☐	15.5	16	55			6	12	13	0.8	50		TPCT 32..		
STFPR 10CA11	☐	12.5	11	50			5	10	14	0.4	38	Fig.3	22..		
12CA16	☐	15.5	16	55			6	12	20	0.8	50		32..		
STDER 12CA13	☐	15.5	16	55	20	8	6	12	10	0.4	50	Fig.4	TEGW 252..	-	
STEER 12CA13	☐								12			Fig.5			
STFER 12CA13	☐								18			Fig.6			

Spare Parts

Part Number	Clamp Set	Wrench	Radial Adjustment Screw	Axial Adjustment Screw	Wrench	Axial Screwdriver	Plate	Clamp Bolt	Wrench
STDPR 10CA11									
12CA16									
STEPR 10CA11									
12CA16									
STFPR 10CA11									
12CA16									
STDER 12CA13									
STEER 12CA13									
STFER 12CA13									

Note) Plate includes a set of two pieces for each toolholder.

SPARE PARTS

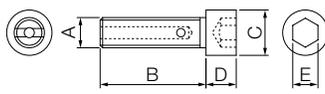
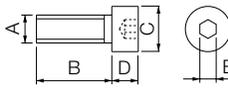


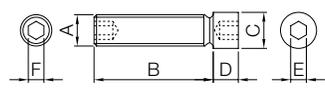
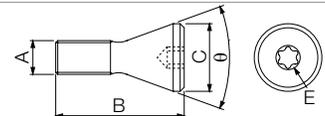
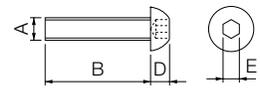
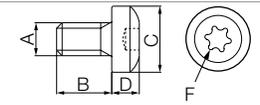
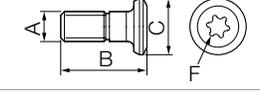
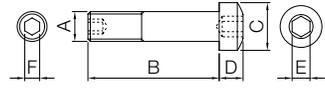
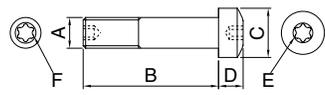
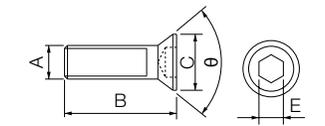
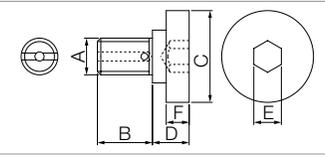
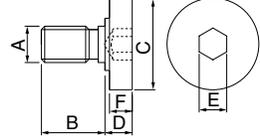
P

P1 - P37

SCREWS / BOLTS	P2 - P7
PINS	P8
SHIMS	P9 - P14
CARTRIDGES	P14
CLAMP SETS	P15 - P16
CLAMPS	P17 - P18
CHIPBREAKERS	P18
WRENCHES	P19 - P21
WRENCHES / SPRINGS / NUTS / PUNCHES / OTHER	P20 - P21
PREVIOUS SPARE PARTS LIST	P22 - P37

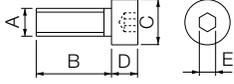
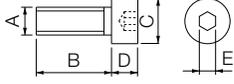
Screws / Bolts

Drawing	Part Number	Dimension (in)						Angle (°)		Torque (N • m)	Notes
		A	B	C	D	E	F	α	θ		
	HH 3/8-1.25H	3/8-24 UNF	1.250	0.550	0.375	0.312	-	-	-	-	With Coolant Hole
	1/2-1.25H	1/2-20 UNF		0.750	0.500	0.375					
	3/4-2.3H	3/4-16 UNF	1.500	1.120	0.750	0.625					
	HH 1/4-0.75	1/4-28 UNF	0.750	0.375	0.250	0.188	-	-	-	-	-
	3/8-1.25	3/8-24 UNF	1.250	0.550	0.375	0.312					
	3/8-1.5	3/8-24 UNF	1.500								
	1/2-1.25	1/2-20 UNF	1.250	0.750	0.500	0.375					
	3/4-2.3	3/4-16 UNF	1.500	1.120	0.750	0.625					

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes
		A	B	C	D	E	F	α	θ		
	AJ -6X38	M6X1.0	38.0	6.0	10.0	3.0	3.0	-	-	-	-
	-8X44-9.5	M8X1.25	44.0	9.5	6.0	4.0	4.0	-	-		
	-10X46	M10X1.5	46.0	11.5	8.0	5.0	5.0	-	-		
	AJ -519TR	M5X0.8	19	10	-	T15	-	-	40°	-	-
	BH 3X6	M3X0.5	6.0	-	1.7	2.0	-	-	-	-	-
	3X12	M3X0.5	12.0	-	1.7	2.0	-	-	-		
	6X25	M6X1.0	25.0	-	3.3	4.0	-	-	-		
	8X30	M8X1.25	30.0	-	4.4	5.0	-	-	-		
	BH 6X10TR	M6X1.0	10.0	12.0	5.0	-	T25	-	-	6.5	-
	CP 8X15TL	M8X1.25	15.0	15.0	-	-	T25	-	-	6.0	L Shows Left-hand Thread
	8X23TL		23.0								
	CS -2D	M4X0.7	21.5	6.4	3.5	2.5	2.0	-	-	1.7	-
	-3D	M5X0.8	22.0	8.0	4.0	3.0	2.5	-	-	3.9	
	-5D	M5X0.8	28.0	8.0	4.0	3.0	2.5	-	-	3.0	
	CS -3D-TR	M5X0.8	22.0	8.0	4.0	T15	T15	-	-	3.9	-
	GS -50	M5X0.8	13.0	7.5	-	3.0	-	-	82°	-	-
	HF 16X40HA	M16X2.0	24.0	40.0	16.0	12.0	10.0	-	-	-	With Coolant Hole
	20X53H	M20X2.5	35.0	43.0	18.0	14.0					
	20X53HA		33.0	50.0	20.0						
	24X60H	M24X3.0	40.5	65.0	19.5	17.0					
	24X60HA		36.0		24.0						
	HF 16X40S	M16X2.0	29.0	40.00	11.00	14.0	10.0	-	-	-	-

P
SPARE PARTS

Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N•m)	Notes
		A	B	C	D	E	F	α	θ		
	HH 3X6	M3X0.5	6.0	5.5	3.0	2.5	-	-	-		
	3X12		12.0								
	HH 4X16	M4X0.7	16.0	7.0	4.0	3.0	-	-	-		
	HH 5X15	M5X0.8	15.0	8.5	5.0	4.0	-	-	-		
	5X16		16.0								
	5X20		20.0								
	5X25		25.0								
5X30	30.0										
	HH 6X12	M6X1.0	12.0	10.0	6.0	5.0	-	-	-		
	6X16		16.0								
	6X16A		16.0								
	6X18		18.0								
	6X18A		18.0								
	6X20		20.0								
	6X25		25.0								
	6X30		30.0								
	HH 8X20	M8X1.25	20.0	13.0	8.0	6.0	-	-	-		
	8X25		25.0								
	HH 10X25	M10X1.5	25.0	16.0	10.0	8.0	-	-	-		
	10X30		30.0								
	10X30M		30.0								
	10X30S		30.0								
	10X35		35.0								
	10X40		40.0								
	HH 12X25	M12X1.75	25.0	18.0	12.0	10.0	-	-	-		
	12X35		35.0								
	12X35M		35.0								
	12X40		40.0								
	12X55		55.0								
	12X65		65.0								
	12X80		80.0								
	12X85		85.0								
	12X100		100.0								
	12X110		110.0								
	12X120		120.0								
	12X130		130.0								
	12X140	140.0									
	12X150	150.0									
	HH 16X35	M16X2.0	35.0	24.0	16.0	14.0	-	-	-		
	16X40		40.0								
	16X45		45.0								
16X65	65.0										
16X90	90.0										
16X110	110.0										
16X130	130.0										
HH 20X40	M20X2.5	40.0	30.0	20.0	17.0	-	-	-			
20X53		53.0									
20X55		55.0									
20X75		75.0									
20X90		90.0									
20X110		110.0									
20X120		120.0									
20X140		140.0									
20X150		150.0									
20X170	170.0										
HH 24X40	M24X3.0	40.0	36.0	24.0	19.0	-	-	-			
24X60		60.0									
24X75		75.0									
24X90		90.0									
24X110		110.0									
24X120		120.0									
24X140		140.0									
24X150		150.0									
24X170	170.0										

INSERT GRADES	A
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Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes		
		A	B	C	D	E	F	α	θ				
	HH 4X12	M4X0.7	10.0	7.0	4.0	3.0	2.0	-	-	-	-		
	HH 8X25H	M8X1.25	25.0	13.0	8.0	5.0	-	-	-	-	With Coolant Hole		
	10X30H	M10X1.5	30.0	16.0	10.0	6.0							
	10X35HK		35.0										
	12X35H	M12X1.75	35.0	18.0	12.0	8.0							
	12X35HK												
	16X52H	M16X2.0	36.0	24.0	16.0	12.0							
	HS 3X4P	M3X0.5	3.9	-	-	1.5	-	-	-	1.0	HS4X4P and HS6X4P Have a Flat Edge Clamp Screw Equivalent to JIS B-1177		
	3X4		4.0										
	3X8		8.0										
	3X12		12.0										
	3X16		16.0										
	HS 4X4P	M4X0.7	3.9	-	-	2.0	-	-	-	2.0			
	4X4		4.0										
	HS 5X5	M5X0.8	5.0	-	-	2.5	-	-	-	3.0			
	HS 6X4P	M6X1.0	3.9	-	-	3.0	-	-	-	4.0			
	6X6		6.0										
	6X8T		8.0										
	6X14		14.0										
	6X22		22.0										
	HS 8X10	M8X1.25	10.0	-	-	4.0	-	-	-	-			
	8X12		12.0										
	HS 10X10	M10X1.5	10.0	-	-	5.0	-	-	-	-			
	10X16		16.0										
	HS 12X12	M12X1.75	12.0	-	-	6.0	-	-	-	-			
	12X16		16.0										
	12X18		18.0										
	12X20		20.0										
12X25	25.0												
12X30	30.0												
12X35	35.0												
HS 16X12	M16X2.0	12.0	-	-	8.0	-	-	-	-				
16X18		18.0											
16X20		20.0											
	HS -2524TRP	M2.5X0.35	2.4	-	-	5IP	-	-	-	0.4	OIP shows Torx Plus		
	-2534TRP		3.4										
	-3048TRP	M3X0.5	4.8									6IP	0.5
	-4067TRP	M4X0.7	6.7									7IP	0.8
	HSB 4X8%	M4X0.7	8.0	R2.0	-	2.0	-	-	-	2.0	R Shows Right-hand Thread L Shows Left-hand Thread		
	LS -03	M5X0.8	10.0	M5X0.8	-	2.0	-	-	-	2.0	-		
	-03S		12.2			2.5				3.0			
	LS -03N	M5X0.8	9.7	M5X0.8	-	2.0	-	-	-	2.0			
	-03SN		12.0			2.5				3.0			
W 10X31	M10X1.0	31.0	M10X1.5	-	5	-	-	-	-	-			
	LS -05	M5X0.8	15.5	M5X0.8	-	2.0	2.0	-	-	2.0	-		

Reference

Torx and Torx Plus have different cross-sections.



Torx



Torx Plus

Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N•m)	Notes						
		A	B	C	D	E	F	α	θ								
	LS -1	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N : Silver Coated						
	-1N																
	-1S		14.2														
	-1SN																
	-1T		21.0														
	LS -2	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0							
	-2N		22.0														
	-3																
	-4N		24.0														
	LS -5	M10X1.0	29	10	-	4	4	-	-	-							
	LS -1P	M6X1.0	16.5	6.0	-	10IP	10IP	-	-	2.0	OOIP Shows Torx Plus						
	-2P	M8X1.0	18.2	8.0	-	15IP	15IP	-	-	3.5							
	-3P		21.8														
	LS -11	M6X1.0	9.5	-	-	3.0	-	-	-	-							
	-15		12.5														
	M 3X8	M3X0.5	8.0	5.5	2.0	-	-	-	-	-	Flat Fillister Head Screw Equivalent to JIS B-1101						
	3X12		12.0														
	4X10	M4X0.7	10.0	7.0	2.6	-	-	-	-	-							
	SB -1TR	M2X0.4	5.3	3.8	-	-	T6	82°	90°	0.5	R Shows Right-hand Thread						
	-2TR	M2.5X0.45	6.2	4.5			T8			1.2							
	-3TR	M3X0.5	7.2	4.8			T10			2.0							
	-3STR		6.4	5.2													
	-3.5TR	M3.5X0.6	9.3	5.6			T15			3.5							
	-4TR	M4X0.7	7.7	5.8													
	-5TR	M5X0.8	20.0	8.7													
	-2290TR	M2.2X0.45	9.2	2.8			T6			0.5							
	-25100TR	M2.5X0.45	10.0	3.5			T7			0.8							
	-40115TR	M4X0.7	11.5	5.5			T15			3.5							
	-5070TR	M5X0.8	7.0	6.8			T20			4.5							
	-5090TR		9.0														
	-50120TR		12.0														
		SB -1635TR	M1.6X0.35	3.3			2.6			-		-	T6	60°	-	0.5	R Shows Right-hand Thread
		SB -1STR		5.0			3.1										
-1840TRP		4.0		2.5	6IP	55°											
-2035TR		3.7		3.0	T6	60°											
-2035TRG		3.5															
-2037TRP		3.7		2.7	6IP	55°											
-2040TR		3.8		3.0	T6	60°											
-2040TRG		4.0															
-2041TRP		4.1		2.7	6IP	60°											
-2042TRG		4.1		2.7	T6	60°											
-2045TR		4.3															
-2045TRN				2.8	T6	37°											
-2050TR		4.8		3.0	T6	60°											
-2060TR		5.8		3.5	T8	60°	1.2										
-2080TR		8.3		2.8	T6	60°	0.5										
SB -2250TR		5.1		3.1	M2.2X0.45	-	-	T7	60°		-		0.8				
-2255TR		5.5		3.5													
-2260TR		5.8		3.1													
-2260T%		6.8		3.2													
SB -2545TR		4.6		3.5	-	-	-	T8	60°		-		1.2				
-2555TRG		5.4															
-2555TRP		5.5															
-2560TR		5.7															
-2570TR		6.8															
SB -3060TR		5.3		4.2	-	-	-	T10	-		-		2.0				
-3060TRG	5.9																
-3060TRP	6.0																
-3065TRP	6.5																
-3070TRG	6.5	4.0	8IP							60°		1.2					
-3070TRP	7.0	4.0	T10	2.0													
-3070TR%		4.2	T8	1.2													
-3070TRP		4.2	10IP	55°	2.0												
-3076TRP	7.6	3.9															
-3080TR	8.0	4.2				T10	60°										

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Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Notes		
		A	B	C	D	E	F	α	θ				
<p>SB-40125TRN</p>	SB -3573TRP	M3.5X0.6	7.3	5.0	-	-	10P	-	60°	2	R Shows Right-hand Thread ○○IP Shows Torx Plus		
	-3580TR		8.0	5.3			T15			3.5			
	-3590TRP		9.0				15IP			4.0			
	-3592TR		9.2	5.1			T10			2.0			
	SB -4050TRN	M4X0.5	4.6	5.1	-	-	T10	57°	2.0				
	-4060TR	M4X0.7	5.9	5.5			-	-	T15	60°		3.5	
	-4065TR		6.7										
	-4070TRG		7.0										
	-4070TRN		7.7										5.4
	-4070TRS	6.7	-	-			T10	2.0					
	-4075TRP	7.5											
	-4082TPR	8.2	5.5	15IP			-	-	T15	-		3.5	
	-4085TR	M4X0.7	8.5										
	-4085TRP												
	-4090TRP	9.0	5.7	15IP									
	-4090TRPN		5.5										
	-40120TR	12.0	5.1										
	-40125TRN	12.5	5.2										
	-40140TR	14.0	5.5										
	-40140TRN		6.7										
	SB -4570TRN	M4.5X0.5	6.8	6.0	-	-							T10	57°	2.0
	-45130TR	M4.5X0.75	13.0	6.6	-	-	20IP	55°	4.5				
	SB -5085TR	M5X0.8	8.5	6.8	-	-	T20	50°	4.5				
	-50120TRP		12.0	6.8			20IP	60°	4.5				
	-50120TRPH						15IP	3.5					
	-50120TRS		7.2	7.2			15IP	3.5					
	-50137K		13.7	9.7			T20	70°	4.5				
	-50140TR		14.0	7.3			T15	50°	3.5				
-50140TRP	20IP						4.5						
SB -60120TR	M6X1.0	12.0	8.5	-	-	T25	60°	6.0					
-60130TRP		13.0				4.5							
-60200TRP		20.0				6.0							
	SB -4070TRW	M4X0.7	6.7	5.5	-	-	T8	60°	1.2	R Shows Right-hand Thread			
	-4590TRWN	M4.5X0.75	9.3	5.6	-	-	T10	57°	2.0				
	SC -30067	M3X0.35	6.7	4.4	-	-	T8	60°	1.2	-			
	-35085	M3.5X0.35	8.5	5.7			T10		2.0				
	-40100	M4X0.5	10.0	6.0			T15		3.5				
	-50130	M5X0.5	13.0	6.6			T20		4.5				
	-60160	M6X0.75	16.0	8.0			T25		6.0				
	-60210		21.0	9.6			T30		8.0				
	SCR -01	M2.5X0.45	6.6	3.6	-	-	T7	60°	0.8	-			
	-03	M3X0.5	8.4	4.6	-	-	T9		1.6				
	-04	M2.5X0.45	4.6	3.6	-	-	T7		0.8				
	-05												
	-16	M3.5X0.6	6.9	5.0	-	-	T10		2.0				
	-30		8.9										
	SE -3070TRP	M3X0.5	7.0	4.3	-	-	9IP	43°	1.7	○○IP Shows Torx Plus			
	-40050TRN	M4X0.7	5.0	5.0			-		-		T15	44°	3.5
	-40055TR		5.5										
	-40068TR		6.8										
	-40080TR		8.0										
	-40090TR		9.0										
	-40100TR		10.0										

P
SPARE PARTS

Screws / Bolts

Drawing	Part Number	Dimension (mm)						Angle (°)		Torque (N•m)	Notes
		A	B	C	D	E	F	α	θ		
	SE -40120TR	M4X0.7	12.0	5.6	-	-	-	T15	-	3.5	-
	-50125TR	M5X0.8	12.5	6.8	-	-	-	T20	60°	4.5	
	SH -50150TR	M5X0.8	15.1	7.3	3.1	-	-	T20	-	4.5	-
	SP 3X4	M3X0.5	4.0	4.0	-	-	-	90°	-	-	With Additional Machining Below the Fillister Head Cross Recessed Flat Head Screw equivalent to JIS...B-1111
	3X6		6.0	-	-	-					
	3X8		8.0	6.0	-	-					
	3X10		10.0	-	-	-					
	SP 4X9	M4X0.7	9.0	5.6	-	2.0	-	-	90°	-	-
	SP 8X35	M8X1.25	35.0	11.0	4.4	5.0	-	-	90°	-	-
	SPW -6045	M6X0.75	9.0	7.5	M4.5X0.75	4.5	-	-	-	-	A Shows External D Shows Internal External and Internal Threads are Both Right-hand Threads
	-7050	M7X0.75	9.0	8.8	M5X0.8	5.0	-	-	-		
	SS -4N	M5.5X0.5	8.5	6.6	M4X0.7	4.0	-	-	-		
	SV -60136R	M6X1.0	13.6	6.3	-	4.0	-	-	-	-	Hexagon Socket
	-60136TR					-	T20	-	6°	4.5	Torx
	TH 8X15	M8X1.25	20.0	8.5	-	4.0	-	-	-	-	-
	W 6X17	M6X1.0	17.0	-	-	-	T20	-	-	4.5	-
	6X18N		18.0	-	-	-	T15	-	-	3.5	
	8X16		16.0	-	-	-	T25	-	-	6.0	
	W 6X18	M6X1.0	17.5	-	-	3.0	-	-	-	-	-
	6X20	M6X1.0	20.5	-	-	-	-	-	-	-	
	8X18	M8X1.25	18.0	-	-	4.0	-	-	-	-	
	*8X21	M8X1.0	21.0	-	-	-	-	-	-	-	
	W 10X31	M10X1.0	31.0	M10X1.5	-	5.0	-	-	-	-	-
	XNS 610	3/8-24UNF	1.250"	0.500"	-	0.188"	-	-	-	-	Differential Screw

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
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Pins

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	LL -03	7.8	6.3							
	LL -03N									
	LL -03S	11.1	8.9	-	-	-	-	-	-	-
	LL -03SN									
	LL -03T	8.3	8.9							
LL -03TN										
	LL -05C	10.7	11.7					12°		
	LL -1C	13.0	13.3	-	-	-	-	14°	-	-
	LL -1CN									
	LL -2C	18.8	17.6					14°		
	LL -1	10.3	12.0							
	LL -1K	10.0	12.0							
	LL -1N	10.3	12.0							
	LL -1D	12.3	12.0							
	LL -1DN									
	LL -2	13.5	13.0							
	LL -2K	13.3	13.2							
	LL -2N	13.5	13.0	-	-	-	-	-	-	-
	LL -3	16.4	13.0							
	LL -3K	16.0	14.8							
	LL -3N	16.4	13.0							
	LL -4	16.4	14.7							
	LL -5	17.1	16.7							
LL -5N	17.1	16.7								
LL -6	20.7	21.0								
	LP -2S	3.65	20.0	-	-	-	-	-	-	-
	LP -6S	3.65	25.0							
	LPA -11		11.0							
	LPA -13	2.8	13.0	4.2	-	-	-	-	60°	
	LPA -17		17.0							
	LPF -11		11.0							
	LPF -1113	2.5	13.0	3.5	-	-	-	-	60°	
	LPF -1117		17.0							
	LPF -13	3.8	13.0	5.5						
LPF -17		17.0								
	PP -4	4.6	14.0	5.5	-	3.0	-	-	-	-
	TS -3S	M5X0.8	15.0	3.60	-	2.0	-	-	-	-
	WP -1S	M5X0.8	18.0	3.65	-	-	-	-	-	-
	WP 5X15		15.0	5.0						
	WP 5X11	M5X0.8	10.5	5.0	-	2.0	-	-	-	-
	LSP -1	5.0	5.3							
	LSP -2	6.5	5.6							
	LSP -3	8.25	7.9							
	LSP -4	9.5	10.0							
	LSP -2K	5.1	5.2							
	LSP -3K	6.7	5.7							
	P -03	2.8	1.95							
	P -03S	3.5	1.95							

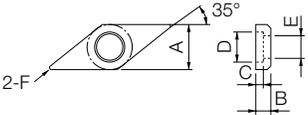
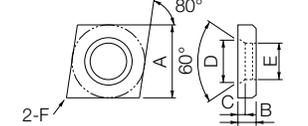
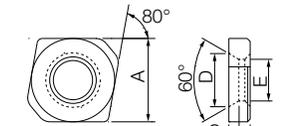
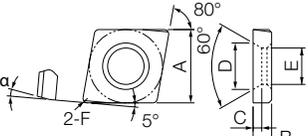
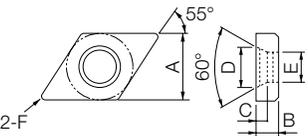
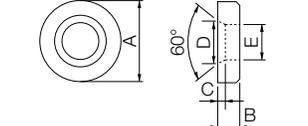
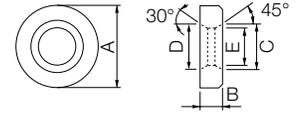
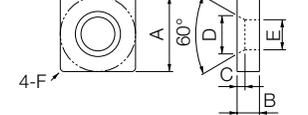
P
SPARE PARTS

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	DC -42	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw : SB-4085TR
	DC -44	12.55	5.0	1.5			R0.8			
	DC -44-C	12.55	5	1.5	6	4.4	-	-	-	Shim Screw : SB-4085TR
		DD -42	12.55	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw : SB-4085TR
DD -42-16		R1.6								
DD -43		3.4		1.3	R0.8					
DD -44		5.0		1.5	R0.8					
	DS -42	12.0	3.2	1.2	6.0	4.4	R1.2	-	-	Shim Screw : SB-4085TR
	DS -44	12.55	5.0	1.5			R0.8			
	DT -32	8.63	3.2	0.95	5.0	3.4	R1.6	3°	-	Shim Screw : SB-3080TR
	DT -42	12.46		1.2	6.0	4.4	R1.2	-		Shim Screw : SB-4085TR
	DV -33	9.40	3.5	1.2	6.0	4.4	R1.0	-	-	Shim Screw : SB-4085TR
	DW -42	11.5	3.2	1.2	6.0	4.4	R1.2	4°	-	Shim Screw : SB-4085TR
	DW -44	12.65	5.0	1.5			R0.8	-		
	556 C%L	34.0	10.0	12.7	5.6	5.0	R1.6	0°	55°	R Shows Right-hand Thread L Shows Left-hand Thread Shim Screw : HH5X16
	KPS -42	11.5	3.2	2.0	7.2	3.2	C1.0	7°	-	Shim Screw : SP3X8
	KPT -32	8.0	3.2	1.9	7.0	3.2	R0.4	11°	-	Shim Screw : SP3X8 SP3X10
	KPT -42	10.5	3.2	1.9	7.0	3.2	R0.8	11°		

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	KVN -32	9.52	3.2	2.1	7.6	5.5	R0.8	-	-	Lock Pin : LP-6S LP-2S
	LC -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	-32N									
	-4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin : LSP-3K
	-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	-42N-20						R2.0			
	-53	15.9	4.8	1.7	10.0	8.0	R1.2	-	-	Shim Pin : LSP-3
	-53N	19	4.8	2	11.61	9.3	R1.6	-	-	Shim Pin : LSP-4
	-63									
	LC -42N-C	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim Pin : LSP-2
	-53N-C	15.9	4.8	1.7	10	8	-	-	-	Shim Pin : LSP-3
	-63-C	19	4.8	2	11.61	9.3	-	-	-	Shim Pin : LSP-4
	LC -42%L	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R Shows Right-hand Thread L Shows Left-hand Thread Shim Pin : LSP-2
	-42N%L						R2.0			
	-42N%L-20									
	LD -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	-32N									
	-4K	11.7	3.2	1.4	8.1	6.73	R0.8	-	-	Shim Pin : LSP-3K
	-4K43		4.8	3.0	8.3	6.60	R1.2			
	-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	-42-20						R2.0			
	-43	12.65	4.8	3.1	8.5	6.28	R0.8	-	-	Shim Pin : LSP-2
-43-20	R2.0									
	LR -80	9.47	3.2	1.3	6.25	4.75	-	-	-	Shim Pin : LSP-1
	-81	12.65	3.2	1.5	8.01	6.28	-	-	-	Shim Pin : LSP-2
	LR -10C	8.5	3.2	6.3	6.3	4.7	-	-	-	Shim Pin : LSP-1
	-12C	10.0	3.2	6.3	6.3	4.7	-	-	-	Shim Pin : LSP-1
	-16C	13.6	3.2	7.9	8.01	6.28	-	-	-	Shim Pin : LSP-2
	LS -32	9.47	3.2	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2

P
SPARE PARTS

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	LT -3K	8.53	2.7	1.0	6.1	5.13	R0.8	-	-	Shim Pin : LSP-2K
	-32	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	-32N						R2.0			
	-32N-20						R2.0			
	-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	-42N						R2.0			
	LW -32	9.47	2.4	1.3	6.18	4.68	R0.8	-	-	Shim Pin : LSP-1
	-32N									
	-42	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin : LSP-2
	-42N									
	LW -42%	12.65	3.2	1.5	8.01	6.28	R0.8	10°	-	R Shows Right-hand Thread L Shows Left-hand Thread Shim Pin : LSP-2
	-42N%									
	MFPN -45	17.07	3.5	1.95	9.8	7.18	R3.5	-	-	Shim Screw : SPW-7050
	MFWN -90	15.25	4.0	2.5	9.44	7.25	R3.0 R4.0	-	-	Shim Screw : SPW-7050
	MSD -42	10.7	3.2	1.85	7.0	3.3	-	20°	45°	Shim Screw : SP3X8
	MSE -4245S	10.3	3.2	2.0	6.0	5.0	-	20°	45°	Shim Screw : SP4X9
	MSE -4215	10.53	3.2	1.5	6.4	3.4	-	25°	15°	Shim Screw : SP3X8
	-4245	10.53	3.2	1.5	6.4	3.4	-	25°	45°	Shim Screw : SP3X8
	MSO -4T245	10.0	2.0	4.7	6.4	4.8	-	27°	45°	Shim Screw : SP3X6
	MSO -5200	12.6	3.18	1.8	8.27	6.66	R0.8	15°	-	Shim Screw : SPW-6045
	MSP -42	11.3	3.2	1.85	7.0	3.3	-	15°	15°	Shim Screw : SP3X8
	MTE -42	9.8	3.2	-	6.4	3.4	-	25°	-	Shim Screw : SP3X8
	MVN -32	9.52	3.2	2.1	7.4	6.5	R0.8	-	-	Lock Pin : TS-3S

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes	
		A	B	C	D	E	F	α	θ		
	PD -42	12.7	3.2	1.7	6.0	8.4	0.8	12°	-	Shim Screw : SB-2050TR	
	SP -129	9.52	9.52	R0.8	R1.6	R1.2	R1.6	-	-	Shim Screw : HH3X12	
	SP -141	12.7	4.0	2.4	6.2	3.3	R1.2	-	-	Shim Screw : M3X8	
	-143	12.7	7.2	2.4	6.2	3.3	R1.2	-	-	Shim Screw : M3X12	
	-162	15.8	6.0	3.4	8.0	4.4	R1.5	-	-	Shim Screw : M4X10	
	SP -148	12.7	8.8	2.4	6.2	3.3	R1.2	-	-	Shim Screw : BH3X12	
	SP -219	6.35	9.52	R0.8	R1.2	R1.6	-	-	-	Shim Screw : HH3X12	
	SP -221	9.52	4.0	2.5	6.5	3.5	R1.2	-	-	Shim Screw : M3X8	
	-223	9.52	7.2	2.5	6.5	3.5	R1.2	-	-	Shim Screw : M3X12	
	SP -342	12.7	6.0	2.5	6.5	3.5	R1.2	-	75°	Shim Screw : M3X8	
	-441	12.7	4.0	2.5	6.2	3.3	R0.8	-	80°	Shim Screw : M3X8	
	-443	12.7	7.2	2.5	6.2	3.3	R0.8	-	80°	Shim Screw : M3X12	
	-454	15.7	8.0	3.4	8.0	4.5	R1.6	-	80°	Shim Screw : M4X10	
	SP -429	9.52	9.52	-	-	-	R1.2	-	-	Shim Screw : HH3X12	
	SP -521	10.0	4.0	2.5	6.2	3.3	R1.0	-	-	Shim Screw : M3X8	
	-523		7.2								Shim Screw : M3X12
	-541	12.7	4.0	2.5	6.2	3.3	R1.2	-	-	Shim Screw : M3X8	
	-543		7.2								Shim Screw : M3X12
	SP -826	9.52	7.9	-	-	-	-	-	-	Shim Screw : HH3X12	
	-829	9.52	9.52	-	-	-	-	-	-		
	SP -841	12.7	4.0	2.4	6.2	3.3	-	-	-	Shim Screw : M3X8	
	-843	12.7	7.2	2.4	6.2	3.3	-	-	-	Shim Screw : M3X12	
	-849	12.7	8.8	2.4	6.2	3.3	-	-	-	Shim Screw : BH3X12	
	-861	15.8	6.0	3.4	8.0	4.4	-	-	-	Shim Screw : M4X10	
	SP -130A	9.52	3.2	-	R0.4	R0.8	R1.2	8°	-	Shim Screw : BH3X12	

P
SPARE PARTS

Shims

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	SP -210A	6.35	3.2	R0.4	R0.8	R1.2	-	8°	-	Shim Screw : BH3X6
	SP -420A	9.52	3.2	-	-	R0.8	R1.2	8°	-	Shim Screw : BH3X6
	SP -141P	12.7	4.0	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X8
	-143P	12.7	7.2	2.4	6.2	3.3	R1.2	7°	-	Shim Screw : M3X12
	SP -230P	8.3	3.2	2.0	7.2	3.2	R0.5	7°	-	Shim Screw : SP3X10
	SP -341P	12.6	4.0	2.5	6.5	3.5	R1.2	7°	-	Shim Screw : M3X8
	SP -441P	12.7	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
	-443P		7.2							Shim Screw : M3X12
	SP -521P	10.0	4.0	2.5	6.2	3.3	R1.2	11°	-	Shim Screw : M3X8
	-523P		7.2							Shim Screw : M3X12

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Shims / Cartridges

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	SP -RC	12.6	3.0	-	7.35	3.35	-	-	-	Shim Screw : SP3X8
	SVN -32	8.0	3.2	1.5	3.1	2.3	R0.4	-	-	Shim Screw : SB-2050TR
	SVN -32N	8.2	3.2	1.5	7.0	5.9	R0.6	-	-	Shim Screw : SS-4N
	SVN -32S	8.2	3.2	1.5	7	5.9	R0.2	-	-	Shim Screw : SS-4N 1-corner use only
	TN -32	9.52	3.2	6.5	7.0	4.2	R0.4	-	-	Shim Screw : SP3X8
	-43	12.70	3.2	8.1	7.0	4.2	R0.5	-	-	
	TNW -32	9.52	3.2	4.8	7.0	4.2	-	-	-	Shim Screw : SP3X8
	WTN -33	9.52	4.76	2.5	7.0	5.3	R0.8	-	-	Shim Pin : WP-1S
	-33-20						R2.0			
	WWN -42	12.7	3.0	1.4	7.0	5.3	R1.2	-	-	Shim Pin : WP5X15
	WWP -42	12.7	3.0	1.5	8.3	5.3	R1.2	11°	-	Shim Pin : WP5X11
	-42-16						R1.6			
	MAP -2216	-	9.0	11.0	19.8	-	-	20°	-	Clamp Screw : SB-40140TR
	MAP -2506	-	9.5	14.9	20	-	-	5°	-	Clamp Screw : SB-40140TR
	LSD -445R	12.7	13.0	20.0	26.5	-	-	20°	45°	Dimension A shows Insert I.D.
	LSE -445R	12.7	13.0	19.5	26.0	-	-	20°	45°	
	LSO -445R	13.494	12.0	21.3	23.5	-	-	27°	45°	
	LSP -415R	12.7	13.0	18.0	26.0	-	-	15°	15°	
	LTE -490R	12.7	12.0	17.0	30.0	-	-	15°	-	Dimension A shows Insert I.D.

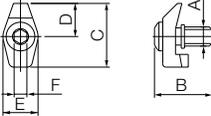
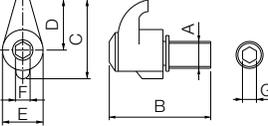
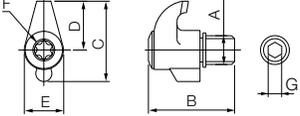
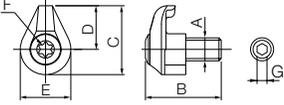
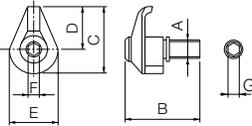
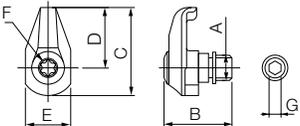
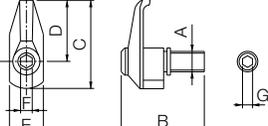
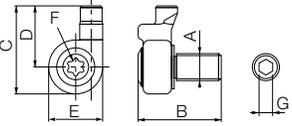
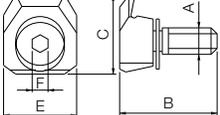
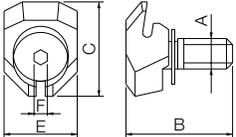
P
SPARE PARTS

Clamp Sets

Drawing	Part Number	Dimension (mm)							Notes
		A	B	C	D	E	F	G	
	BCS -1	64.0	13.0	-	-	-	-	-	-
	-5	48.0	16.5	-	-	-	-	-	
	BCS -2	74.0	15.0	-	-	-	-	-	-
	-3	88.0	16.0	-	-	-	-	-	
	BCS -4	98.0	16.0	-	-	-	-	-	-
	CE -010	M8X1.25	28.0	24.0	12.8	13.0	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-220			27.0	15.8	15.0			
	CE -020	M8X1.25	30.0	17.0	10.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	CE -030	M8X1.25	30.0	19.0	12.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-040			22.5	16.0				
	CE -320	M6X1.0	24.5	18.2	9.7	12.7	4.0	-	-
	CE -360S	M6X1.0	16.0	18.0	10.55	12.4	4.0	-	-
	CE -030A	M8X1.25	30.0	20.0	13.7	12.7	4.0	-	G : Indicates hexagon hole two side widths of back side of bolts
	CE -410	M8X1.25	30.0	26.0	19.5	12.7	4.0	4.0	G : Indicates hexagon hole two side widths of back side of bolts
	-430			29.0	22.5				
	CP -RC%	M6X1.0	20.0	24.5	14.8	11.0	5.0	-	R Shows Right-hand Thread L Shows Left-hand Thread

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Clamp Sets

Drawing	Part Number	Dimension (mm)							Notes
		A	B	C	D	E	F	G	
	CPS -1	M3X0.5	9.0	10.0	5.2	5.5	2.0	-	-
	CPS -2	M5X0.8	14.5	14.0	8.5	6.8	2.5	2.5	G : Indicates hexagon hole two side widths of back side of bolts
	-2P		18.0						
	-3	M6X1.0	19.0	16.5	10.0	8.8	3.0	3.0	
	CPS -2S	M5X0.8	13.5	14.0	8.5	6.8	T15	2.0	G : Indicates hexagon hole two side widths of back side of bolts
	-2TR		15.0						
	CPS -4V	M4X0.7	8.9	11.3	7.3	8.0	T10	-	G : Indicates hexagon hole two side widths of back side of bolts
	-5F	M5X0.8	11.3	12.7	7.5	10.3	T15	2.5	
	-5S		18.0	15.0	9.5	11.0		2.0	
	-5V		13.5	12.7	7.5	10.3	2.5		
	CPS -6F	M6X1.0	16.5	15.6	9.5	12.2	3.0	-	G : Indicates hexagon hole two side widths of back side of bolts
	-6M			17.5	11.0	13.0			
	-6S			18.5	18.0	12.0		12.0	
	-6V			15.6	9.5	12.2			
	-8V	M8X1.25	24.0	20.8	13.0	15.5	4.0	4.0	
	CPS -5E	M5X0.8	13.5	17.5	12.0	9.0	T15	2.5	G : Indicates hexagon hole two side widths of back side of bolts
	CPS -5%	M5X0.8	18.0	17.5	12.0	9.0	2.5	2.5	G : Indicates hexagon hole two side widths of back side of bolts R Shows Right-hand Thread L Shows Left-hand Thread
	LGBA-16% S	M5X0.8	15.0	16.1	11.2	9.85	T15	2.0	G : Indicates hexagon hole two side widths of back side of bolts R Shows Right-hand Thread L Shows Left-hand Thread
	-22% S			17.6	12.7				
	WCS -1N	M6X1.0	21.0	15.7	-	15.0	3.0	-	-
	WCS -8	M6X1.0	21.0	19.4	-	15.0	3.0	-	-

P
SPARE PARTS

Clamps

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	C 08R	7.6	8.7	8.9	3.6	M5X0.8 (L-hand Thread)	-	10°	-	Clamp Screw : W6X18N
	C 09N	6.0	9.0	9.8	5.3	M6X1.0 (L-hand Thread)	-	10°	-	Clamp Screw : W6X18N
	C 17R	12.2	20.0	14.3	8.5	M8X1.25 (L-hand Thread)	-	12°	-	Clamp Screw : W6X18N
	C 20R	15.1	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	CH -20R	13.1	15.5	14.8	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	C 25R	13.2	15.5	15.0	7.5	5.3	-	10°	-	Clamp Screw : TX8X15
	CE -111					3.0		-	-	Right-hand
	-121	35.0	25.0	10.0	8.0		10.0			Left-hand
	-131					4.5		-	-	Right-hand
	-141									Left-hand
	CGA -3%	24.0	17.66	12.0	6.2	1.9	11.0	-	-	R Shows Right-hand L Shows Left-hand
	-4%	24.0	17.66	12.0	6.2	2.9	11.0	-	-	
	-5%	27.5	18.66	12.0	6.2	3.9	14.5	-	-	
	CGB %	19.0	14.0	8.2	6.35	9.5	-	-	-	R Shows Right-hand L Shows Left-hand
	CGH -1%					3.0				R Shows Right-hand L Shows Left-hand
	-2%	25.0	22.0	8.0	6.05	5.0	5.5			
	-3%	30.0	23.0	8.5		6.0	7.0			
	CGIA -3R			10.5		1.8				-
	-4R	10.7	17.0	11.5	5.2	2.5	2.0			
	-5R	15.7		10.5		3.5	7.0			

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Clamps / Chipbreakers

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	CP -2D		10.0	21.6		10.4				
	-3D	-	12.0	27.6	-	14.0	-	-	-	-
	-5D		13.0	32.0						
	CP -2D%/-JCT	-	13.5	25.3	-	21.5	-	-	-	
	CP -3D-%/-JCT			26.4		17.9				
	-4D-%/-JCT	-	13.1	28.4	-	18.2	-	-	-	
	-5D-JCT			31.9		21.5				
	CP -8TE	17.9	12.0	12.0	M8X1.25 (L-hand Thread)	10.0	-	15°	-	-
	CP -8W	20.9	12.0	8.0	M8X1.25 (L-hand Thread)	13.0	-	3°	-	-
	CB -11	11.5	12.7	3.5	-	-	-	-	-	
	-51	16.0	15.6	3.5	-	-	-	-	-	
	CB -12	14.0	12.7	3.5	-	-	-	-	-	Right-hand
	-13	14.0	12.7	3.5	-	-	-	-	-	Left-hand
	CB -14	18.51	12.7	3.5	-	-	-	-	-	Right-hand
	-15	18.51	12.7	3.5	-	-	-	-	-	Left-hand
	CB -16	18.0	12.7	3.5	-	-	-	-	-	
	-17	21.0	15.6	3.5	-	-	-	-	-	
	CB -S3220	7.94	7.94	1.0	2.0	-	-	-	-	
	-S4220	11.12	11.12	2.0	2.0	-	-	-	-	
	CB -T2212	7.48	-	1.5	1.2	-	-	-	-	
	-T3220	10.87	-	2.0	2.0	-	-	-	-	

P
SPARE PARTS

Wrenches

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	DT -7	44	16	-	114	-	T7	-	-	Torx
	DT -8	70	26	-	150	-	T8	-	-	
	DT -10	70	29	-	160	-	T10	-	-	Torx
	DT -15	70	32	-	170	-	T15	-	-	
	DT -20	90	32	-	190	-	T20	-	-	
	DT -25	82	36	-	190	-	T25	-	-	
	DTM -6	40	17	-	115	-	T6	-	-	Torx Top of Wrench is Magnetized
	DTM -7	44	17	-	119	-	T7	-	-	
	DTM -8	70	24	-	150	-	T8	-	-	
	DTM -10	70	28	-	167	-	T10	-	-	
	DTM -15	70	31	-	174	-	T15	-	-	
	DTP -6	73	23	-	150	-	6IP	-	-	OOIP Shows Torx Plus
	DTP -7	73	23	-	150	-	7IP	-	-	
	DTP -9	61	30	-	174	-	9IP	-	-	
	DTP -15	81	33	-	186	-	15IP	-	-	
	DTP -20	100	33	-	206	-	20IP	-	-	
	DTPM -8	70	24	-	150	-	8IP	-	-	OOIP Shows Torx Plus Top of Wrench is Magnetized
	DTPM -10	70	28	-	165	-	10IP	-	-	
	DTPM -15	70	31	-	174	-	15IP	-	-	
	FH -2	40	20	-	71	2.0	-	-	-	Hexagon
	FH -2.5	45	20	-	76	2.5	-	-	-	
	FT -6	35	15	-	65	-	T6	-	-	Torx
	FT -7	34	15	-	62	-	T7	-	-	
	FT -8	40	20	-	74	-	T8	-	-	
	FT -10	40	20	-	74	-	T10	-	-	
	FT -15	45	25	10	80	-	T15	-	-	Torx
	FTP -5	-	-	-	-	-	5IP	-	-	OOIP Shows Torx Plus
	FTP -6	34	15	-	62	-	6IP	-	-	
	FTP -7	34	15	-	62	-	7IP	-	-	
	LTP -10	51	17	-	-	-	10IP	-	-	OOIP Shows Torx Plus
	LTP -15	54	18	-	-	-	15IP	-	-	
	LTW -8SS	43	6	-	-	-	T8	-	-	Torx
	LTW -10S	62	10	-	-	-	T10	-	-	
	LTW -10SS	47	7	-	-	-	T10	-	-	
	LTW -15S	62	10	-	-	-	T15	-	-	
	LTW -20	58	19	-	-	-	T20	-	-	
	LTW -25	65	20	-	-	-	T25	-	-	
	LW -1.5	45	14	-	-	1.5	-	-	-	Hexagon
	LW -2	50	16	-	-	2.0	-	-	-	
	LW -2.5	56	18	-	-	2.5	-	-	-	
	LW -3	63	20	-	-	3.0	-	-	-	
	LW -4	70	25	-	-	4.0	-	-	-	
	LW -4.5	78	26	-	-	4.5	-	-	-	
	LW -5	80	28	-	-	5.0	-	-	-	
	LW -6	90	32	-	-	6.0	-	-	-	
	LW -8	109	36	-	-	8.0	-	-	-	
	LW -10	112	40	-	-	10.0	-	-	-	
	LW -14	140	56	-	-	14.0	-	-	-	
	LW -17	160	63	-	-	17.0	-	-	-	
	LW -19	180	70	-	-	19.0	-	-	-	

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■ Wrenches / Springs / Nuts / Punches / Other

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	TH -4	-	80	-	83	4.0	-	-	-	Hexagon
	TT -15	-	70	-	118	-	T15	-	-	Torx
	-25	-	70	-	69	-	T25	-	-	
	-25L	-	80	-	145	-	T25	-	-	
	-30	-	80	-	110	-	T30	-	-	
	TTC -20	-	98	-	130	-	T20	-	-	OOIP Shows Torx Plus
	-25	-	98	-	130	-	T25	-	-	
TTP -20	-	70	-	138	-	20IP	-	-		
	TTW -15	-	80	-	125	-	T15	-	-	Torx
	LTK -5	70	30	-	-	-	-	-	-	
	SP -2D	8.5	5.6	-	-	-	-	-	-	Spring
	-3D	12.0	7.0	-	-	-	-	-	-	
	-5	12.0	6.7	-	-	-	-	-	-	
	-5D	12.0	7.2	-	-	-	-	-	-	
	-6	12.0	7.7	-	-	-	-	-	-	
	-8	11.0	9.7	-	-	-	-	-	-	
	W -6	11.5	1.6	6.4	-	-	-	-	-	Washer
	6-14	11.5	1.4	6.4	-	-	-	-	-	
	-8	15.5	1.6	8.4	-	-	-	-	-	
	WB -5	10.0	1.0	5.3	-	-	-	-	-	Washer (Brass)
-6	11.5	1.6	6.4	-	-	-	-	-		
-8	15.5	1.6	8.4	-	-	-	-	-		
	WSP -1	15.1	4.0	3.5	2.5	-	R1.25	-	-	Spacer

P
SPARE PARTS

■ Wrenches / Springs / Nuts / Punches / Other

Drawing	Part Number	Dimension (mm)						Angle (°)		Notes
		A	B	C	D	E	F	α	θ	
	DN 10	6.2	5.1	4.5	5.7	2.6	4.0	-	-	Nozzle
	20	10.1	7.7	7.0	9.6	M4X0.7	6.0	-	-	
	GP -1	PT1/8	7.0	-	-	5.0	-	-	-	Plug
	-2	PT1/4	9.0	-	-	6.0	-	-	-	
	WN -1	M5X8	10.0	7.0	-	3.0	-	-	-	Nut
	PC -1	60.0	8.5	-	-	-	-	-	-	Punch
	-2	62.2	10.0	-	-	-	-	-	-	
	CL 63-1	M18X1.0	36.5	12	-	6.0	-	-	-	Coolant Pipe
	100-1	M24X1.5	44.0	16.0	-	8.0	-	-	-	
	HH 12X35HC	M12X1.75	35.0	42.5	16.4	8.0	18.0	-	-	Coolant Bolt
	HF 16X44HC	M16X2.0	30.0	62.5	14.4	12.0	40.0	-	-	
	16X48HC	M16X2.0			18.4					
	CC -125-MFAH	87.5	11.4	53.0	-	-	-	-	-	Coolant Plug
	-160-MFAH	122.5	12.4	70.0	-	-	-	-	-	
	CC -200-MFAH	162.5	14.4	-	-	-	-	-	-	Coolant Plug
	-250-MFAH	212.5	-	-	-	-	-	-	-	
	-315-MFAH	277.5	-	-	-	-	-	-	-	

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■ Toolholders for Ceramic Tools

Part Number			Spare Parts			
			Lever	Lock Screw	Punch	Wrench
PTGN [®] /L	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5
PTFN [®] /L	1212F	-11	LL-03N	LS-03N	P-03	FH-2
	.....	-11	LL-03TN	LS-03SN	P-03S	FH-2.5

■ Toolholders for Ceramic Tools

Part Number			Spare Parts				
			Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CCLNR	2525M	-16	CB-17	CE-220	LW-4	SP-454	M4X10
CS-N [®] /L	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP143)	M3X8 *(M3X12)
CSKN [®] /L	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP143)	M3X8 *(M3X12)
CSYN [®] /L	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP143)	M3X8 *(M3X12)
CSSN [®] /L	.....	-12	CB-11	CE-020	LW-4	SP-141 *(SP143)	M3X8 *(M3X12)

* Shim & Shim Screw : When using SN□□415 insert, purchase spare parts in () separately.

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN [®] /L	.....	-12GX	CE-410	LW-4	SP-441	M3X8
CDHN [®] /L	.....	-12GX	CE-410	LW-4	SP-521	M3X8
		-15GX	CE-430		SP-541	
CDJN [®] /L	.....	-12GX	CE-410	LW-4	SP-521	M3X8
		-15GX	CE-430		SP-541	
CSRN [®] /L	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10
CSDNN	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10
CSSN [®] /L	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10
CS-N [®] /L	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10
CSKN [®] /L	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10
CSYN [®] /L	.....	-12GX	CE-410	LW-4	SP-141	M3X8
		-15GX			SP-162	M4X10

■ Toolholders for Solid CBN Tools

Part Number			Spare Parts			
			Clamp Set	Wrench	Shim	Shim Screw
CCLN [®] /L	.....	-09A	CE-030A	LW-4	SP-429	HH3X12
CSRN [®] /L	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
		-12A			SP-148 (SP-143)	BH3X12
CSKN [®] /L	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
		-12A			SP-148 (SP-143)	BH3X12
CSYN [®] /L	2525M	-09A	CE-030A	LW-4	SP-129	HH3X12
		-12A			SP-148 (SP-143)	BH3X12
CSDNN	.....	-09A	CE-040	LW-4	SP-129	HH3X12
		-12A			SP-148 (SP-143)	BH3X12
CTUN [®] /L	.....	-11A	CE-030A	LW-4	SP-219	HH3X12

P
SPARE PARTS

■ Toolholders for Bearing Machining

Part Number	Spare Parts						
	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	
PRGC% -12BE	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5	
PRGC% -16BF	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	
	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5	

■ Toolholders for Back Turning

Part Number	Spare Parts			
	Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABSR 0810K -40F 1010.. -40F 1212.. -40F 1616.. -40F	LPA-11	HSB4X8R	-	FH-2
	LPA-13			
	LPA-17			
	-			
SABSR -40F	-	-	SB-3080TR	FT-10
AABWR 0810K -40F 1010.. -40F 1212.. -40F 1616.. -40F	LPA-11	HSB4X8R	-	FH-2
	LPA-13			
	LPA-17			
	-			
SABWR -40F	-	-	SB-3080TR	FT-10
AABWR 0810K -50F 1010.. -50F 1212.. -50F 1616.. -50F	LPA-11	HSB4X8R	-	FH-2
	LPA-13			
	LPA-17			
	-			
SABWR -50F	-	-	SB-3080TR	FT-10

■ KTKF

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTKF% -12 -16	SB-4590TRWN	LTW-10S

■ External Toolholders (Back Clamp)

Part Number	Spare Parts		
	Anchor Pin	Lock Screw	Wrench
ACLC% 0810K -06F 1010K -06F 1010K -09F 1212M -09F 1616M -09F	LPF-11	HSB4X8%	FH-2
	LPF-13		
	LPF-17		
	LPF-11		
	LPF-13		
ADJC% 0810K -07F 1010K -07F 1010K -11F 1212M -11F 1616M -11F	LPF-11	HSB4X8%	FH-2
	LPF-13		
	LPF-17		
	LPF-11		
	LPF-13		
ADNCR 0810K -07F 1010K -07F 1010K -11F 1212M -11F 1616M -11F	LPF-11	HSB4X8R	FH-2
	LPF-13		
	LPF-17		
	LPF-11		
	LPF-13		
AVJB% 1010K -11F 1212M -11F 1616M -11F	LPF-11	HSB4X8%	FH-2
	LPF-1113		
	LPF-1117		
AVVBR 1010K -11F 1212M -11F 1616M -11F	LPF-11	HSB4X8R	FH-2
	LPF-1113		
	LPF-1117		

* Lock Screw: HSB4X8R for R-hand Toolholder, HSB4X8L for L-hand Toolholder.

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External Toolholders (Screw Clamp)

Part Number	Spare Parts		
	Clamp Screw	Wrench	
SCLC%	..... -06	SB-2570TR	FT-8
	..... -09	SB-4085TR	FT-15
	..... -12	SB-5090TR	LTW-20
SCAC%	..... -06	SB-2570TR	FT-8
	..... -09	SB-4085TR	FT-15
	1212F -09FF		
SDJC%	..... -07F	SB-2570TR	FT-8
	..... -11F	SB-4085TR	FT-15
SDLC%	..... -07FF	SB-2570TR	FT-8
	..... -11FF	SB-4085TR	FT-15
SDXC%	..... -07	SB-2570TR	FT-8
	..... -11	SB-4085TR	FT-15
SDNC%	..... -07F	SB-2570TR	FT-8
	..... -11F	SB-4085TR	FT-15
SDNCN	..... -07	SB-2570TR	FT-8
	..... -11	SB-4085TR	FT-15
SDLP%	..... -07F	SB-2570TR	FT-8
	..... -11F	SB-4085TR	FT-15
STGC%	..... -8	SB-2050TR	FT-6
STGP%	..... -08	SB-2050TR	FT-6
	..... -11	SB-3080TR	FT-10
	..... -11F	SB-2570TR	FT-8
SVJB%	..... -11F	SB-2570TR	FT-8
SVLP%	..... -08FF	SB-2050TR	FT-6
	..... -11FF	SB-2570TR	FT-8
	..... -11F		
SVPP%	..... -08FF	SB-2050TR	FT-6
	..... -11FF	SB-2570TR	FT-8
	..... -11		
SYXP%	..... -06F	SB-2050TR	FT-6

External Toolholders (Screw Clamp)

Part Number	Spare Parts				
	Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB%	..... -11	SB-2570TR	FT-8	-	-
	..... -16N	SB-40125TRN	FT-15	SVN-32N	SS-4N
SVVBN	..... -11	SB-2570TR	FT-8	-	-
	..... -16N	SB-40125TRN	FT-15	SVN-32N	SS-4N

External Toolholders (Top Clamp)

Part Number	Spare Parts				
	Clamp Set	Wrench	Shim	Shim Screw	Chippbreaker
CSBP%	..... -09N	CPS-2P	LW-2.5	-	CB-S3220
CSKP%	..... -09N	CPS-2P	LW-2.5	-	CB-S3220
	..... -12N	CPS-3	LW-3	KPS-42	SP3X8
CSSP%	..... -09N	CPS-2P	LW-2.5	-	CB-S3220
	..... -12N	CPS-3	LW-3	KPS-42	SP3X8
CSDPN	..... -12N	CPS-3	LW-3	KPS-42	SP3X8
CTGP%	..... -11N	CPS-2P	LW-2.5	-	CB-T2212
	..... -16N	CPS-3	LW-3	KPT-32	SP3X8
CTFP%	..... -11N	CPS-2P	LW-2.5	-	CB-T2212
	..... -16N	CPS-3	LW-3	KPT-32	SP3X8
CTTP%	..... -11N	CPS-2P	LW-2.5	-	CB-T2212
	..... -16N	CPS-3	LW-3	KPT-32	SP3X8

P
SPARE PARTS

PREVIOUS SPARE PART LIST

EZ Bar PLUS

Part Number	Spare Parts	
	Clamp Screw	Wrench
S045X-SCLCR03-050EZ	SB-1635TR	FT-6
S060X-SCLCR04-070EZ	SB-2035TR	
C045X-SCLCR03-050EZ	SB-1635TR	FT-6
C060X-SCLCR04-070EZ	SB-2035TR	

Twin Bars

Part Number	Spare Parts	
	Clamp Screw	Wrench
STW% -15	SB-3080TR	LTW-10S
STWSR -15T	SB-3080TR	LTW-10S

Swiss IQ Bars

Part Number	Spare Parts			
	Clamp Screw	Wrench	Screw (Side Stopper)	Wrench
SVNR 1010H -12 1212K -12 1616K -12 2020K -12 2525M -12	SB-3080TR	FT-10	HS3X4	LW-1.5
			HS3X8	
			HS3X12	
			HS3X16	
			SVNSR -12-..		SB-3080TR	LTW-10S	HS3X4	LW-1.5
S12F- SVNR 12	SB-3080TR	FT-10	HS3X4	LW-1.5
S14G- SVNR 12				
S16H- SVNR 12				
S19H- SVNR 12				
S19N- SVNR 12				
S20H- SVNR 12				
S25H- SVNR 12				
S25Q- SVNR 12				
S... SVNR 12S	SB-3080TR	FT-10	HS3X4	LW-1.5

Swiss IQ Bars (S...SVN-XN)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Set Screw
S...- SVNR 12XN	SB-3080TR	FT-10	SP3X4

PSH Sleeve

Part Number	Spare Parts	
	Clamp Screw	Wrench
PSH 02.. -.. 03.. -..	HS3x4P	LW-1.5
PSH 04.. -..		
05.. -..		
06.. -..		
07.. -..		

INSERT GRADES	A
TURNING INSERTS	B
CEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PREVIOUS SPARE PART LIST

Boring Bars (Screw Clamp)

Part Number	Spare Parts	
	Clamp Screw	Wrench
S10H- SCLC%03-..E	SB-1635TR	FT-6
S10J- SCLC%04-..E	SB-2035TR	
S08X- SCLC%06-10E	SB-2545TR	FT-8
S08X- SCLC%06-10	SB-2545TR	FT-8
C...- SCLC%03-..	SB-1635TR	FT-6
C...- SCLC%04-..	SB-2035TR	
C08L- SCLC%06-10	SB-2545TR	FT-8
A08H- SCLC%06-10E	SB-2545TR	FT-8
E...- SCLC%06-..	SB-2545TR	FT-8
S..M- SCLP%08-..E	SB-3STR	FT-10
S...- SCLP%09-..E	SB-4TR	FT-15
S..M- SCLP%08-..	SB-3STR	FT-10
S...- SCLP%09-..	SB-4TR	FT-15
C10N- SCLP%08-..	SB-3STR	FT-10
C...- SCLP%09-..	SB-4TR	FT-15
A..X- SCLP%08-..E	SB-3STR	FT-10
A...- SCLP%09-..E	SB-4TR	FT-15
E10N- SCLP%08-12	SB-3STR	FT-10
E10N- SCLP%08-12A-..	SB-3060TR	
E...- SCLP%09-..	SB-4TR	FT-15
S...- SDUC%07-..E	SB-2560TR	FT-8
S...- SDUC%11-..E	SB-4085TR	FT-15
S...- SDUC%07-..	SB-2560TR	FT-8
S...- SDUC%11-..	SB-4085TR	FT-15
C...- SDUC%07-..	SB-2560TR	FT-8
C...- SDUC%11-..	SB-4085TR	FT-15
S...- SDZC%07-..E	SB-2560TR	FT-8
S...- SDZC%11-..E	SB-4085TR	FT-15
S...- SDZC%07-..	SB-2560TR	FT-8
S...- SDZC%11-..	SB-4085TR	FT-15
C06J- STLBP%06-08A	SB-2035TR	FT-6
E08L- STLP%08-10A	SB-1TR	
E08L- STLP%09-10A	SB-2545TR	FT-8
E10N- STLP%09-..		
E10N- STLP%11-..	SB-3060TR	FT-10
S06H- STUB%06-08E	SB-1STR	FT-6
S08K- STUP%08-10E	SB-1TR	
S..M- STUP%09-..E	SB-2TR	FT-8
S...- STUP%11-..E	SB-3TR	FT-10
S..X- STUP%16-..E	SB-4TR	FT-15
S06H- STUB%06-08	SB-1STR	FT-6
S08K- STUP%08-10	SB-1TR	
S..M- STUP%09-..	SB-2TR	FT-8
S...- STUP%11-..	SB-3TR	FT-10
S25X- STUP%16-32	SB-4TR	FT-15
C10L- STUB%06-08	SB-1STR	FT-6
C08L- STUP%08-10	SB-1TR	
C...- STUP%09-..	SB-2TR	FT-8
C...- STUP%11-..	SB-3TR	FT-10
C20S- STUP%16-..	SB-4TR	FT-15
A08H- STUP%08-10E	SB-1TR	FT-6
A..X- STUP%09-..E	SB-2TR	FT-8
A...- STUP%11-..E	SB-3TR	FT-10
A...- STUP%16-..E	SB-4TR	FT-15
E08L- STUP%08-10	SB-1TR	FT-6
E...- STUP%09-..	SB-2TR	FT-8
E...- STUP%11-..	SB-3TR	FT-10
E20S- STUP%16-25	SB-4TR	FT-15

P
SPARE PARTS

PREVIOUS SPARE PART LIST

■ Boring Bars (Screw Clamp)

Part Number	Spare Parts	
	Clamp Screw	Wrench
S...- SWUB%08-..E	SB-2050TR	FT-6
S12M- SWUP%11-14E	SB-2545TR	FT-8
S...- SWUP%11-..E	SB-2560TR	
S...- SWUP%16-..E	SB-4065TR	FT-15
S...- SWUB%06-..	SB-2040TR	FT-6
S10J- SWUB%08-..	SB-2035TR	
C...- SWUB%06-..	SB-2035TR	FT-6
C07K- SWUB%08-..		
C08L- SWUB%08-..	SB-2050TR	FT-6
C10N- SWUB%08-..		
C12Q- SWUP%11-14(-./.)	SB-2545TR	FT-8
C12Q- SWUP%11-16(-./.)	SB-2560TR	
C16X- SWUP%11-18(-./.)		
C...- SWUP%16-..	SB-4065TR	FT-15
E...- SWUB%08-..	SB-2050TR	FT-6
S16Q- SSKPR09-20	SB-4TR	FT-15
S20R- SSKPR09-25		
S25X- SSKPR12-32	GS-50S	LW-3
S32S- SSKPR12-40	GS-50	
S12M- SYXP%06-12E	SB-2040TR	FT-6
S16Q- SYXP%06-16E	SB-2045TR	

■ Boring Bars (Screw Clamp)

Part Number	Spare Parts				
	Clamp Screw	Wrench	Shim	Shim Screw	Wrench (for Shim Screw)
S12M- SVJP%08-16E	SB-2050TR	FT-6	-	-	-
S...- SVJC%08-..E		FT-8			
S...- SVJB%11-..E	SB-2570TR	FT-8	SVN-32N	SS-4N	LW-4
S...- SVJB%16-..EN	SB-40125TRN	FT-15			
S32S- SVJB%16-40E	SB-40115TR	FT-15	SVN-32	SB-2050TR	FT-6
S40T- SVJB%16-50E					
S10M- SVPC%08-16E	SB-2050TR	FT-6	-	-	-
S...- SVPB%11-..E	SB-2570TR	FT-8			
S...- SVPB%16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X- SVPB%16-34E	SB-40115TR	FT-15			
S32S- SVPB%16-40E					
S12M- SVUC%08-16E	SB-2050TR	FT-6	-	-	-
S...- SVUB%11-..E	SB-2570TR	FT-8			
S...- SVUB%16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X- SVUB%16-34E	SB-40115TR	FT-15			
S32S- SVUB%16-40E					
S12M- SVZC%08-16E	SB-2050TR	FT-6	-	-	-
S...- SVZB%11-..E	SB-2570TR	FT-8			
S...- SVZB%16-..EN	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4
S25X- SVZB%16-34E	SB-40115TR	FT-15			
S32S- SVZB%16-40E					

■ Boring Bars (Top Clamp)

Part Number	Spare Parts				
	Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
S12L- CTUP%09-16	-	CPS-1	FH-2	-	-
S...- CTUP%11-..	-	CPS-2	FH-2.5	-	-
S25X- CTUP%16-34	-	CPS-3	LW-3	KPT-32	SP3X10
S32S- CTUP%16-43					
S40X- CTUP%16-50					
S32S- CTUC%16-40	*CB-13/12	CE-320	LW-4	SP-230P	SP3X10
S...- CCLN%09-..A	-	CE-360S	LW-4	SP-420A	BH3X6
S...- CSKN%09-..A	-	CE-360S	LW-4	SP-130A	BH3X12
S32S- CSKPR12-43	CPS-3	-	LW-3	KPS-42	SP3X10

* CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Boring Bars for Ceramic Inserts (Dimple Clamp)

Part Number	Spare Parts				
	Chipbreaker	Clamp Set	Wrench	Shim	Clamp Screw
S32S- CCLN% -12-40GX	-	CE-410	LW-4	-	-
S40T- CCLN% -12-50GX				SP-441P	M3X8
S32S- CDUN% -12-40GX	-	CE-410	LW-4	-	-
S40T- CDUN% -12-50GX				SP-521P	M3X8
S32S- CSKN% -12-40GX	-	CE-410	LW-4	-	-
S40T- CSKN% -12-50GX				SP-141P	M3X8
S40T- CSKN% -12-50	*1 CB-13/12	CE-320	LW-4	SP-141P *2 (SP-143P)	M3X8 *2 (M3X12)

*1 Right-hand holders take CB-13 and Left-hand holders take CB-12
 *2 When using SN□□43.. inserts, please purchase parts in () separately

Bearing Machining (Boring)

Part Number	Spare Parts	
	Clamp Screw	Wrench
CBSN% 2020B-12 -A20	-	CE-410
2525B-16 -A32		

Bearing Machining (Internal Corner Filleting)

Part Number	Spare Parts	
	Clamp Screw	Wrench
CBSN% ...B-12 -A20	CP-RC%	LW-5

· Clamp Set: CP-RCR for Right-hand Toolholder, and CP-RCL for Left-hand Toolholder.

KTGF-F

Part Number	Spare Parts		
	Clamp Screw	Wrench	
PH 02 ...	HS3X4	LW-1.5	
			03 ...
			04 ...
05 ...	HS4X4	LW-2	
06 ...			
07 ...			

KTGF-F

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTGF% -16F	SB-4070TRW	FT-8

KTG

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTG% -16	SB-4TR	FT-15
 22-..	GS-50	LW-3

KN91

Part Number	Spare Parts					
	Clamp	Clamp Bolt	Washer	Spring	Wrench	
KN91% 44 -4	*CE-111/121	BH8X30	W-8	SP-8	LW-5	
						44 -5
						44 -7
	*CE-131/141					

* KN91%44-4 / 5 ... CE-111 for Right-hand Toolholder, and CE-121 for Left-hand Toolholder.
 KN91%44-7 ... CE-131 for Right-hand Toolholder, and CE-141 for Left-hand Toolholder.

KGHS

Part Number	Spare Parts					
	Clamp	Clamp Bolt	Washer	Spring	Wrench	
KGHS& -4	CGH-1	HH6X25	W-6	SP-6	LW-5	
					 -5
					 -7
	CGH-2					

* CGH-OR for left-hand holder and CGH-OL for right-hand holder

KGA

Part Number	Spare Parts			
	Clamp	Clamp Bolt	Spring	Wrench
KGA% -3	CGA-3&	HH6X20	SP-6	LW-5
	..... -4			
	..... -5			
	CGA-5&			

* CGA-OR for right-hand holder and CGA-OL for left-hand holder

P SPARE PARTS

PREVIOUS SPARE PART LIST

■ KGD[®]/L...-S

Part Number	Spare Parts		
	Clamp Bolt	Mounting Bolt (for Blade)	Wrench
KGD [®] ...-S	BH6X10TR	SB-60120TR	LTW-25

■ KGM (Small Parts Machining)

Part Number	Spare Parts			
	Clamp Screw	Wrench		
KGM [®] 1212H -3 1616H -3 2020K -3 2525M -3	SB-5TR	LTW-20		
	HH5X16	LW-4		
		HH5X25		
		HH5X16	LW-4	
KGM [®] 2020K -4 2525M -4	HH5X16	LW-4		
	HH5X25			
KGM [®] 2020K -5 2525M -5 3232P -5	HH5X16	LW-4		
	HH5X25			
	HH6X25	LW-5		
KGM [®] 2525M -8 3232P -8	HH6X25	LW-5		

■ KGM (Small Parts Machining)

Part Number	Spare Parts				
	Clamp Screw	Wrench			
KGM [®] 0810K - ... 1010.. - ... 1212.. - 1.5-... 1212.. - 2-... 1212.. - 2.5-...	SE-40120TR	LTW-15S			
		SE-50125TR	LTW-20		
			1616.. - 2-... 1616.. - 2.5-... 1616.. - 3-...		

■ KGMM / KGMS

Part Number	Spare Parts			
	Clamp Screw	Wrench		
KGMM [®] 1212H-3 1616H-3 2020K-3 2525M-3	SB-5TR	LTW-20		
	HH5X16	LW-4		
		HH5X25		
		HH5X16	LW-4	
KGMS [®] 1212H-3 1616H-3 2020K-3 2525M-3	SB-5TR	LTW-20		
	GS-50	LW-3		
	HH5X16	LW-4		
2525M-3	HH5X25			

■ KGDF[®]/L...-S

Part Number	Spare Parts		
	Clamp Bolt	Mounting Bolt (for Blade)	Wrench
KGDF [®] ...-S	BH6X10TR	SB-60120TR	LTW-25

■ KGM-T

Part Number	Spare Parts		
	Clamp Screw	Wrench	
KGM [®] 2012K-2T17 2020K-2T17 2525M-2T17	SB-5TR	LTW-20	
	HH5X16	LW-4	
	HH5X25		
KGM [®] 1616H-3T20 2012K-3T20 2020K-3T20 2525M-3T20	HH5X16	LW-4	
	SB-5TR	LTW-20	
	HH5X16	LW-4	
	HH5X25		
KGM [®] 2020K-4T20 2525M-4T20 2525M-4T25	HH5X16	LW-4	
	HH5X25		
	HH5X25	LW-4	
KGM [®] 2525M-5T25 3232P-5T25	HH5X25	LW-4	
	HH5X25	LW-4	
KGM [®] 2525M-6T30	HH5X25	LW-4	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PREVIOUS SPARE PART LIST

KGMU

Part Number	Spare Parts	
	Clamp Screw	Wrench
KGMU% 2020K	HH5X16	LW-4
	HH5X25	

KIGH

Part Number	Spare Parts				
	Clamp	Clamp Bolt	Washer	Spring	Wrench
KIGHR ....-4	CGH-1L	HH6X25	W-6	SP-6	LW-5
	CGH-2L				

KIGM-V

Part Number	Spare Parts		
	Clamp Screw	Wrench	
KIGM% 2016B-3V	GS-50	LW-3	
			2520B-3V
	3225B-3V	SB-5TR	LTW-20
	3225B-4V	SB-5TR	LTW-20
	4032B-4V		

GFVS-AA / GFVT-AA

Part Number	Spare Parts	
	Clamp Set	Wrench
GFVS% -08AA	CPS-5V	FT-15
GFVT% -08AA	CPS-5V	FT-15

GIFV

Part Number	Spare Parts	
	Clamp Set	Wrench
GIFV% 5032B-502B	CPS-6V	LW-3

KTKH-S

Part Number	Spare Parts
	Releasing Wrench
KTKH% - ...S	LTK-5

KTKH-B

Part Number	Spare Parts		
	Clamp Screw	Wrench	
KTKH% 0808K - ...B	SE-40120TR	FT-15	
			1010K - ...B
			1212M - ...B
			1414M - ...B
	1616M - ...B	SE-50125TR	LTW-20

KTTX

Part Number	Spare Parts	
	Clamp Screw	Wrench
KTTXR -16F	SB-4070TRW	FT-8

PREVIOUS SPARE PART LIST

MFPN45

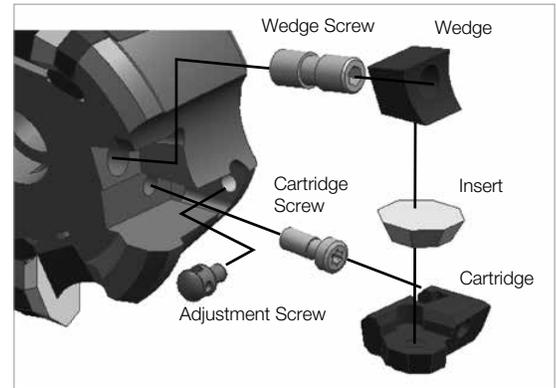
Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-Seize Compound
MFPN 45100R-10T-M ~ 45200R-20T-M	SB-40140TRN	DTM-15	P-37

MOF45

Part Number	Spare Parts		
	① Clamp Screw	② Wrench	Arbor Bolt
MOF 45080R-05-6T 45100R-05-.T ~ 45200R-05-..T	SB-4082TPR	DTP-15	HH12X35
MOF 45080R-07-5T 45100R-07-.T ~ 45200R-07-..T	SB-50120TRS	DTP-15	HH12X35
MOF 45040R-05-3T-M 45050R-05-4T-M 45063R-05-5T-M	SB-4082TPR	DTP-15	HH8X25 HH10X30 HH12X35
MOF 45080R-05-6T-M 45100R-05-.T-M ~ 45200R-05-..T-M	SB-4082TPR	DTP-15	-
MOF 45063R-07-4T-M 45080R-07-5T-M 45100R-07-.T-M ~ 45200R-07-..T-M	SB-50120TRS	DTP-15	HH10X30S HH12X35 -

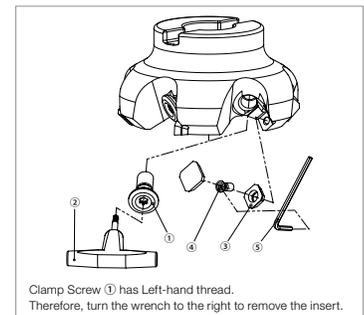
MOFX45

Part Number	Cartridge	Cartridge Screw	Wedge	Wedge Screw
MOFX45...	LOF07R	SH-50150TR	WOF07R	W8X21
Part Number	Adjustment Screw	Wrench (for Wedge)	Wrench (for Cartridge)	
MOFX45...	AJ-412	TH-4	TTC-20	



MSE45 (Face Mills)

Part Number	① Clamp Screw	② Wrench	③ Shim	④ Clamp Screw	⑤ Wrench
MSE 45040R-.T-M 45050R-.T-M	CP8X15TL (Left-hand Thread)	TTC-25	MSE-4245S	SP4X9	LW-2 (Shim Screw)
MSE 45080R-.T ~ 45200R-..T	CP8X23TL (Left-hand Thread)				
MSE 45063R-.T-M ~ 45200R-..T-M					



* Mounting bolt (SP8X35) is included for MSE45040R-.OT-M.
 * Mounting bolt (HH10X30S) is included for MSE45050R-.OT-M and MSE45063R-.OT-M.
 * Mounting bolt (HH12X35) is included for MSE45080R-.OT-M and MSE45080R-.OT.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PREVIOUS SPARE PART LIST

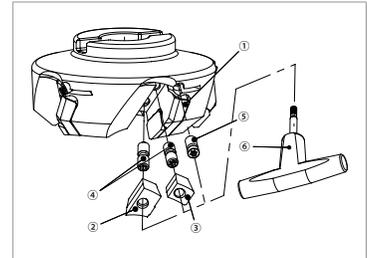
MSE45 (End Mills)

Part Number	Spare Parts			
	Clamp Set	Wrench	Shim	Shim Screw
MSE 4550 4563 4580-32	 CPS-6M	 LW-3	 MSE-4245	 SP3X8

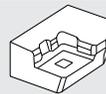
MSE45-SF (Face Mills)

Part Number	Spare Parts					
	① Cartridge	② Clamp	③ Clamp	④ Clamp Screw	⑤ Adjustment Screw	⑥ Wrench
MSE 45080R-5T-SF MSE 45125R-7T-M-SF	 LSE-445SR	 C43R (for Insert)	 C44R (for Cartridge)	 W6X17	 SV-60136TR	 TTC-20

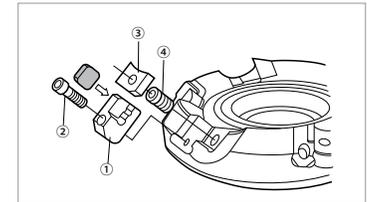
· Arbor Bolt (HH10X30S) is included for MSE45063R-4T-M-SF.
· Arbor Bolt (HH12X35) is included for MSE45080R-5T-M-SF.



MSD45 (Face Mills)

Part Number	Spare Parts				
	① Cartridge	② Clamp Bolt	③ Clamp	④ Clamp Screw	Wrench
MSD 45...R	 LSD-445R	 HH4X16	 C20R	 TH8X15	 TH-4

· Mounting bolt (HH12X35) is included for MSD4580R.

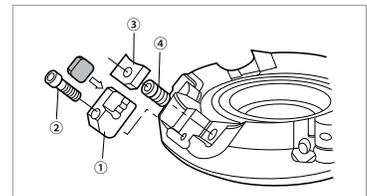


MSD45 (End Mills)

Part Number	Spare Parts			
	Clamp Set	Wrench	Shim	Shim Screw
MSD 4550 4563 4580-32	 CPS-445R	 LW-3	 MSD-42	 SP3X8

MSO45 (Face Mills)

Part Number	Spare Parts				
	① Cartridge	② Cartridge Clamp Screw	③ Clamp	④ Clamp Screw	Wrench
MSO 45...R	 LSO-445R	 HH4X16	 CH-20R	 TH8X15	 TH-4



MSO45-S (Face Mills)

Part Number	Spare Parts				
	Shim	Shim Screw	Clamp	Clamp Screw	Wrench
MSO 45...-S	MSO-4T245	SP3X6	CH-20R	TH8X15	TH-4

MSO45-09 (Face Mills)

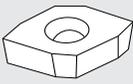
Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 45...R-09	SB-3060TR	DT-10

MSO45-S-09 (End Mills)

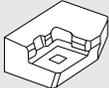
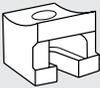
Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 45...-S32-09	SB-3060TR	DT-10

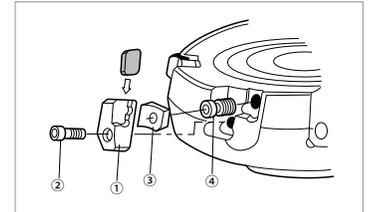
PREVIOUS SPARE PART LIST

MSP15 / MSE15 (End Mills)

Part Number	Clamp Set	Wrench	Shim	Shim Screw
				
MSP 15..	CPS-6M	LW-3	MSP-42	SP3X8
MSE 15..	CPS-6M	LW-3	MSE-4215	SP3X8

MSP15 (Face Mills)

Part Number	① Cartridge	② Clamp Bolt	③ Clamp	④ Clamp Screw	Wrench
					
MSP 15...R	LSP-415R	HH4X16	C25R	TH8X15	TH-4



* Mounting bolt (HH12X35) is included with MSP1580R

MEC (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEC ...R-11...T(-M)	SB-2555TRG	DTM-8
...R-11T...T		
...R-17...T(-M)	SB-4070TRN	DTM-15

MEC (End Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEC ..-W...-1103 (-H)	SB-2555TRG	DTM-8
..-W...-11T3 (-H)		
..-W...-1704-H	SB-4070TRN	DTM-15

MECX (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MECX 050R-07-12T-M	SB-2042TRG	DTM-6
063R-07-14T-M		

MECX (End Mills)

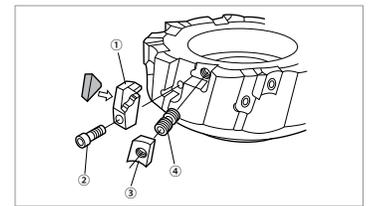
Part Number	Spare Parts	
	Clamp Screw	Wrench
MECX 33-S32-07-6T	SB-2042TRG	DTM-6
33-S32-200-07-3T		

MTE90-SF

Part Number	Cartridge	Clamp	Clamp	Clamp Screw	Adjustment Screw	Wrench	Wrench
							
MTE 90...-SF	LTE-490SR	C91R (for Insert)	C92R (for Cartridge)	W8X16	SV-60136R	TTC-25	LW-4 (For Adjustment Screw)

MTE90 (Face Mills)

Part Number	① Cartridge	② Clamp Bolt	③ Clamp	④ Clamp Screw	Wrench
					
MTE 90...R	LTE-490R	HH4X16	C17R	W8X18	TH-4



MTE90 (End Mills)

Part Number	Clamp	Clamp Screw	Wrench	Shim	Shim Clamp Screw
					
MTE 9050	CP-8TE	W8X18	LW-4	MTE-42	SP3X8
9063					
9080-32					

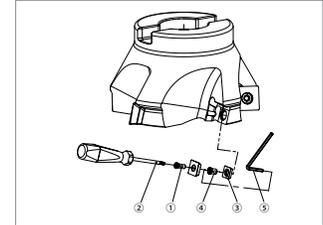
PREVIOUS SPARE PART LIST

MFWN (Face Mills)

Part Number	Spare Parts		
	Clamp Screw	Wrench	Anti-Seize Compound
MFWN 90100R-9T-M ~ 90250R-18T-M	SB-40140TRN	DTM-15	P-37

MSO90 (Face Mills)

Part Number	① Clamp Screw	② Wrench	③ Shim	④ Shim Clamp Screw	⑤ Wrench
					
MSO 90...R-15-T	SB-45130TR	DTP-20	MSO-5200	SPW-6045	LW-4.5 (for Shim Clamp Screw)
MSO 90...R-15-T-M					



- Mounting bolts (HH12X35M) are included for MSO90080R-15-OT-M and MSO90080R-15-OT
- Mounting bolts (HH10X30S) are included for MSO90063R-15-OT-M

MSO90-S (End Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 90...-S32-09	SB-3080TR	DT-10
90...-S32-15	SB-5085TR	DT-20

MSO90-09 (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MSO 90...R-09	SB-3060TR	DT-10

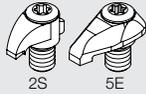
MEA / MEB

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEA .. -S..(-...)	SB-2560TR	DT-8
MEB .. -S..	SB-4085TR	DT-15

DMC

Part Number	Spare Parts	
	Clamp Screw	Wrench
DMC ...-S..	SB-2545TR	FT-8
0..	SB-3060TR	FT-10

MTPS / MTES

Part Number	Clamp	Wrench
		
MTPS ...	CPS-2S	FT-15
MTES ...	CPS-5E	

MEAL

Part Number	Spare Parts	
	Clamp Screw	Wrench
MEAL ..-S..	SB-5085TR	DT-20

MRP-S (End Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MRP ...-S.. -08(-...)	SB-3060TR	DT-10
...-S.. -10(-T(-...))	SB-3080TR	DT-10
...-S.. -12(-T(-...))	SB-4085TR	DT-15
050-S42 -12(-300)	SB-40115TR	
...-S.. -16(-...)	SB-50120TR	DT-20

MRP (Face Mills)

Part Number	Spare Parts	
	Clamp Screw	Wrench
MRP ...R -10-T	SB-3080TR	DT-10
MRP 050R -12	SB-40115TR	DT-15
063R -12		
080R -12		
080R -12-7T		
MRP ...R -16(-T)	SB-50120TR	DT-20
MRP ...R -20	SB-60120TR	DT-25

P
SPARE PARTS

PREVIOUS SPARE PART LIST

MHD (Helical End Mills)

Part Number	Spare Parts					
	Clamp Screw	Wrench	Arbor Bolt		Wrench	
			1 Front Piece	2 Front Piece		
MHD 32-S32 -SA	SB-2560TR	DT-8	-	HH8X50	LW-6	
40-S32 -SA	SB-3080TR	DT-10		HH8X65		
40-S42 -SA				HH12X65		LW-10
50-S42 -SA						
MHD 40-S42 -SB	SB-3080TR	DT-10	HH8X40	-	LW-6	
50-S42 -SB			HH12X40		LW-10	
MHD 20S-S20 -C	SB-2560TR	DT-8	-	-	-	
25-S25 -C						
32-S32 -C						
40-S42 -C						
50-S42 -C	SB-3080TR	DT-10				
MHD 32-S32 -A	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
40-S32 -A	SB-3080TR	DT-10	HH8X40	HH8X65		
40-S42 -A			HH12X40	HH12X65		LW-10
50-S42 -A						
MHD 32-S32 -A-130	SB-2560TR	DT-8	HH8X35	HH8X50	LW-6	
40-S32 -A-150	SB-3080TR	DT-10	HH8X40	HH8X65	LW-10	
50-S42 -A-150			HH12X40	HH12X65		
MHD 40-S42 -B	SB-3080TR	DT-10	HH8X40	-	LW-6	
50-S42 -B			HH12X40		LW-10	
MHD 32 -F	SB-2560TR	DT-8	-	-	-	
40 -F	SB-3080TR	DT-10				
50 -F						

MHD (Face Mills and Integral Arbor Type)

Part Number	Spare Parts					
	Clamp Screw	Wrench	Arbor Bolt	Wrench		
MHD 63-FMA -SA	SB-3080TR	DT-10	HH16X90	LW-14		
80-FMA -SA			HH20X110	LW-17		
100-FMA -SA			HH24X110	LW-19		
MHD 63-FMA -A			HH16X90	LW-14		
80-FMA -A			HH20X110	LW-17		
100-FMA -A			HH24X110	LW-19		
MHD 63-BT50 -SA			HH16X90	LW-14		
80-BT50 -SA			HH20X110	LW-17		
100-BT50 -SA			HH24X110	LW-19		
MHD 63-BT50 -A			HH16X65	LW-14		
80-BT50 -A			HH20X90	LW-17		
100-BT50 -A			HH24X90	LW-19		
MHD 63 -F					-	-
80 -F						
100 -F						

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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PREVIOUS SPARE PART LIST

MHD (Radius Type)

Part Number	Spare Parts							
	Clamp Screw		Wrench		Arbor Bolt		Wrench	
	For End Blade	For Middle Blade	For End Blade	For Middle Blade	1 Front Piece	2 Front Piece		
MHD 32-S32 -4RSA 40-S32 -5RSA 40-S42 -5RSA 50-S42 -6RSA	SB-2560TR	SB-2560TR	DT-8	DT-8	-	HH8X50	LW-6	
	SB-3080TR	SB-3080TR	DT-10	DT-10		HH8X55		
			DT-15			HH12X55		LW-10
	SB-4085TR							HH12X55	LW-10
MHD 32-S32 -A 40-S32 -A 40-S42 -A 50-S42 -A	SB-2560TR		DT-8		-	HH8X50	LW-6	
	SB-3080TR		DT-10			HH8X65		
						HH12X65	LW-10	
MHD 32 -F 40 -F 50 -F	SB-2560TR		DT-8		-			
	SB-3080TR		DT-10					
MHD 32 -4RF 40 -5RF 50 -6RF	SB-2560TR	SB-2560TR	DT-8	DT-8	-			
	SB-3080TR	SB-3080TR	DT-10	DT-10				
	SB-4085TR		DT-15					

MGI

Part Number	Spare Parts	
	Clamp Set	Wrench
MGI ...-1C	CPS-6F	LW-3

MVG

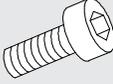
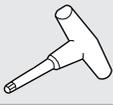
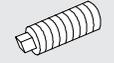
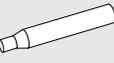
Part Number	Spare Parts	
	Clamp Set	Wrench
MVG ...	CPS-6V	LW-3

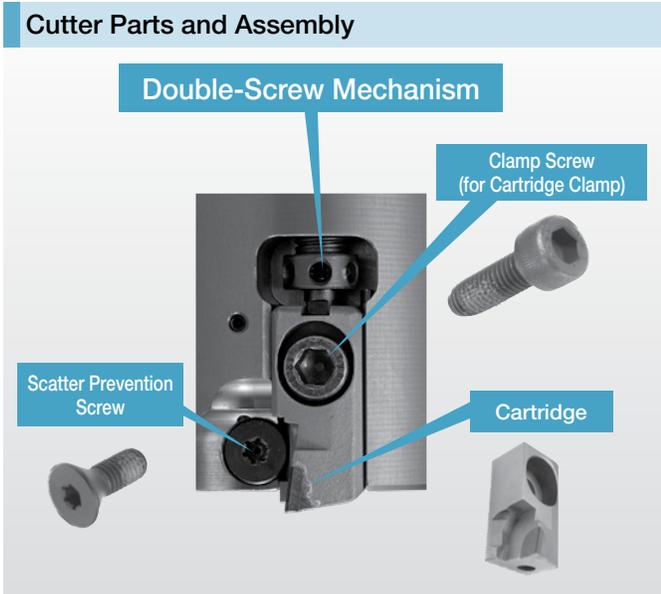
Blank Tool

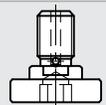
Part Number	Spare Parts
	Coolant Pipe
T63H- BL...-...	CL63-1

PREVIOUS SPARE PART LIST

HS-MFAL

Part Number	① Scatter Prevention Screw	② Clamp Screw	③ Wrench	④ Wrench	⑤ Adjustment Screw A	⑥ Adjustment Screw B	⑦ Wrench	⑧ Adjustment Wrench	⑨ Balance Screw
									
HS-MFAL 063R-...		HH6X16A							
080R-...	SB-50137K	HH6X18A	TTC-20	LW-5	AJ-816	AJ-519	LW-2.5	AW-3L	HS6X8T
250R-...	for Cartridge Clamp								



Part Number	Spare Parts		
	Arbor Mounting Bolt (Standard Accessory)	Arbor Mounting Bolt with Coolant Hole (Sold Separately)	Coolant Hole Cover (Sold Separately)
			
HS-MFAL 080R-6T-SF	HH12X35HK	-	
100R-6T-SF		HF16X40HA	
125R-8T-SF		HF20X53HA	
160R-12T-SF	-	HF24X60HA	
200R-14T-SF			CC-200
250R-18T-SF			CC-250
HS-MFAL 063R-4T-M-SF	HH10X35HK		
080R-6T-M-SF	HH12X35HK		
100R-6T-M-SF		HF16X40HA	
125R-8T-M-SF		HF20X53HA	
160R-12T-M-SF	-		
200R-14T-M-SF			CC-200
250R-18T-M-SF			CC-250

• For HS-MFAL100R to 250R, when using coolant-through, please use arbor mounting bolt with coolant hole HF...HA (sold separately)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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GROOVING	See Specific Products in See Section G
CUT-OFF	See Specific Products in See Section H
THREADING	See Specific Products in See Section J
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TURNING	R53
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TOOLING EXAMPLES OF SMALL TOOLS R64 - R65

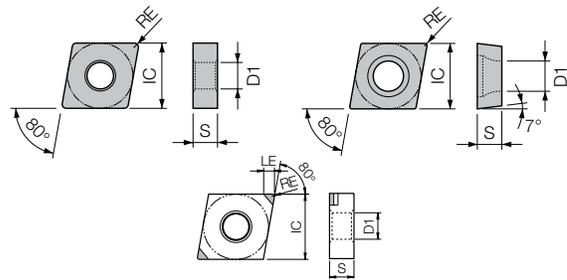
TOOLING EXAMPLES	R64
AUTOMATIC LATHE LIST OF MANUFACTURERS	R66
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LEVER LOCK PARTS COMPATIBILITY R72

Turning Dimensions

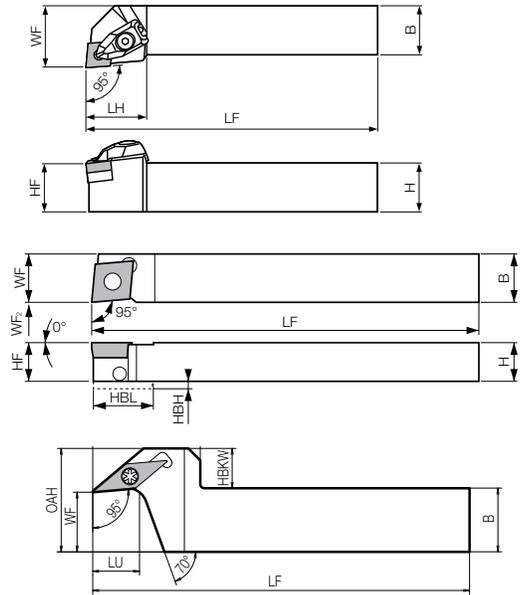
Turning Inserts

New Symbol	Description	Previous Symbol
AN	Relief Angle	α
D1	Hole Diameter	$\varnothing d$
IC	Inscribed Circle Diameter	A
RE	Corner Radius	$r\epsilon$
S	Insert Thickness	T
LE	Edge Length (PCD / CBN Tip)	S



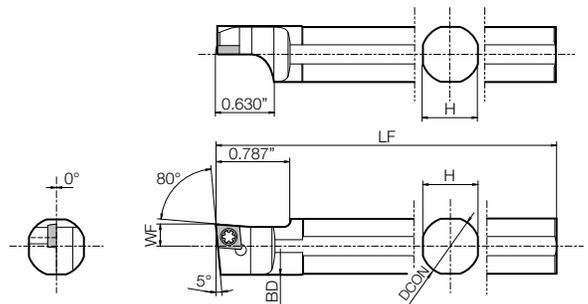
External Turning Holders (Square Shank)

New Symbol	Description	Previous Symbol
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
HBL	Head Bottom Offset Length	L2
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	T
LN	Neck Length	L3, L4
WF	Cutting Edge Distance	F1
WF ₂ , WFS	Cutting Edge Distance (Secondary)	F2
OAH	Overall Height	F1
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



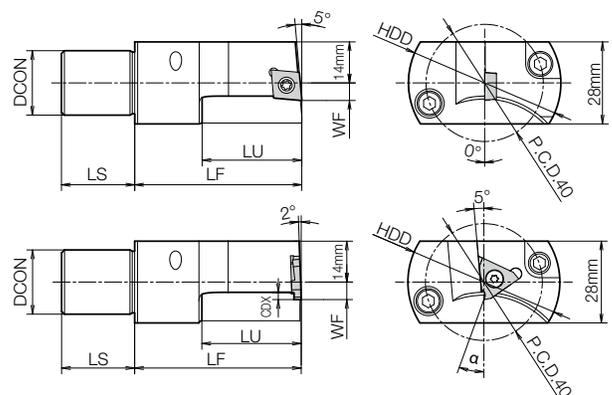
External Turning Holders (Round Shank)

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	$\varnothing D, \varnothing D1$
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F2
BD	Body Diameter	$\varnothing d, \varnothing d1$
H	Shank Flat Width	H1



Sub-Spindle Turning Holders

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	$\varnothing D$
HDD	Head Diameter	$\varnothing D1, \varnothing D2$
LF	Functional Length	L2
LS	Shank Length	-
LU	Usable Length	L3
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F2
CDX	Maximum Cutting Depth	B



R
TECHNICAL

Boring Dimensions

Boring Bars

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD, ØD1
GAMO	Rake Angle	θ
H	Shank Flat Width	H
LF	Functional Length	L1
LH	Head Length	L2
LPR	Full Length	L1
LU	Usable Length	L2
RE	Corner Radius	$r\epsilon$
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	F2

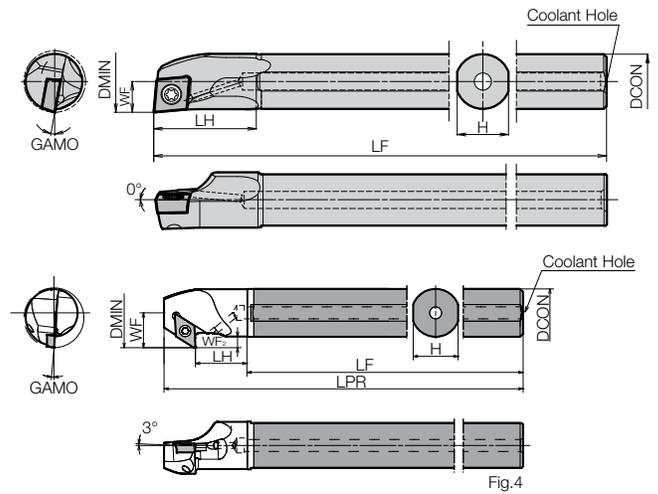
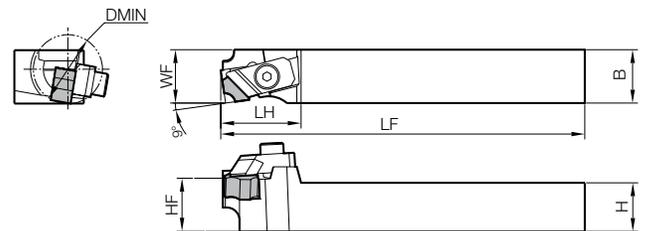


Fig.4

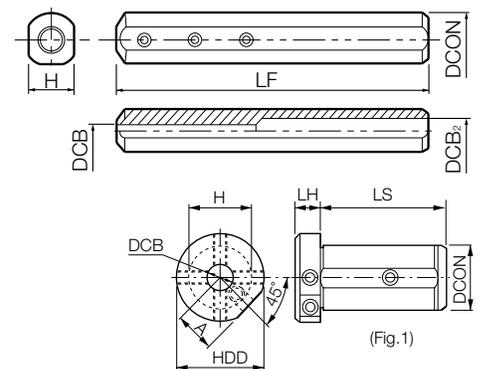
Boring Bars (Square Shank)

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
B	Shank Width	B
H	Shank Height	H1
HF	Cutting Edge Height	h
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1



Boring Bar Sleeves

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD, ØD1
DCB	Connection Bore Diameter	Ød1
HDD	Head Diameter	ØD2
DCB ₂	Connection Bore Diameter (Secondary)	Ød1, Ød2
H	Shank Flat Width	-
LF	Functional Length	L1
LS	Shank Length	L1
LH	Head Length	L2
A	Head Flat Distance	-

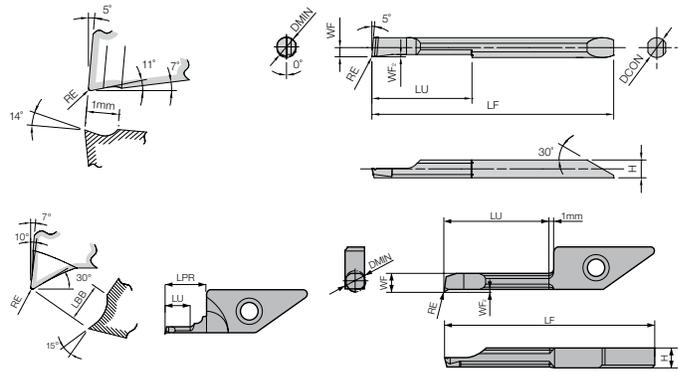


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Boring Dimensions (Continued)

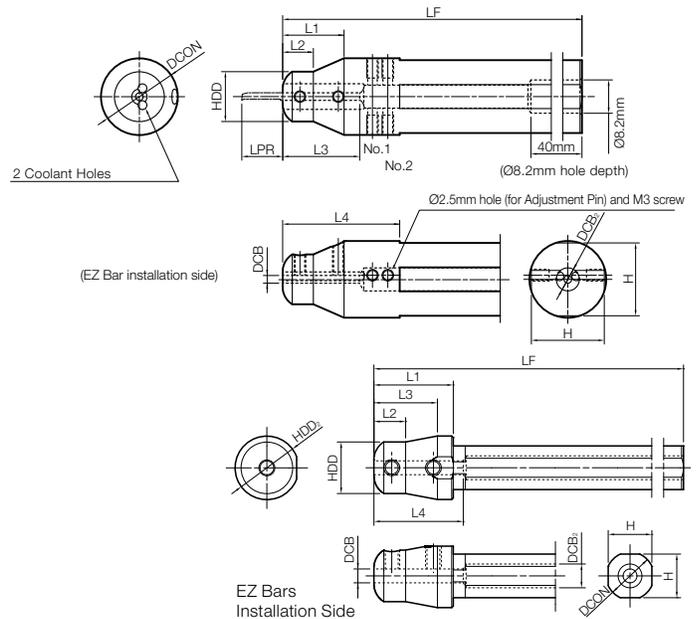
Micro Boring Bars

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
H	Bar Flat Height	-
LF	Functional Length	L1
LU	Usable Length	L2
LPR	Bar Overhang Length	L3
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	S
RE	Corner Radius	rε
LBB	Cutting Edge Width	W



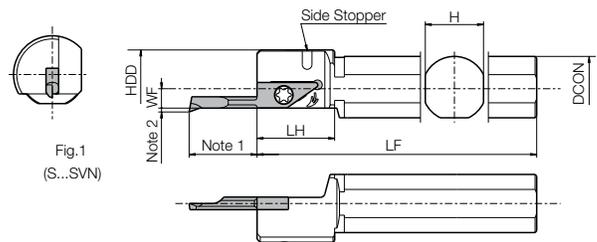
Micro Boring Bar Sleeves

New Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød1
DCON	Connection Diameter	ØD1
HDD	Neck Diameter	ØD2
HDD ₂	Head Diameter	ØD3
DCB ₂	Connection Bore Diameter (Secondary)	Ød2
H	Shank Flat Height	-
LF	Functional Length	L1
L1	Head Length	L2
L2	Neck Length	L3
L3	Connection Bore Depth	L4
LPR	Bar Overhang Length	T
No.1	Overhang Length of Bar at Position 1	-
No.2	Overhang Length of Bar at Position 2	-
No.3	Overhang Length of Bar at Position 3	-
No.4	Overhang Length of Bar at Position 4	-



Micro Boring Bar Holders (Round Shank)

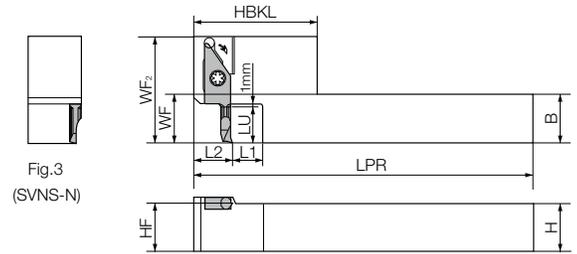
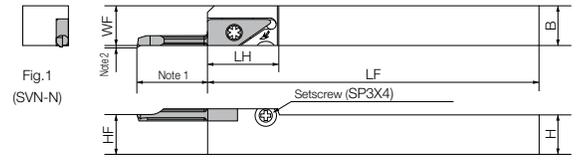
New Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD1
HDD	Head Diameter	ØD2
H	Shank Flat Height	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Height	F1
L2	Neck Length	-



Boring Dimensions (Continued)

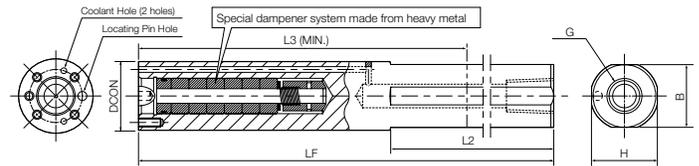
Micro Boring Bar Holders (Square Shank)

New Symbol	Description	Previous Symbol
HF	Cutting Edge Height	h
H	Shank Height	H1
B	Shank Width	-
LF	Functional Length	L1
LPR	Protruding Length	L1
LH	Head Length	L2
HBKL	Head Back Offset Length	F2
HBKW	Head Back Offset Width	F2
WF	Cutting Edge Distance	F1
WF ₂	Cutting Edge Distance (Secondary)	F1
LU	Usable Length	F3
L1	Holder Clearance Distance 1	L3
L2	Holder Clearance Distance 2	L4



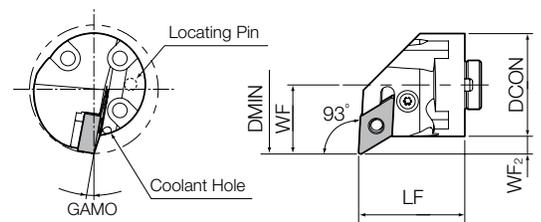
Boring Bar Adapters

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD1
H	Shank Flat Height	-
B	Shank Flat Width	-
LF	Functional Length	L1
L2	Shank Length	-
L3 (Min)	Minimum Modification Length	-
G	Coolant Hole Thread Size	-



Replaceable Boring Bar Heads

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	S
GAMO	Rake Angle	θ
RE	Corner Radius	rε

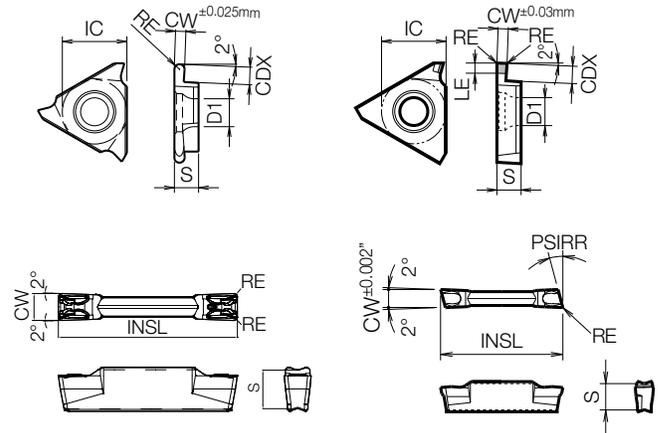


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Grooving & Cut-Off Dimensions

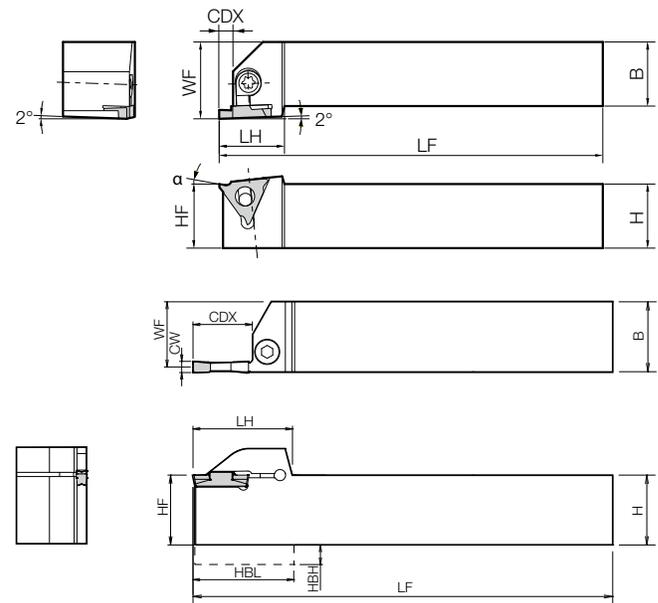
Grooving & Cut-Off Inserts

New Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
BCH	Corner Chamfer Length	C
CDX	Maximum Cutting Depth	B
CW	Cutting Edge Width	W
CUTDIA	Maximum Cut-Off Diameter	ØDmax
LE	Edge Length (PCD / CBN Tip)	S
D1	Hole Diameter	Ød
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
INSL	Insert Length	L
PSIR [°] /L	Lead Angle	θ
RE	Corner Radius	rε
S	Insert Thickness	H, T, M
W1	Insert Width	A



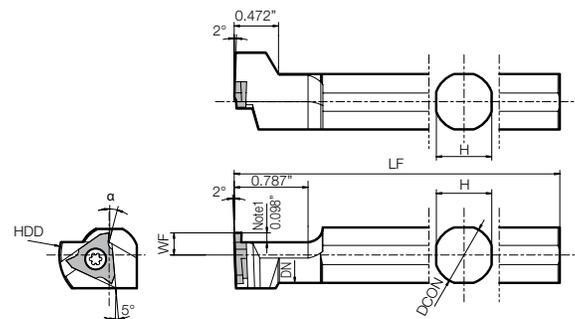
External Grooving Holders (Square Shank)

New Symbol	Description	Previous Symbol
B	Shank Width	-
CDX	Maximum Cutting Depth	T
H	Shank Height	H1
HF	Cutting Edge Height	h
HBL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
HBKW	Head Back Offset Width	F2
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	-
WF	Cutting Edge Distance	F1
GAMP	Axial Rake Angle	θ
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



External Grooving Holders (Round Shank)

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1

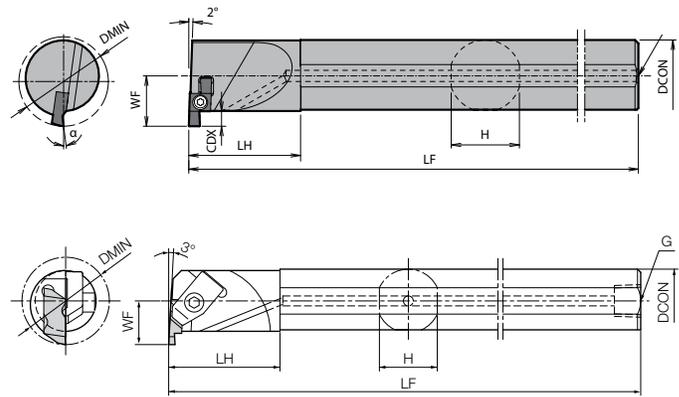


R
TECHNICAL

Grooving & Cut-Off Dimensions (Continued)

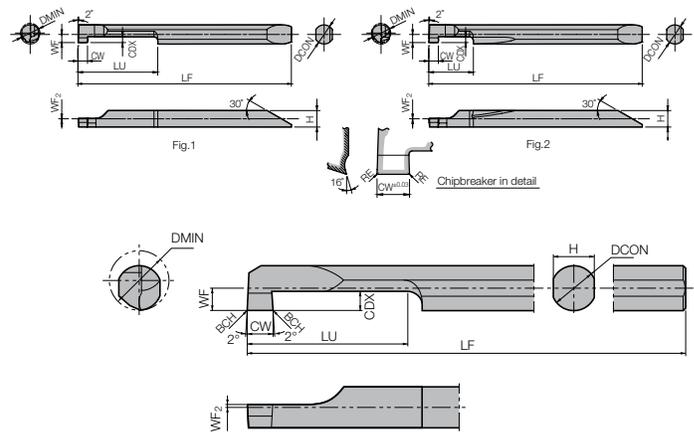
Internal Grooving Holders

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Height	H1
LF	Functional Length	L1
LH	Head Length	L2
LU	Usable Length	L2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
G	Coolant Hole Thread Size	-



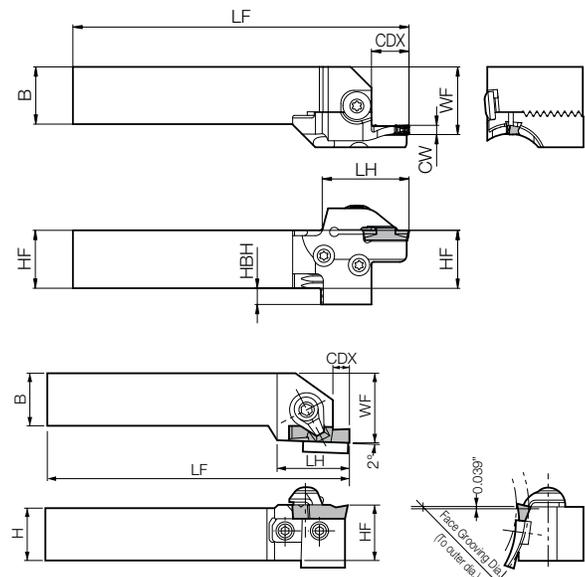
Micro Grooving Bars

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
CW	Cutting Edge Width	W
BCH	Corner Chamfer Length	C
H	Bar Flat Height	H1
LF	Functional Length	L1
LU	Usable Length	L2
WF	Cutting Edge Distance	F
WF ₂	Cutting Edge Distance (Secondary)	L4
LH	Head Length	L2
CDX	Maximum Cutting Depth	T
RE	Corner Radius	rε



Face Grooving Toolholders

New Symbol	Description	Previous Symbol
DAXN	Face Groove Diameter (Min.)	ØD
DAXX	Face Groove Diameter (Max.)	ØD
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F, F1
WF ₂	Cutting Edge Distance (Secondary)	S
CDX	Maximum Cutting Depth	T
CW	Cutting Edge Width	W

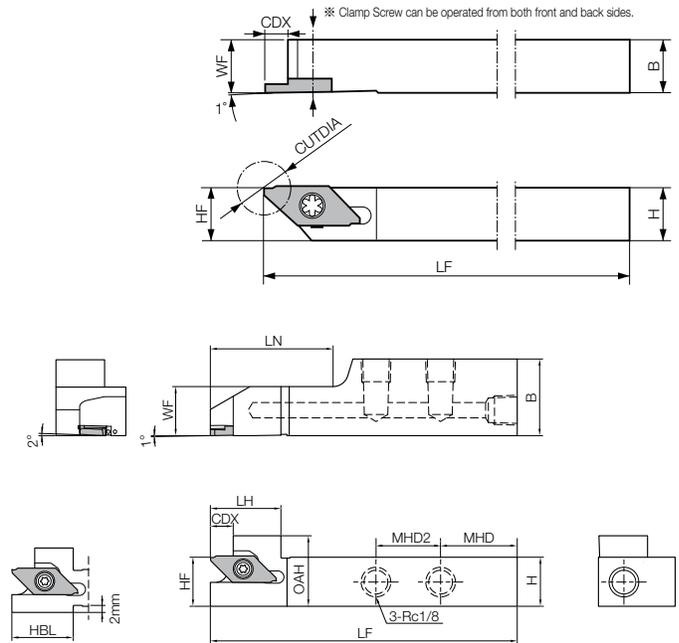


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Grooving & Cut-Off Dimensions (Continued)

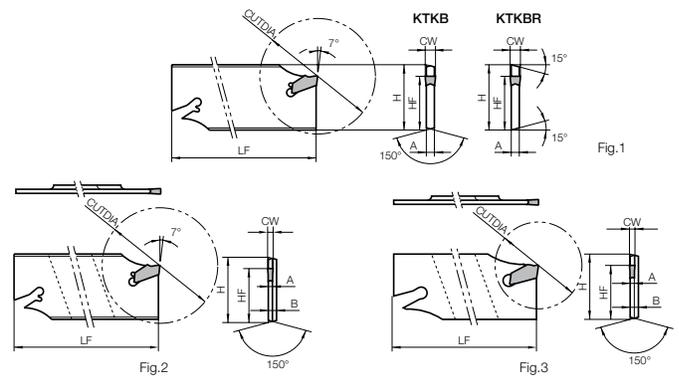
Cut-Off Toolholders

New Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	ØDmax
H	Shank Height	H1
HF	Cutting Edge Height	h
OAL	Overall Length	L1
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
LN	Neck Length	L3
LN2	Neck Length (Secondary)	-
HBL	Head Bottom Offset Length	L3
HBH	Head Bottom Offset Height	H2
WF	Cutting Edge Distance	F1
CDX	Maximum Cutting Depth	T
GAMP	Axial Rake Angle	θ
MHD	Mounting Hole Distance	M1
MHD2	Mounting Hole Distance (Secondary)	M2



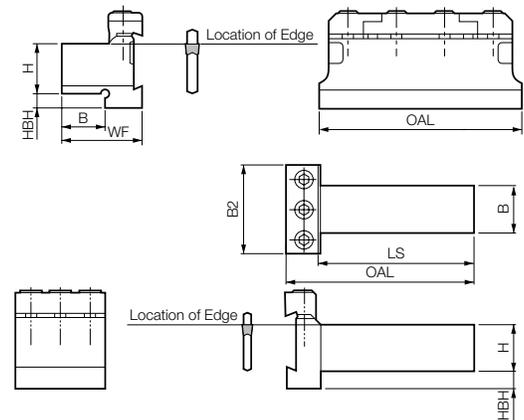
Cut-Off Blades

New Symbol	Description	Previous Symbol
CUTDIA	Maximum Cut-Off Diameter	ØDmax
H	Blade Height	H1
HF	Cutting Edge Height	h
B	Blade Width	-
LF	Functional Length	L1
A	Insert Mount Width	-
CW	Cutting Edge Width	W



Cut-Off Tool Blocks

New Symbol	Description	Previous Symbol
H	Shank Height	H1
HBH	Head Bottom Offset Height	H2
B	Shank Width	B1
B2	Blade Mount Width	-
OAL	Overall Length	L1
LS	Shank Length	L2

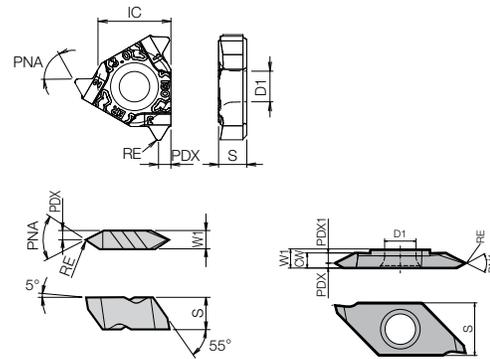


R TECHNICAL

Threading Dimensions

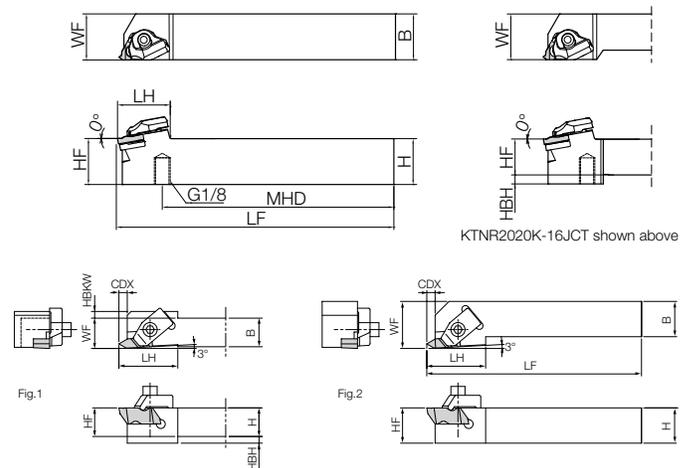
Threading Inserts

New Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
D1	Hole Diameter	Ød
PDX	Profile Distance	S, S1
PDX1	Profile Distance (Secondary)	S2
PNA	Included Angle	θ
RE	Corner Radius	$r\epsilon$
W1	Insert Width	T
CW	Cutting Edge Width	W



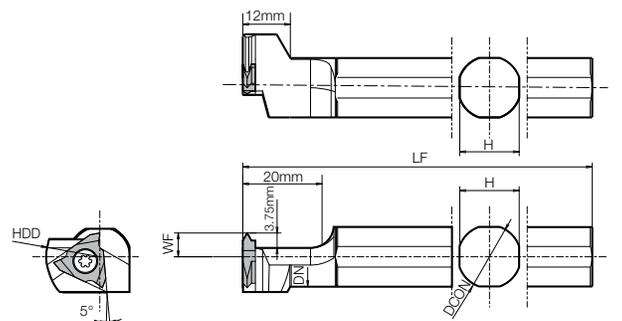
External Threading Toolholders (Square Shank)

New Symbol	Description	Previous Symbol
H	Shank Height	H1
HF	Cutting Edge Height	h
HBH	Head Bottom Offset Height	H2
B	Shank Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1
MHD	Mounting Hole Distance	M1
HBKW	Head Back Offset Width	F2
CDX	Maximum Cutting Depth	T
LPR	Protruding Length	T



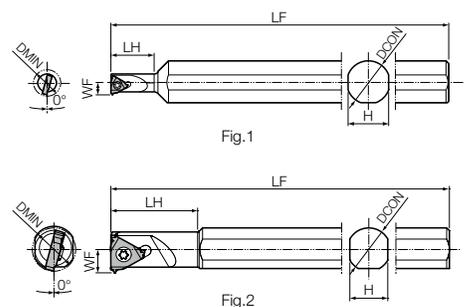
External Threading Toolholders (Round Shank)

New Symbol	Description	Previous Symbol
DCON	Connection Diameter	ØD
LF	Functional Length	L1
WF	Cutting Edge Distance	F1
DN	Neck Diameter	Ød1
HDD	Head Diameter	Ød2
H	Shank Flat Height	H1



Internal Threading Toolholders

New Symbol	Description	Previous Symbol
DMIN	Minimum Bore Diameter	ØA
DCON	Connection Diameter	ØD
H	Shank Flat Width	-
LF	Functional Length	L1
LH	Head Length	L2
WF	Cutting Edge Distance	F1

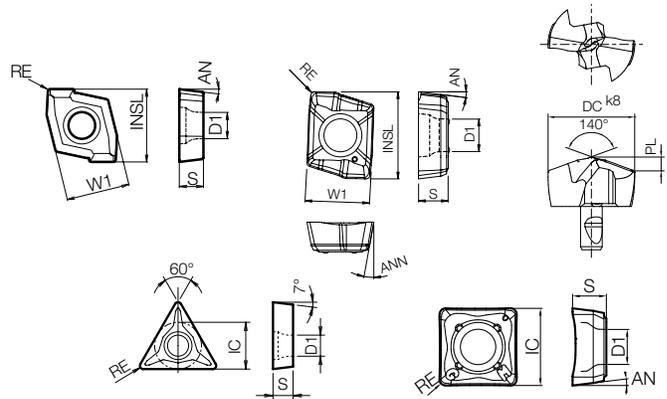


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Drilling Dimensions

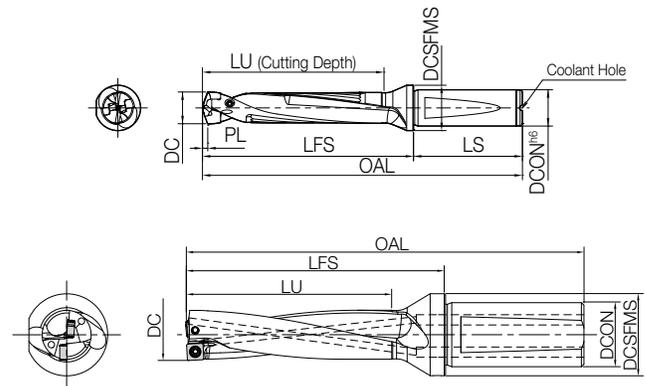
Drilling Inserts

New Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
W1	Insert Width	W
INSL	Insert Length	L
D1	Hole Diameter	$\varnothing d$
DC	Cutting Diameter	$\varnothing D_c$
DC ₂	Cutting Diameter	$\varnothing D_2$
PL	Point Length	L _p
RE	Corner Radius	r ϵ
AN	Relief Angle (Minor)	α
ANN	Relief Angle (Major)	β



Drilling Toolholders

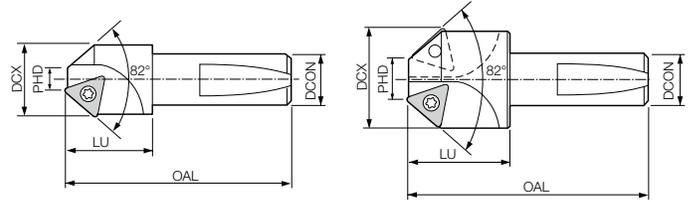
New Symbol	Description	Previous Symbol
DC	Cutting Diameter	$\varnothing D_c$
DCON	Connection Diameter	$\varnothing D$
OAL	Overall Length	L
LFS	Functional Length	L1
LU	Cutting Depth	L3
LS	Shank Length	-
DCSFMS	Contact Surface Diameter Machine Side	$\varnothing d_1$
LCF	Flute Length	L2
Rc	Coolant Hole Thread Size	-



■ Drilling Dimensions (Continued)

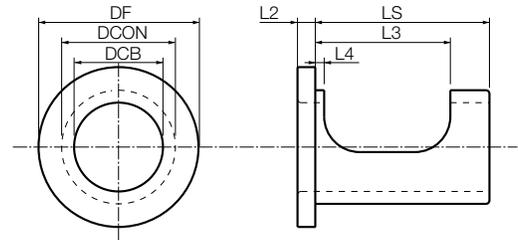
● Countersinks

New Symbol	Description	Previous Symbol
DCX	Maximum Cutting Diameter	ØD
PHD	Premachined Hole Diameter	ØDs
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LU	Usable Length	L1



● Drilling Sleeves

New Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DCON	Connection Diameter	ØD1
DF	Flange Diameter	ØD2
LS	Shank Length	L1

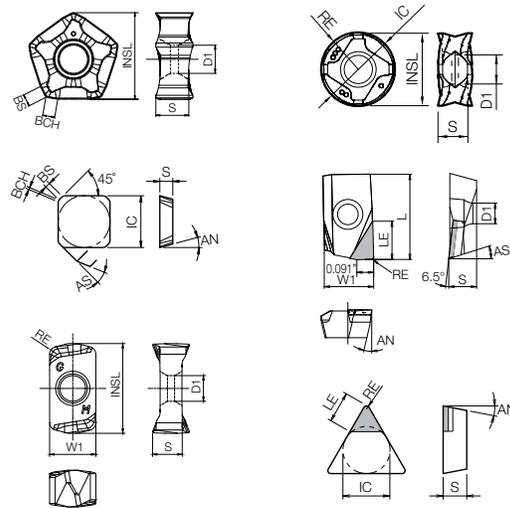


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Milling Dimensions

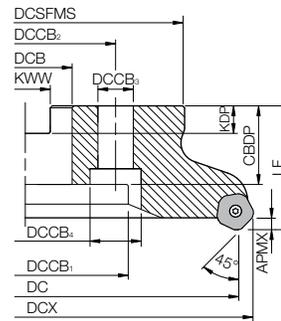
Milling Inserts

New Symbol	Description	Previous Symbol
IC	Inscribed Circle Diameter	A
S	Insert Thickness	T
BCH	Corner Chamfer Length	X
RE	Corner Radius	$r\epsilon$
BS	Wiper Edge Length	Z
INSL	Insert Length	L
D1	Hole Diameter	$\varnothing d$
L	Cutting Edge Length	W
W1	Insert Width	A
AN	Relief Angle (Major)	α
AS	Relief Angle (Wiper Edge)	β
LE	Edge Length (PCD / CBN Tip)	S
GAN	Insert Rake Angle	θ



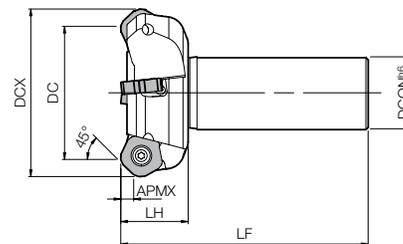
Face Mills

New Symbol	Description	Previous Symbol
DC	Cutting Diameter	$\varnothing D$
DCX	Maximum Cutting Diameter	$\varnothing D1$
DCSFMS	Contact Surface Diameter Machine Side	$\varnothing D2$
DCB	Connection Bore Diameter	$\varnothing d$
DCCB ₁	Connection Counterbore Diameter	$\varnothing d1$
DCCB ₂	Mounting Bolt Hole Diameter	$\varnothing d2$
LF	Functional Length	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
PCD	Secondary Bolt Distance	$\varnothing C$
APMX	Maximum Cutting Depth	S
KAPR	Lead Angle	-



End Mills

New Symbol	Description	Previous Symbol
DC	Cutting Diameter	$\varnothing D$
DCX	Maximum Cutting Diameter	$\varnothing D1$
DCON	Connection Diameter	$\varnothing d, \varnothing d1$
DN	Neck Diameter	$\varnothing d2$
CW	Cutting Width	W
LF	Functional Length	L
LH	Head Length	$\ell, \ell1, L2$
LU	Usable Length	$\ell2$
LS	Shank Length	L3
LN	Neck Length	L1
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	α
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-
TA	Taper Angle	θ

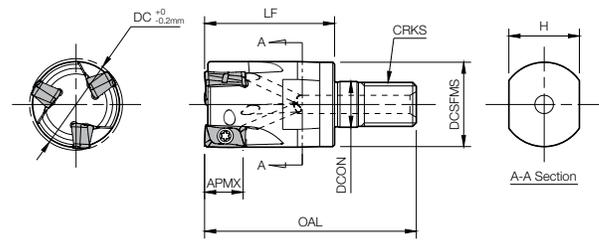


R
TECHNICAL

Milling Dimensions (Continued)

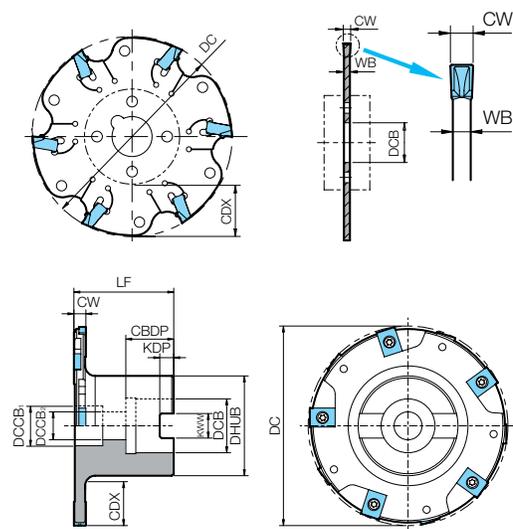
Modular End Mills

New Symbol	Description	Previous Symbol
DC	Cutting Diameter	ØD
DCSFMS	Contact Surface Diameter Machine Side	ØD1
DCON	Connection Diameter	Ød
OAL	Overall Length	L
LF	Functional Length	L1
CRKS	Connection Retaining Knob Thread Size	M1
H	Weldon Flat Width	-
APMX	Maximum Cutting Depth	S
RMPX	Maximum Ramping Angle	α
A.R.	Axial Rake Angle	-
R.R.	Radial Rake Angle	-
KAPR	Lead Angle	-



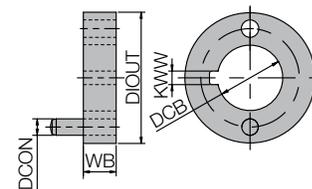
Slot Mills

New Symbol	Description	Previous Symbol
CW	Cutting Edge Width	W
CDX	Maximum Cutting Depth	T
DC	Cutting Diameter	ØD
DCB	Connection Bore Diameter	Ød
WB	Body Width	A
DCSFMS	Contact Surface Diameter Machine Side	Ød1
DHUB	Hub Diameter	ØA
THUB	Hub Thickness	A
LF	Functional Length	L1
LN	Neck Leck	H
CBDP	Connection Bore Depth	E
KDP	Keyway Depth	a
KWW	Keyway Width	b
DCCB ₁	Connection Counterbore Diameter	Ød1
DCCB ₂	Mounting Bolt Hole Diameter	Ød2
APMX	Maximum Cutting Depth	W.O.C.1, S



Slot Mill Drive Rings

New Symbol	Description	Previous Symbol
DCB	Connection Bore Diameter	Ød
DIOUT	Outside Diameter	ØD
WB	Body Width	A1
KWW	Keyway Width	a
DCON	Connection Diameter	Ød1



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MATERIAL GROUPS

MATERIAL GROUPS			
Name	Group	Representative Materials	Description
Steel	1	1008, 1010, 1015, 1018, 1022, 1025, 1030, 1040, 1045, 1050, 1055, 1110, 1140, 1151, 1525, 1526, 1541, 1552, 10L18, 11L14, 12L13, 12L14	Low to medium carbon steels Leaded and freer cutting
	2	1340, 4140, 4145, 5140, 8640, 4150, 4060, 5150, 6150, 8650, 8660, 8620, 8630, 50100, 51100, 52100	Medium to high carbon steels and alloy steels
	3	A2, D2, M2, D4, M7, M35, M50, S7	Tool steel, high alloy steel casting
	4	Case hardened steel, induction hardened steel, heat treated steel	Hardened steels (>40Rc)
Stainless Steel	5	303, 304, 310, 316, 317, 321	Austenitic, moderate to difficult machinability
	6	403, 410, 416, 422, 430	Martensitic, free cutting stainless
	7	13-8Mo, 15-5PH, 17-4PH, 17-7PH	Wrought stainless steel Precipitation hardened
Cast Iron	8	A48-64, G3000, G4000, J431a	Gray cast iron with low to medium hardness
	9	A439-62, A476-67, A536-67, J434, 60-40-18, 80-55-06, A48-50B, A48-60B, D4512	Medium hard alloy cast iron Moderate to difficult to machine Malleable castings, nodular cast iron
	10	Cast iron with hardness greater than 36Rc	Chilled cast iron
Powdered Metals	11	P/M iron, P/M steel, P/M copper iron, P/M copper steel, P/M nickel steel, P/M infiltrated steel	Consolidated compacts of metal powders Generally considered to have poor machinability
Heat-Resistant Alloy	12	Inconel, Hastelloy, Waspalloy, Rene, Monel	Nickel and iron based superalloys
	13	Stellite, Haynes 188, Haynes 25 (L605)	Cobalt based superalloys
	14	Titanium, tungsten, tantalum, zirconium	Titanium based alloys and refractory metals
Non-Ferrous Alloys	15	Aluminum less than 8% silicon, brass, silver, platinum, gold	Non-ferrous alloys Free machining
	16	Aluminum greater than 8% silicon, aluminum castings, aluminum bronze, copper alloys	Non-ferrous alloys Non-free machining
Non-Metallics	17	Plastics, graphite, epoxy, nylon, "Green" ceramics, PVC, teflon, fiberglass, glass, sintered ceramics, fiber reinforced plastic	Easy to difficult to machine non-metallics

R
TECHNICAL

Steel Turning

Negative Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.006 ipr	0.018 ipr
	Cermet	0.001 ipr	0.005 ipr	0.010 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
1	CA025P	500	650	800
	CA510	550	700	850
	CA515	550	700	850
	CA525	450	600	750
	CA530	400	550	700
	PR1425	300	450	600
	PR1225	300	450	600
	PR930	300	450	600
	TN610	750	975	1200
	TN620	700	925	1150
	PV710	800	1050	1300
PV720	750	975	1200	

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.007 ipr	0.0014 ipr
	Cermet	0.001 ipr	0.004 ipr	0.008 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
2	CA025P	450	600	750
	CA510	550	675	800
	CA515	550	675	800
	CA525	400	550	700
	CA530	400	550	700
	PR1425	250	375	500
	PR1225	250	375	500
	PR930	250	375	500
	TN610	600	800	1000
	TN620	500	700	900
	PV710	650	850	1050
PV720	650	800	950	

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.007 ipr	0.014 ipr
	Cermet	0.001 ipr	0.004 ipr	0.008 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
3	CA025P	450	600	750
	CA510	550	675	800
	CA515	550	675	800
	CA525	400	550	700
	CA530	400	550	700
	PR1425	250	375	500
	PR1225	250	375	500
	PR930	250	375	500
	TN610	600	800	1000
	TN620	500	700	900
	PV710	650	850	1050
PV720	650	800	950	

Positive Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.001 ipr	0.004 ipr	0.008 ipr
	Cermet	0.001 ipr	0.005 ipr	0.010 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
1	CA025P	450	600	750
	CA510	500	650	800
	CA515	500	650	800
	CA525	400	550	700
	CA530	350	500	650
	PR1425	300	450	600
	PR1225	300	450	600
	PR930	300	450	600
	TN610	750	975	1200
	TN620	700	925	1150
	PV710	800	1050	1300
PV720	750	975	1200	

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.001 ipr	0.004 ipr	0.008 ipr
	Cermet	0.001 ipr	0.004 ipr	0.008 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
2	CA025P	350	475	600
	CA510	400	550	700
	CA515	400	550	700
	CA525	300	425	550
	CA530	300	425	550
	PR1425	200	350	500
	PR1225	200	350	500
	PR930	200	350	500
	TN610	600	800	1000
	TN620	500	700	900
	PV710	650	850	1050
PV720	650	800	950	

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.001 ipr	0.004 ipr	0.008 ipr
	Cermet	0.001 ipr	0.004 ipr	0.008 ipr
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
3	CA025P	350	450	550
	CA510	400	550	700
	CA515	400	550	700
	CA525	250	375	500
	CA530	250	375	500
	PR1425	200	350	500
	PR1225	200	350	500
	PR930	200	350	500
	TN610	600	800	1000
	TN620	500	700	900
	PV710	650	850	1050
PV720	650	800	950	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
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Note) Recommended cutting conditions seen above are general machining parameters. For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page R14

Steel Turning

Material		Grade Type	Machining Parameters													
			Finishing			Feed Rate			Medium-Roughing							
			See Below			See Below			See Below							
Material Group	Hardness	Grade	Cutting Speed (sfm)													
			FROM	MEDIAN	TO	FROM	MEDIAN	TO	FROM	MEDIAN	TO					
4	44Rc 0.009 ipr MAX	A65	240	800	1050	240	800	1050								
		A66N	240	800	1050	240	800	1050								
		PT600M	240	800	1050	240	800	1050								
		KBN510	240	900	1200											
		KBN525	240	900	1200											
		KBN900				300	400	500	300	400	500					
		KBN05M	290	1089	1450	290	1089	1450								
		KBN10M	264	990	1320	264	990	1320								
		KBN25M	264	990	1320	264	990	1320								
		KBN30M	240	890	1190	240	890	1190								
		KBN35M	240	890	1190	240	890	1190								
		48Rc 0.009 ipr MAX	A65	230	750	980	230	750	980							
	A66N		230	750	980	230	750	980								
	PT600M		230	750	980	230	750	980								
	KBN510		230	850	1150											
	KBN525		230	850	1150											
	KBN900					300	400	500	300	400	500					
	KBN05M		280	1030	1400	280	1030	1400								
	KBN10M		230	850	1140	230	850	1140								
	KBN25M		253	935	1265	253	935	1265								
	KBN30M		230	850	1140	230	850	1140								
	KBN35M		230	850	1140	230	850	1140								
	52Rc 0.008 ipr MAX		A65	200	660	800	200	660	800							
		A66N	200	660	800	200	660	800								
		PT600M	200	660	800	200	660	800								
		KBN510	200	700	1000											
		KBN525	200	700	1000											
		KBN900				250	350	450	250	350	450					
		KBN05M	240	850	1210	240	850	1210								
		KBN10M	220	770	1100	220	770	1100								
		KBN25M	220	770	1100	220	770	1100								
		KBN30M	200	700	1000	200	700	1000								
		KBN35M	200	700	1000	200	700	1000								
		56Rc 0.006 ipr MAX	A65	175	550	650	175	550	650							
	A66N		175	550	650	175	550	650								
	PT600M		175	550	650	175	550	650								
	KBN510		175	600	800											
	KBN525		175	600	800											
	KBN900					200	300	400	200	300	400					
	KBN05M		240	850	1210	240	850	1210								
	KBN10M		220	770	1100	220	770	1100								
	KBN25M		220	770	1100	220	770	1100								
	KBN30M		200	700	1000	200	700	1000								
	KBN35M		200	700	1000	200	700	1000								
	60Rc 0.004 ipr MAX		A65	150	450	650	150	450	650							
		A66N	150	450	650	150	450	650								
		PT600M	150	450	650	150	450	650								
		KBN510	150	500	675											
KBN525		150	500	675												
KBN900					150	250	350	150	250	350						
KBN05M		180	600	825	180	600	825									
KBN10M		165	550	750	165	550	750									
KBN25M		165	550	750	165	550	750									
KBN30M		150	500	675	150	500	675									
KBN35M		150	500	675	150	500	675									
64Rc 0.004 ipr MAX		A65	100	400	450	100	400	450								
	A66N	100	400	450	100	400	450									
	PT600M	100	400	450	100	400	450									
	KBN510	100	450	550												
	KBN525	100	450	550												
	KBN900				100	200	300	100	200	300						
	KBN05M	120	550	660	120	550	660									
	KBN10M	110	500	600	110	500	600									
	KBN25M	110	500	600	110	500	600									
	KBN30M	100	450	540	100	450	540									
	KBN35M	100	450	540	100	450	540									

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page R14

R TECHNICAL

Stainless Steel Turning

Negative Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.008 ipr	0.014 ipr
Cermet	0.002 ipr	0.004 ipr-	0.008 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
5	PR1225	300	450	600
	PR930	250	400	550
	PR1535	225	388	550
	CA6515	400	575	750
	CA6525	300	500	700
	TN620	300	400	500
	PV720	350	450	550

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.008 ipr	0.014 ipr
Cermet	0.002 ipr	0.003 ipr	0.004 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
6	PR1225	250	400	550
	PR930	200	350	500
	PR1535	200	350	500
	CA6515	300	400	500
	CA6525	250	325	400
	TN620	250	375	500
	PV720	300	425	550

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.008 ipr	0.014 ipr
Cermet	0.002 ipr	0.003 ipr	0.004 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
7	PR1225	250	400	550
	PR930	200	350	500
	PR1535	200	350	500
	CA6515	300	400	500
	CA6525	250	325	400
	TN620	250	375	500
	PV720	300	425	550

Positive Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.001 ipr	0.004 ipr	0.006 ipr
Cermet	0.002 ipr	0.004 ipr-	0.008 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
5	PR1225	250	325	400
	PR930	200	263	325
	PR1535	200	263	325
	CA6515	350	425	500
	CA6525	300	375	450
	TN620	300	375	450
	PV720	350	425	500

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.004 ipr	0.006 ipr
Cermet	0.002 ipr	0.003 ipr	0.004 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
6	PR1225	125	213	300
	PR930	100	175	250
	PR1535	100	175	250
	CA6515	150	275	400
	CA6525	225	288	350
	TN620	200	300	400
	PV720	250	350	450

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.004 ipr	0.006 ipr
Cermet	0.002 ipr	0.003 ipr	0.004 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
7	PR1225	125	213	300
	PR930	100	175	250
	PR1535	100	175	250
	CA6515	150	275	400
	CA6525	225	288	350
	TN620	200	300	400
	PV720	250	350	450

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

■ Cast Iron Turning

● Negative Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.008 ipr	0.012 ipr
Cermet	0.004 ipr	0.008 ipr	0.012 ipr	
Ceramic	0.004 ipr	0.008 ipr	0.012 ipr	
CBN	0.002 ipr	0.007 ipr	0.012 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
8	CA310	650	825	1000
	CA315	500	650	800
	CA320	500	650	800
	PR905	500	650	800
	PV7005	1000	1150	1300
	KS6000	650	1075	1500
	KS6050	800	1200	1600
	CS7050	1000	1400	1800
	PT600M	1000	1500	2000
	KBN900	1600	2800	4000
	KBN60M	1100	1650	2200

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.008 ipr	0.012 ipr
Cermet	0.004 ipr	0.008 ipr	0.012 ipr	
Ceramic	0.004 ipr	0.006 ipr	0.008 ipr	
CBN	0.004 ipr	0.006 ipr	0.008 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
9	CA310	500	650	800
	CA315	400	600	800
	CA320	400	550	700
	PR905	400	550	700
	PV7005	500	750	1000
	KS6000	600	850	1100
	KS6050	600	850	1100
	CS7050	650	900	1150
	PT600M	650	925	1200
	KBN900	800	1150	1500
	KBN60M	650	975	1300

● Positive Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.004 ipr	0.008 ipr
Cermet	0.002 ipr	0.004 ipr	0.008 ipr	
Ceramic	0.002 ipr	0.004 ipr	0.008 ipr	
CBN	0.002 ipr	0.004 ipr	0.008 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
8	CA310	350	425	500
	CA315	300	375	450
	CA320	300	350	400
	PR905	300	350	400
	PV7005	500	750	1000
	KS6000	550	875	1200
	KS6050	600	1000	1400
	CS7050	800	1200	1600
	PT600M	800	1300	1800
	KBN900	1400	2200	3000
	KBN60M	900	1350	1800

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.004 ipr	0.008 ipr
Cermet	0.002 ipr	0.004 ipr	0.008 ipr	
Ceramic	0.002 ipr	0.004 ipr	0.008 ipr	
CBN	0.002 ipr	0.004 ipr	0.008 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
9	CA310	350	425	500
	CA315	300	375	450
	CA320	300	350	400
	PR905	300	350	400
	PV7005	400	650	900
	KS6000	500	750	1000
	KS6050	500	750	1000
	CS7050	550	800	1050
	PT600M	550	850	1150
	KBN900	700	1050	1400
	KBN60M	550	875	1200

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

Heat-Resistant Alloy Turning

Negative Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.006 ipr	0.012 ipr
Ceramic	0.004 ipr	0.008 ipr	0.012 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
12	PR005S	100	200	300
	PR015S	80	155	230
	PR1535	130	165	200
	PR1305	150	205	260
	PR1310	130	165	200
	PR1325	110	135	160
	PR1225	80	115	150
	PR930	80	115	150
	CA6515	80	120	160
	CA6525	80	115	150
	KS6030	500	850	1200
	KS6040	500	750	1000

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 IPT	0.005 IPT	0.006 IPT
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
12	PR005S	100	200	300
	PR015S	80	155	230
	CA6515	80	120	160
	CA6525	80	115	150
	PR1535	130	165	200
	SW05	130	230	330
	PR1305	150	205	260
	PR1310	130	165	200
	PR1325	110	135	160
	PR1225	110	135	160

Positive Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipr	0.006 ipr	0.012 ipr
Ceramic	0.004 ipr	0.008 ipr	0.012 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
12	PR005S	100	200	300
	PR015S	80	155	230
	PR1535	80	140	200
	PR1305	150	205	260
	PR1310	130	165	200
	PR1325	110	135	160
	PR1225	80	115	150
	PR930	80	115	150
	CA6515	80	115	150
	CA6525	80	115	150
	KS6030	500	850	1200
	KS6040	500	750	1000

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 IPT	0.005 IPT	0.006 IPT
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
12	PR005S	100	200	300
	PR015S	80	155	230
	CA6515	80	120	160
	CA6525	80	115	150
	PR1535	130	165	200
	SW05	130	230	330
	PR1305	150	205	260
	PR1310	125	163	200
	PR1325	110	135	160
	PR1225	110	135	160

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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■ Non-Ferrous Turning

● Negative Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.010 ipr	0.016 ipr
PCD	0.002 ipr	0.004 ipr	0.006 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
15	KW10	650	1150	2300
	PDL010	700	1300	2600
	PDL025	700	1300	2600
	KPD001	1000	3250	6500
	KPD010	1000	3250	6500

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.010 ipr	0.016 ipr
PCD	0.002 ipr	0.004 ipr	0.006 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
16	KW10	600	1100	2200
	PDL010	650	1250	2500
	PDL025	650	1250	2500
	KPD001	950	3200	6400
	KPD010	950	3200	6400

● Positive Inserts

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.010 ipr	0.016 ipr
PCD	0.002 ipr	0.004 ipr	0.006 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
15	KW10	300	625	950
	PDL010	350	675	1000
	PDL025	350	675	1000
	KPD001	500	850	1200
	KPD010	500	850	1200

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipr	0.010 ipr	0.016 ipr
PCD	0.002 ipr	0.004 ipr	0.006 ipr	
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
16	KW10	250	575	850
	PDL010	300	625	900
	PDL025	300	625	900
	KPD001	450	800	1100
	KPD010	450	800	1100

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

Steel Milling

Material	Grade Type	Machining Parameters		
		Feed Rate		
		00.004 ipt	0.006 ipt	0.010 ipt
	Carbide	00.004 ipt	0.006 ipt	0.010 ipt
	Cermet	00.002 ipt	0.004 ipt	0.006 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
1	PR830	350	550	650
	PR1225	390	590	820
	PR1230	400	600	725
	PR1525	390	590	820
	PR1535	390	590	820
	TN100M	500	900	1100
	TN620M	650	820	1000

Material	Grade Type	Machining Parameters		
		Feed Rate		
		0.002 ipt	0.004 ipt	0.006 ipt
	Carbide	0.002 ipt	0.004 ipt	0.006 ipt
	Cermet	0.002 ipt	0.004 ipt	0.006 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
2	PR830	350	500	600
	PR1225	330	520	720
	PR1230	400	600	725
	PR1525	390	590	820
	PR1535	390	590	820
	TN100M	300	650	800
	TN620M	590	720	820

Material	Grade Type	Machining Parameters		
		Feed Rate		
		0.002 ipt	0.004 ipt	0.008 ipt
	Carbide	0.002 ipt	0.004 ipt	0.008 ipt
	Cermet	0.002 ipt	0.004 ipt	0.005 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
3	PR830	200	425	550
	PR1225	260	460	590
	PR1230	325	525	675
	PR1525	390	590	820
	PR1535	390	590	820
	TN100M	250	450	600
	TN620M	500	590	720

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page R14

Stainless Steel Milling

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipt	0.004 ipt	0.006 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
5	PR1225	330	520	660
	PR1525	330	520	660
	PR1535	330	520	660
	CA6535	590	790	960

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipt	0.005 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
6	PR1225	-	-	-
	PR1525	-	-	-
	PR1535	490	660	820
	CA6535	590	790	980

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.003 ipt	0.005 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
7	PR1225	-	-	-
	PR1525	-	-	-
	PR1535	300	390	490
	CA6535	-	-	-

Cast Iron Milling

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipt	0.010 ipt	0.016 ipt
	Ceramic	0.002 ipt	0.004 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
8	PR1210	390	590	820
	PR1510	390	590	820
	CA420M	550	750	980
	KS6000	650	2500	3300
	KS6050	1900	2950	3900
	CS7050	1900	2950	3900

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipt	0.008 ipt	0.012 ipt
	Ceramic	0.002 ipt	0.004 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
9	PR1210	330	490	660
	PR1510	330	490	660
	CA420M	490	660	820
	KS6000	500	1200	1800
	KS6050	1300	1950	2950
	CS7050	1300	1950	2950

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

R
TECHNICAL

Heat-Resistant Alloy Milling

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.003 ipt	0.005 ipt	0.006 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
12	PR1535	70	100	160
	CA6535	70	100	160

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.003 ipt	0.006 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
14	PR1535	130	200	260

Non-Ferrous Milling

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.004 ipt	0.008 ipt	0.012 ipt
	PCD	0.002 ipt	0.004 ipt	0.008 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
15	KW10	660	1970	2950
	GW25	660	1970	2950
	PDL025	660	1640	2620
	KPD001	1640	3280	4920
	KPD230	1640	3280	4920

Material	Grade Type	Machining Parameters		
		Feed Rate		
	Carbide	0.002 ipt	0.005 ipt	0.008 ipt
	PCD	0.002 ipt	0.004 ipt	0.006 ipt
Material Group	Grade	Cutting Speed (sfm)		
		FROM	MEDIAN	TO
16	KW10	660	820	980
	GW25	660	820	980
	PDL025	660	820	980
	KPD001	980	2460	3280
	KPD230	980	2460	3280

Note)
Recommended cutting conditions seen above are general machining parameters.
For more accurate cutting conditions, see specific products in previous sections.

For Material Groups See Page [R14](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Inch / Metric Conversion Chart

• Cutting Speed (Vc)

Cutting Speed (Vc)	
SFM	m/min
300	91
600	183
900	274

SFM = (0.262 x rpm) x dia.(inch)
3.28feet/min (SFM) = 1m/min

SFM (Surface Feet per Minute)

• IPR Feed Rate (f)

Feed Rate (f)	
ipr	m/min
0.002	0.05
0.004	0.1
0.008	0.2

1ipr = 25.4mm/rev
0.004ipr = 0.1mm/rev

ipr (Inch per Revolution)
mm/rev (mm per Revolution)

• D.O.C. (ap)

D.O.C. (ap)	
inch	mm
0.02	0.5
0.04	1.0
0.08	2.0

1inch = 25.4mm
0.04inch = 1mm

• IPT Feed Rate (fz)

Feed Rate (fz)	
ipt	mm/t
0.002	0.05
0.004	0.1
0.008	0.2

1ipt = 25.4mm/t
0.004ipt = 0.1mm/t

ipt (Inch per Tooth)
mm/t (mm per Tooth)

• Torque

lbft	Nm
0.738	1

lbft (Pound x Feet)
Nm (Newton x Meter)

SI Derived Units Conversion Chart

(Extracted from JIS Handbook "Iron & Steel")

• Force

N	kgf	dyn
1	1.019 72X10 ⁻¹	1X10 ⁵
9.806 65	1	9.806 65X10 ⁵
1X10 ⁻⁵	1.019 72X10 ⁻⁶	1

• Stress

Pa or N/m ²	MPa or N/mm ²	kgf/mm ²	kgf/cm ²	kgf/m ²
1	1X10 ⁻⁶	1.019 72X10 ⁻⁷	1.019 72X10 ⁻⁵	1.019 72X10 ⁻¹
1X10 ⁶	1	1.019 72X10 ⁻¹	1.019 72X10	1.019 72X10 ⁵
9.806 65X10 ⁶	9.806 65	1	1X10 ⁻²	1X10 ⁻⁶
9.806 65X10 ⁴	9.806 65X10 ⁻²	1X10 ⁻²	1	1X10 ⁻⁴
9.806 65	9.806 65X10 ⁻⁶	1X10 ⁻⁶	1X10 ⁻⁴	1

• Pressure

Pa	kPa	MPa	bar	kgf/cm ²
1	1X10 ⁻³	1X10 ⁻⁶	1X10 ⁻⁵	1.019 72X10 ⁻⁵
1X10 ³	1	1X10 ⁻³	1X10 ⁻²	1.019 72X10 ⁻²
1X10 ⁶	1X10 ³	1	1X10	1.019 72X10
1X10 ⁵	1X10 ²	1X10 ⁻¹	1	1.019 72
9.806 65X10 ⁴	9.806 65X10	9.806 65X10 ⁻²	9.806 65X10 ⁻¹	1

• Power

W	kW	kgf · m/s	PS	kcal/h
1	1X10 ⁻³	1.019 72X10 ⁻¹	1.359 62X10 ⁻³	8.600 00X10 ⁻¹
1X10 ³	1	1.019 72X10 ⁻²	1.359 62	8.600 00X10 ²
9.806 65	9.806 65X10 ⁻³	1	1.333 33X10 ⁻²	8.433 71
7.355X10 ²	7.355X10 ⁻¹	7.5X10	1	6.325 29X10 ²
1.162 79	1.162 79X10 ⁻³	1.185 72X10 ⁻¹	1.580 95X10 ⁻³	1

• Revolution

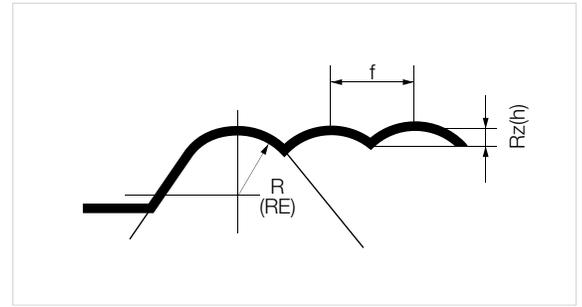
min ⁻¹	s ⁻¹	r.p.m.
1	0.0167	1
60	1	60

Theoretical (Geometrical) Surface Roughness

Theoretical Surface Roughness for Turning indicates the minimum roughness value from the cutting conditions and it is shown by the formula as follows:

$$Rz(h) = \frac{f^2}{8R(RE)} \times 10^3$$

Rz(h) : Theoretical Surface Roughness [μm]
 f : Feed Rate [mm/rev]
 R(RE) : Corner Radius of Insert [mm]



How to Obtain Surface Roughness Values

Type	Symbol	How to Obtain	Explanation
Max. Height Roughness	Rz	Ry is a mean value in micron meter obtained from the distance of the highest peaks and the lowest valleys within the range of sampled reference length (l) in the direction of the center line of the roughness curve. Note) When calculating Rz, extraordinarily high or low threads are considered as damages and excluded from the calculation, and only standard lengths are used. Rz=Rp+Rv	
Ten Points Mean Roughness	RzJIS	Rz is a mean value in micron meter obtained from the distance of 5 highest peaks (Yp) and the 5 lowest valleys (Yv) measured from the center line of the roughness curve within the range of sampled reference length "l". $Rz_{JIS} = \frac{(Yp1+Yp2+Yp3+Yp4+Yp5) + (Yv1+Yv2+Yv3+Yv4+Yv5)}{5}$	Yp1, Yp2, Yp3, Yp4, Yp5 : Distance from the mean line to highest 5 peaks in the range of sampled reference length "l" Yv1, Yv2, Yv3, Yv4, Yv5 : Distance from the mean line to the lowest 5 valleys in the range of sampled reference length "l"
Arithmetical Mean Roughness	Ra	Ra is obtained from the following formula in micron meter, the roughness curve is expressed by y=f(x), the X-axis is in the direction of the center line and the Y-axis is the vertical magnification of the roughness curve in the range of sampled reference length "l". $Ra = \frac{1}{l} \int_0^l |f(x)| dx$	

Relationship with Triangle Symbol

Arithmetical Mean Roughness Ra(μm)	Max. Height Roughness Rz(μm)	Ten Points Mean Roughness RzJIS(μm)	※(Relationship with Triangle)
0.025	0.1	0.1	▽▽▽▽
0.050	0.2	0.2	
0.100	0.4	0.4	
0.200	0.8	0.8	
0.400	1.6	1.6	▽▽▽
0.800	3.2	3.2	
1.600	6.3	6.3	▽▽
3.200	12.5	12.5	
6.300	25.0	25.0	
12.500	50.0	50.0	▽
25.000	100.0	100.0	

※ Finishing symbol (Triangle ▽ and wave ~) was removed from JIS standard in the 1994 Revision.

• How to Indicate

- ① When Ra is 1.6μm → 1.6μmRa
- ② When Rz is 6.3μm → 6.3μmRz
- ③ When RzJIS is 6.3μm → 6.3μmRzJIS

Indication in JIS Standard

Example of Ra Indication	Example of Ry, (Rz) Indication
① When indicating the upper limit only (when upper limit is 6.3 mRa) 	① When indicating upper limit only Indicate surface roughness following the parameter symbol.
② When indicating both lower and upper limit (when upper limit is 6.3 mRa, lower limit is 1.6 mRa) 	② When indicating both lower and upper limit Indicate surface roughness as (upper limit ~ lower limit) following the parameter symbol.

Note: The indications of Ra and Rz are different.

Caution-Symbols for Surface Roughness

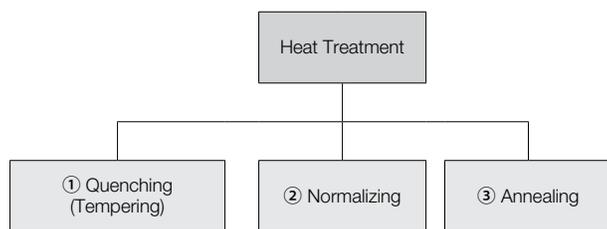
The above information is based on JIS B 0601-2001.

However, some symbols were revised as shown in the right table in accordance with ISO Standard from JIS B 0601-2001 version. Ten Points Mean Roughness (Rz) was eliminated from 2001 version but it still remains as RzJIS reference, since it was popular in Japan.

Type	Symbol of JIS B 0601-1994	Symbol of JIS B 0601-2001
Max. Height Roughness	Ry	→ Rz
Ten Points Mean Roughness	Rz	→ (RzJIS)
Arithmetical Mean Roughness	Ra	→ Ra

Heat Treatment

One of the ways to determine the hardness of steel is the heat treatment and it is classified to 3 types.



<p>Heat Treatment Method</p>	① Quenching (Tempering)	After heating to over 727°C, cool rapidly down to 550°C in water or oil.	Quenching makes steel hard because it cools down red-hot steel very rapidly in water or oil, but it may promote internal stress. In order to remove such internal stress, tempering is used. (After cooled down once, reheat it to 200°C-600°C)
	② Normalizing	After heating to over 727°C, cool down rapidly to 600°C and then to normal temperature.	It miniaturizes the crystals. (Steel is also composed of small cells.) It is used to improve the mechanical character or machinability.
	③ Annealing	After heating to over 727°C, cool down very slowly to 600°C, then to normal temperature.	It miniaturizes the crystals like the process of normalizing, but the crystal size is bigger than that of normalizing. It targets machinability improvement and distortion correction.

Hardness Value

Hardness	Reference Standard	Example	Explanation of Example
Brinell Hardness	JIS Z 2243:1992	250HB	Hardness Value : 250, Hardness Symbol : HB
		200-250HB	When the hardness has the range
Vickers Hardness	JIS Z 2244:1998	640HV	Hardness Value : 640, Hardness Symbol : HV
Rockwell Hardness	JIS Z 2245:1992	60HRC	Hardness Value : 60, Hardness Symbol : HRC
Shore Hardness	JIS Z 2246:1992	50HS	Hardness Value : 50, Hardness Symbol : HS

VICKERS HARDNESS CONVERSION

Vickers Hardness Conversion Chart

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3000kgf (HB)		Rockwell Hardness ⁽²⁾			Shore Hardness (HS)	Tensile Strength MPa ⁽¹⁾
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.60mm (1/16in) Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
940	-	-	85.6	-	68.0	97	
920	-	-	85.3	-	67.5	96	
900	-	-	85.0	-	67.0	95	
880	-	(767)	84.7	-	66.4	93	
860	-	(757)	84.4	-	65.9	92	
840	-	(745)	84.1	-	65.3	91	
820	-	(733)	83.8	-	64.7	90	
800	-	(722)	83.4	-	64.0	88	
780	-	(710)	83.0	-	63.3	87	
760	-	(698)	82.6	-	62.5	86	
740	-	(684)	82.2	-	61.8	84	
720	-	(670)	81.8	-	61.0	83	
700	-	(656)	81.3	-	60.1	81	
690	-	(647)	81.1	-	59.7	-	
680	-	(638)	80.8	-	59.2	80	
670	-	630	80.6	-	58.8	-	
660	-	620	80.3	-	58.3	79	
650	-	611	80.0	-	57.8	-	
640	-	601	79.8	-	57.3	77	
630	-	591	79.5	-	56.8	-	
620	-	582	79.2	-	56.3	75	
610	-	573	78.9	-	55.7	-	
600	-	564	78.6	-	55.2	74	
590	-	554	78.4	-	54.7	-	2055
580	-	545	78.0	-	54.1	72	2020
570	-	535	77.8	-	53.6	-	1985
560	-	525	77.4	-	53.0	71	1950
550	505	517	77.0	-	52.3	-	1905
540	496	507	76.7	-	51.7	69	1860
530	488	497	76.4	-	51.1	-	1825
520	480	488	76.1	-	50.5	67	1795
510	473	479	75.7	-	49.8	-	1750
500	465	471	75.3	-	49.1	66	1705
490	456	460	74.9	-	48.4	-	1660
480	448	452	74.5	-	47.7	64	1620
470	441	442	74.1	-	46.9	-	1570
460	433	433	73.6	-	46.1	62	1530
450	425	425	73.3	-	45.3	-	1495
440	415	415	72.8	-	44.5	59	1460
430	405	405	72.3	-	43.6	-	1410
420	397	397	71.8	-	42.7	57	1370
410	388	388	71.4	-	41.8	-	1330
400	379	379	70.8	-	40.8	55	1290
390	369	369	70.3	-	39.8	-	1240
380	360	360	69.8	(110.0)	38.8	52	1205
370	350	350	69.2	-	37.7	-	1170
360	341	341	68.7	(109.0)	36.6	50	1130
350	331	331	68.1	-	35.5	-	1095
340	322	322	67.6	(108.0)	34.4	47	1070
330	313	313	67.0	-	33.3	-	1035

Vickers Hardness (HV)	Brinell Hardness 10mm Dia. Ball Load: 3000kgf (HB)		Rockwell Hardness ⁽²⁾			Shore Hardness (HS)	Tensile Strength MPa ⁽¹⁾
	Standard Ball	Tungsten Carbide Ball	A Scale Load: 60kgf Diamond Point (HRA)	B Scale Load: 100kgf 1.60mm (1/16in) Ball (HRB)	C Scale Load: 150kgf Diamond Point (HRC)		
320	303	303	66.4	(107.0)	32.2	45	1005
310	294	294	65.8	-	31.0	-	980
300	284	284	65.2	(105.5)	29.8	42	950
295	280	280	64.8	-	29.2	-	935
290	275	275	64.5	(104.5)	28.5	41	915
285	270	270	64.2	-	27.8	-	905
280	265	265	63.8	(103.5)	27.1	40	890
275	261	261	63.5	-	26.4	-	875
270	256	256	63.1	(102.0)	25.6	38	855
265	252	252	62.7	-	24.8	-	840
260	247	247	62.4	(101.0)	24.0	37	825
255	243	243	62.0	-	23.1	-	805
250	238	238	61.6	99.5	22.2	36	795
245	233	233	61.2	-	21.3	-	780
240	228	228	60.7	98.1	20.3	34	765
230	219	219	-	96.7	(18.0)	33	730
220	209	209	-	95.0	(15.7)	32	695
210	200	200	-	93.4	(13.4)	30	670
200	190	190	-	91.5	(11.0)	29	635
190	181	181	-	89.5	(8.5)	28	605
180	171	171	-	87.1	(6.0)	26	580
170	162	162	-	85.0	(3.0)	25	545
160	152	152	-	81.7	(0.0)	24	515
150	143	143	-	78.7	-	22	490
140	133	133	-	75.0	-	21	455
130	124	124	-	71.2	-	20	425
120	114	114	-	66.7	-	-	390
110	105	105	-	62.3	-	-	-
100	95	95	-	56.2	-	-	-
95	90	90	-	52.0	-	-	-
90	86	86	-	48.0	-	-	-
85	81	81	-	41.0	-	-	-

• Extracted from JIS Handbook "Iron & Steel" (SAE J 417)
 Note 1) 1MPa = 1N/mm²
 2) Value in () is not in practical use, but reference only



MATERIAL LIST (JIS)

Metal

Class	Name of JIS Standard	Symbol	
Structural Steel	Rolled Steel for Welded Structure	SM	
	Re-Rolled Steel	SRB	
	Rolled Steel for General Structure	SS	
	Light Gauge Steel for General Structure	SSC	
	Hot-Rolled Steel Plate, Sheet and Strip for Automobile Structural Use	SAPH	
Steel Sheet	Cold-Rolled Steel Plate, Sheet and Strip	SPC	
	Hot-Rolled Soft Steel Plate, Sheet and Strip	SPH	
Steel Pipe	Carbon Steel Pipe for Ordinary Piping	SGP	
	Carbon Steel Pipe for Boiler / Heat Exchanger	STB	
	Seamless Steel Pipe for High Pressure Gas Cylinder	STH	
	Carbon Steel Pipe for General Structural Use	STK	
	Carbon Steel Pipe for Machine Structural Use	STKM	
	Alloy Steel Pipe for Structural Use	STKS	
	Stainless Steel Pipe for Machine Structural Use	SUS-TK	
	Steel Square Pipe for General Structural Use	STKR	
	Alloy Steel Pipe for Ordinary Piping	STPA	
	Carbon Steel Pipe for Pressure Service	STPG	
	Carbon Steel Pipe for High-Temperature Service	STPT	
	Carbon Steel Pipe for High-Pressure Service	STS	
	Stainless Steel Pipe for Ordinary Piping	SUS-TP	
	Steel for Machine Structural Use	Carbon Steel for Machine Structural Use	SxxC, SxxCK
Aluminium Chromium Molybdenum Steel		SACM	
Chromium Molybdenum Steel		SCM	
Chromium Steel		SCr	
Nickel Chromium Steel		SNC	
Nickel Chromium Molybdenum Steel		SNCM	
Manganese Steel and Manganese Chromium Steel for Machine Structural Use		SMn, SMnC	
Special Steel	Tool Steel	Carbon Tool Steel	SK
		Hollow Drill Steel	SKC
		Alloy Tool Steel	SKS, SKD, SKT
		High Speed Tool Steel	SKH
	Special Steel	Free Cutting Carbon Steel	SUM
		High Carbon Chromium Bearing Steel	SUJ
		Spring Steel	SUP
	Stainless Steel	Stainless Steel Bar	SUS-B
		Hot-Rolled Stainless Steel Plate, Sheet and Strip	SUS-HP, SUS-HS
	Heat-Resistant Steel	Cold-Rolled Stainless Steel Plate, Sheet and Strip	SUS-CP, SUS-CS
		Heat-Resisting Steel Bar	SUH-B, SUH-CB
	Super Alloy	Heat-Resisting Steel Plate and Sheet	SUH-HP, SUH-CP
		Corrosion-Resisting and Heat-Resisting Superalloy Bar	NCF-B
	Forged Steel	Corrosion-Resisting and Heat-Resisting Superalloy Plate and Sheet	NCF-P
Carbon Steel Forging		SF	
Chromium Molybdenum Steel Forging		SFCM	
	Nickel Chromium Molybdenum Steel Forging	SFNCM	
Cast Iron	Gray Cast Iron	FC	
	Spheroidal Graphite Cast Iron	FCD	
	Blackheart Malleable Cast Iron	FCMB	
	Whiteheart Malleable Cast Iron	FCMW	
	Pearlitic Malleable Cast Iron	FCMP	
Cast Steel	Carbon Cast Steel	SC	
	High Tensile Strength Carbon Cast Steel & Low Alloy Cast Steel	SCC	
	Stainless Cast Steel	SCS	
	Heat-Resisting Cast Steel	SCH	
	High Manganese Cast Steel	SCMnH	
	Cast Steel for High Temperature and High Pressure Service	SCPH	

Non-Ferrous Metal

Class	Name of JIS Standard	Symbol
Copper	Copper and Copper Alloy Sheet / Strip	CxxxP CxxxPP CxxxR
	Copper and Copper Alloy Rod and Bar	CxxxBD CxxxBDS CxxxBE
Aluminum Alloy and Aluminum Alloy Expanded Material	Aluminum and Al. Alloy Sheet / Strip	AxxxP AxxxPC
	Aluminum and Al. Alloy Rod, Bar, and Wire	AxxxBE AxxxBES AxxxBD AxxxBDS AxxxW AxxxWS
	Aluminum and Al. Alloy Extruded Shape	AxxxS
	Aluminum and Al. Alloy Forging	AxxxFD AxxxFH
Magnesium Alloy Expanded Material	Magnesium Alloy Sheet and Plate	MP
	Magnesium Alloy Rod and Bar	MB
Nickel Alloy	Nickel Copper Alloy Sheet and Plate	NCuP
	Nickel Copper Alloy Rod and Bar	NCuB
Titanium Expanded Material	Titanium Rod and Bar	TB
Casting	Brass Casting	CAC20x
	High Strength Brass Casting	CAC30x
	Bronze Casting	CAC40x
	Phosphoric Bronze Casting	CAC50x
	Aluminum Bronze Casting	CAC70x
	Aluminum Alloy Casting	AC
	Magnesium Alloy Casting	MC
	Zinc Alloy Die Casting	ZDCx
	Aluminum Alloy Die Casting	ADC
	Magnesium Alloy Die Casting	MD
White Metal	WJ	

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
CARBON STEEL FOR MACHINE STRUCTURAL USE	1010	S10C	08 10	040A10 045A10 045M10	C10E C10R	XC10	
	1012	S12C		040A12		XC12	
	1015	S15C	15	055M15	C15E C15R		
	1017	S17C				XC18	
	1020	S20C	20	070M20 C22 C22E C22R	C22 C22E C22R	C22 C22E C22R	
	1023	S22C					
	1025	S25C	25	C25 C25E C22R	C25 C25E C25R	C25 C25E C25R	
	1029	S28C					25Г
	1030	S30C	30	080A30 080M30 C30 C30E C30R	C30 C30E C30R	C30 C30E C30R	30Г
		S33C					30Г
	1035	S35C	35	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R	35Г
	1038	S38C					35Г
	1039 1040	S40C	40	080M40 C40 C40E C40R	C40 C40E C40R	C40 C40E C40R	40Г
	1042 1043	S43C		080A42			40Г
	1045 1046	S45C	45	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R	45Г
		S48C		080A47			45Г
	1049	S50C	50	080M50 C50 C50E C50R	C50 C50E C50R	C50 C50E C50R	50Г
	1050 1053	S53C					50Г
	1055	S55C	55	070M55 C55 C55E C55R	C55 C55E C55R	C55 C55E C55R	
	1059 1060	S58C	60	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R	60Г
	S09CK		045A10 045M10	C10E	XC10		
	S15CK	15F		C15E	XC12		
	S20CK				XC18		

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ	
NICKEL CHROMIUM STEEL		SNC236			36NiCr6		40XH	
		SNC415	12CrNi2		14NiCr10			
		SNC631	30CrNi3		36NiCr10		30XH3A	
		SNC815	12Cr2Ni4	655M13	15NiCr13			
		SNC836	37CrNi3		31NiCr14			
NICKEL CHROMIUM MOLYBDENUM STEEL	8615 8617 8620 8622	SNCM220	20CrNiMo	805A20 805M20 805A22 805M22	20NiCrMo2 20NiCrMoS2	20NCD 2		
	8637 8640			SNCM240		40NiCrMo2-2		
					SNCM415			
	4320			SNCM420	18CrNiMnMoA		17NiCrMo6-4		20XH2M (20XHM)
		SNCM431			30CrNiMo8			
	4340	SNCM439	40CrNiMoA		40NiCrMo6			
		SNCM447			34CrNiMo6			
		SNCM616						
		SNCM625						
		SNCM630						
		SNCM815						
	CHROMIUM STEEL		SCr415	15Cr 15CrA		17Cr3 17CrS3		15X 15XA
		5120	SCr420	20Cr				20X
5130 5132		SCr430	30Cr	34Cr4 34CrS4	34Cr4 34CrS4	34Cr4 34CrS4	30X	
5132		SCr435	35Cr	37Cr4 37CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X	
5140		SCr440	40Cr	530M40 41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X	
		SCr445	45Cr 50Cr				45X	
CHROMIUM MOLYBDENUM STEEL		SCM415	15CrMo		15CrMo4			
		SCM418	20CrMo		18CrMo4 18CrMoS4		20XM	
		SCM420		708M20	20CrMo5		20XM	
		SCM421						
	4131	SCM430	30CrMo 30CrMoA				30XM 30XMA	
		SCM432						
	4137	SCM435	35CrMo	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM	
	4140 4142	SCM440	42CrMo	708M40 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4		
	4145 4147	SCM445						
		SCM822						

R
TECHNICAL

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ	
MANGANESE CHROMIUM STEEL MANGANESE STEEL	1522	SMn420	20Mn2	150M19	20Mn5			
	1534	SMn433	30Mn2 35Mn2	150M36	34Mn5		30Г2 35Г2	
	1541	SMn438	40Mn2	150M36	36Mn5		35Г2 40Г2	
	1541	SMn443	45Mn2				40Г2 45Г2	
	5115	SMnC420	15CrMn		16MnCr5			
	5140	SMnC443	40CrMn					
STRUCTURAL STEEL WITH SPECIFIED HARDENABILITY BAND (H-SHAPE STEEL)	1522H	SMn420H						
		SMn433H						
	1541H	SMn438H						
	1541H	SMn443H						
		SMnC420H						
		SMnC443H						
		SCr415H	15CrH		17Cr3 17CrS3		15X	
	5120H	SCr420H	20Cr1H		17Cr3		20X	
	5130H 5132H	SCr430H		34Cr4 34CrS4	34Cr4 34CrS3	34Cr4 34CrS4	30X	
	5135H	SCr435H		37Cr4 37CrS4	37Cr4 34CrS4	37Cr4 37CrS4	35X	
	5140H	SCr440H	40CrH	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X	
	4118H	SCN415H	15CrMoH		15CrMo5			
		SCM418H			18CrMo4 18CrMoS4			
	4118H	SCM420H	20CrMoH	708H20	18CrMo4			
	4135H 4137H	SCM435H		34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4		
	4140H 4142H	SCM440H		42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4		
	4145H 4147H	SCM445H						
		SCM822H						
		SNC415H						
		SNC631H						
		SNC815H	12Cr2Ni4H		655H13	15NiCr13		
	8617H 8620H 8622H	SNCM220H	20CrNiMoH		805H17 805H20 805H22	21NiCrMo2	20N CD 2	
	4320H	SNCM420H	20CrNi2MoH			20NiCrMoS6-4		

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA		JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
	UNS	AISI						
STAINLESS STEEL	S20100	201	SUS 201	1Cr17Mn6Ni5N			Z12CMN17-07Az	
	S20200	202	SUS 202	1Cr18Mn8Ni5N	284S16			12X17T9AH4
	S30100	301	SUS 301	1Cr18Mn10Ni5Mo3N 1Cr17Ni7	301S21	X12CrNi17 7	Z11CN17-08	07X16H6
			SUS 301L			X2CrNiN18-7		
			SUS 301J1			X12CrNi17 7		
	S30200	302	SUS 302	1Cr18Ni9	302S25		Z12CN18-09	12X18H9
	S30215	302B	SUS 302B					
	S30300	303	SUS 303	Y1Cr18Ni9	303S21	X10CrNiS18 9	Z8CNF18-09	
	S30323	303Se	SUS 303Se	Y1Cr18Ni9Se	303S41			12X18H10E
	S30400	304	SUS 304	0Cr18Ni9	304S31	X5CrNi18 10	Z7CN18-09	08X18H10
	S30403	304L	SUS 304L	00Cr18Ni10	304S11	X2CrNi19 11	Z3CN19-11	03X18H11
	S30451	304N	SUS 304N1	0Cr18Ni9N			Z6CN19-09Az	
	S30452		SUS 304N2	0Cr19Ni10NbN				
	S30453	304LN	SUS 304LN	00Cr18Ni10N		X2CrNiN18 10	Z3CN18-10Az	
			SUS 304J1					
			SUS 304J2					
	S30431	S30431	SUS 304J3					
	S30500	305	SUS 305	1Cr18Ni12	305S19	X5CrNi18 12	Z8CN18-12	06X18H11
			SUS 305J1					
	S30908	309S	SUS 309S	0Cr23Ni13			Z10CN24-13	
	S31008	310S	SUS 310S	0Cr25Ni20	310S31		Z8CN25-20	10X23H18
	S31600	316	SUS 316	0Cr17Ni12Mo2	316S31	X5CrNiMo17 12 2	Z7CND17-12-02	
						X5CrNiMo17 13 3	Z6CND18-12-03	
	S31603	316L	SUS 316L	00Cr17Ni14Mo2	316S11	X2CrNiMo17 13 2	Z3CND17-12-02	
						X2CrNiMo17 14 3	Z3CND17-13-03	03X17H14M3
	S31651	316N	SUS 316N	0Cr17Ni12Mo2N				
	S31653	316LN	SUS 316LN	00Cr17Ni13Mo2N		X2CrNiMoN17 12 2	Z3CND17-11Az	
						X2CrNiMoN17 13 3	Z3CND17-12Az	
	S31635		SUS 316Ti			X6CrNiMoTi17 12 2	Z6CNDT17-12	08X17H13M2T
			SUS 316J1	0Cr18Ni12Mo2Cu2				
			SUS 316J1L	00Cr18Ni14Mo2Cu2				
	S31700	317	SUS 317	0Cr19Ni13Mo3	317S16			
	S31703	317L	SUS 317L	00Cr19Ni13Mo3	317S12	X2CrNiMo18 16 4	Z3CND19-15-04	
	S31753		SUS 317LN				Z3CND19-14Az	
			SUS 317J1	0Cr18Ni16Mo5				
			SUS 317J2					
			SUS 317J3L					
	N08367		SUS 836L					
	N08904	N08904	SUS 890L		904S14		Z2NCUDU25-20	
	S32100	321	SUS 321	1Cr18Ni9Ti 0Cr18Ni10Ti	321S31	X6CrNiTi18 10	Z6CNT18-10	08X18H10T
S34700	347	SUS 347	0Cr18Ni11Nb	347S31	X6CrNiNb18 10	Z6CNNb18-10	08X18H12B	
S38400	384	SUS 384				Z6CN18-16		
S30430	304Cu	SUS XM7	0Cr18Ni9Cu3	394S17		Z2CNU18-10		
S38100		SUS XM15J1	0Cr18Ni13Si4			Z15CNS20-12		
S32900	329	SUS 329J1	0Cr26Ni5Mo2					
S39240	S31803	SUS 329J3L				Z3CNDU22-05Az	08X21H6M2T	
S39275	S31260	SUS 329J4L				Z3CNDU25-07Az		

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA		JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
	UNS	AISI						
STAINLESS STEEL	S40500	405	SUS 405	0Cr13Al 0Cr13	405S17	X6CrAl13	Z8CA12	
			SUS 410L	00Cr12			Z3C14	
	S42900	429	SUS 429					
	S43000	430	SUS 430	1Cr17	430S17	X6Cr17	Z8C17	12X17
	S43020	430F	SUS 430F	Y1Cr17		X7CrMoS18	Z8CF17	
	S43035		SUS 430LX			X6CrTi17	Z4CT17	
			SUS 430J1L			X6CrNb17	Z4CNb17	
	S43400	434	SUS 434	1Cr17Mo	434S17	X6CrMo17 1	Z8CD17-01	
	S43600	436	SUS 436L					
			SUS 436J1L					
	S44400	444	SUS 444				Z3CDT18-02	
	S44700		SUS 447J1	00Cr30Mo2				
	S44627		SUS XM27	00Cr27Mo			Z1CD26-01	
	S40300	403	SUS 403	1Cr12				
	S41000	410	SUS 410	1Cr13	410S21	X10Cr13	Z13C13	
	S41008	410S	SUS 410S		403S17	X6Cr13	Z8C12	08X13
			SUS 410F2					
	S41025		SUS 410J1	1Cr13Mo 1Cr12Mo		X12CrS13		
	S41600	416	SUS 416	Y1Cr13	416S21		Z11CF13	
	S42000	420	SUS 420J1	2Cr13	420S29	X20Cr13	Z20C13	20X13
	S42000	420	SUS 420J2	3Cr13	420S37	X30Cr13	Z33C13	30X13
	S42020	420F	SUS 420F	Y3Cr13			Z30CF13	
			SUS 420F2					
			SUS 429J1					
	S43100	431	SUS 431	1Cr17Ni2	431S29	X20CrNi17 2	Z15CN16-02	20X17H2
	S44002	440A	SUS 440A	7Cr17			Z70C15	
	S44003	440B	SUS 440B	8Cr17				
	S44004	440C	SUS 440C	9Cr18 11Cr17 9Cr18Mo			Z100CD17	95X18
S44020	S44020	SUS 440F	Y11Cr17					
S17400	S17400	SUS 630	0Cr17Ni4CuNb		X5CrNiCuNb16-4	Z6CNU17-04		
S17700	S17700	SUS 631	0Cr17Ni7Al		X7CrNiAl17 7	Z9CNA17-07	09X17H7 IO	
		SUS 632J1						

Representative Classification of Stainless Steel

Stainless Steel (Austenitic Related)

JIS	
SUS201	SUS309S
SUS202	SUS310S
SUS301	SUS316
SUS302	SUS316L
SUS302B	SUS316N
SUS303	SUS317
SUS303Se	SUS317L
SUS304	SUS321
SUS304L	SUS347
SUS304N1	SUS384
SUS304N2	SUSXM7
SUS305	SUSXM15J1
SUS308	

Stainless Steel (Ferritic Related)

JIS
SUS405
SUS429
SUS430
SUS430F
SUS434
SUSXM27

Stainless Steel (Martensitic Related)

JIS
SUS403
SUS410
SUS410S
SUS416
SUS420J1
SUS420F
SUS431
SUS440A
SUS440B
SUS440C
SUS440F

Stainless Steel (Precipitation Hardened Related)

JIS
SUS630
SUS631

INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA		JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
	UNS	AISI						
HEAT RESISTING STEEL			SUH 31		331S42		Z35CNWS14-14	45X14H14B2M
			SUH 35		349S52		Z52CMN21-09Az	
	S63008		SUH 36	5Cr21Mn9Ni4N	349S54	X53CrMnNi21-9	Z55CMN21-09Az	55X20 Г 9AH4
	S63017		SUH 37	2Cr21Ni12N	381S34			
			SUH 38					
	S30900	309	SUH 309	2Cr23Ni13	309S24		Z15CN24-13	
	S31000	310	SUH 310	2Cr25Ni20	310S24	CrNi2520	Z15CN25-20	20X25H20C2
	N08330	N08330	SUH 330	1Cr16Ni35			Z12NCS35-16	
	S66286		SUH 660	0Cr15Ni25Ti2MoAlVB			Z6NCTV25-20	
	R30155		SUH 661					
			SUH 21			CrAl1205		
	S40900	409	SUH 409		409S19	X6CrTi12	Z6CT12	
			SUH 409L				Z3CT12	
	S44600	446	SUH 446	2Cr25N			Z12C25	15X28
	S65007		SUH 1	4Cr9Si2	401S45	X45CrSi9-3	Z45CS9	
			SUH 3	4Cr10Si2Mo			Z40CSD10	40X10C2M
			SUH 4	8Cr20Si2Ni	443S65		Z80CSN20-02	
			SUH 11					40X 9C2
		SUH 600	2Cr12MoVNbN				20X12BHMБФP	
S42200		SUH 616	2Cr12NiMoWV					

Representative Classification of Heat Resisting Steel

Heat Resisting Steel (Austenitic Related)

JIS
SUH31
SUH35
SUH36
SUH37
SUH38
SUH309
SUH310
SUH330
SUH660
SUH661

Heat Resisting Steel (Ferritic Related)

JIS
SUH21
SUH409
SUH446

Heat Resisting Steel (Martensitic Related)

JIS
SUH1
SUH3
SUH4
SUH11
SUH600
SUH616

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
CARBON TOOL STEEL		SK140 (SK1)	T13			C140E3U	Y13
	W1-11½	SK120 (SK2)	T12			C120E3U	Y12
	W1-10	SK105 (SK3)	T11		C105W1	C105E2U	Y11
	W1-9	SK95 (SK4)	T10			C90E2U	Y10
	W1-8	SK85 (SK5)	T8Mn T9		C80W1	C90E2U C80E2U	Y8Г Y9
		SK75 (SK6)	T8		C80W1	C80E2U C70E2U	Y8
		SK65 (SK7)	T7		C70W2	C70E2U	Y7
HIGH SPEED TOOL STEEL	T1	SKH2	W18Cr4V	BT1		HS18-0-1	P18
	T4	SKH3	W18Cr4VCo5	BT4	S18-1-2-5	HS18-1-1-5	P18K5Φ2
	T5	SKH4	W18Cr4V2Co8	BT5		HS18-0-2-9	P18K5Φ
	T15	SKH10	W12Cr4V5Co5	BT15	S12-1-4-5	HS12-1-5-5	
	M2	SKH51	W6Mo5Cr4V2	BM2	S6-5-2	HS6-5-2	P6M5
	M3-1	SKH52	CW6Mo5Cr4V2 W6Mo5Cr4V3				P6M5Φ3
	M3-2	SKH53	CW6Mo5Cr4V3		S6-5-3	HS6-5-3	P6M5Φ3
	M4	SKH54		BM4		HS6-5-4	
	M35 M41	SKH55	W6Mo5Cr4V2Co5 W7Mo5Cr4V2Co5	BM35	S6-5-2-5	HS6-5-2-5HC	P6M5K5
	M36	SKH56					
		SKH57		BT42	S10-4-3-10	HS10-4-3-10	
	M7	SKH58	W2Mo9Cr4V2			HS2-9-2	
	M42	SKH59	W2Mo9Cr4VCo8	BM42	S2-10-1-8	HS2-9-1-8	
ALLOY TOOL STEEL	F2	SKS11					XB4
		SKS2			105WCr6	105WCr5	XBГ
		SKS21	W				
		SKS5					
	L6	SKS51					
		SKS7					
		SKS8	Cr06			C140E3UCr4	13X
	S1	SKS4	5CrW2Si 6CrW2Si				6XB2C 5XB2CΦ
	S1	SKS41	4CrW2Si				4XB2C
	W2-9½	SKS43		BW2		100V2	
	W2-8	SKS44					
		SKS3	9CrWMn				9XBГ
		SKS31	CrWMn		105WCr6	105WCr5	XBГ
		SKS93					
		SKS94					
		SKS95	8MnSi				
	D3	SKD1	Cr12	BD3	X210Cr12	X200Cr12	X12
	D2	SKD10	Cr12Mo1V1		X153CrMoV12		X12MΦ
	D2	SKD11	Cr12MoV	BD2	X153CrMoV12	X160CrMoV12	
	A2	SKD12	Cr5Mo1V	BA2		X100CrMoV5	
		SKD4				X32WCrV3	
	H21	SKD5	3Cr2W8V	BH21	X30WCrV9-3	X30WCrV9	
	H11	SKD6	4Cr5MoSiV	BH11	X38CrMoV51	X38CrMoV5	4X5MΦC
H13	SKD61	4Cr5MoSiV1	BH13	X40CrMoV51	X40CrMoV5	4X5MΦ1C	
H12	SKD62		BH12		X35CrWMoV5	3X3M3Φ	
H10	SKD7	4Cr3Mo3SiV	BH10	X32CrMoV33	32CrMoV12-18		
H19	SKD8		BH19				
	SKT3				55CrNiMoV4		
	SKT4	5CrNiMo	BH224 / 5	55NiCrMoV6	55NiCrMoV7	5XHM	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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MATERIAL CROSS REFERENCE CHART

Steel

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
SPRING STEEL	1075 1078	SUP3					75 80 85
		SUP6	55Si2Mn		56SiCr7	60Si7	60C2
	9260	SUP7	60Si2Mn 60Si2MnA		61SiCr7	60Si7	60C2Г
	5155	SUP9	55CrMnA		55Cr3	55Cr3	
	5160	SUP9A	60CrMnA		55Cr3	60Cr3	
	6150	SUP10	50CrVA	735A51, 735H51	50CrV4	51CrV4	XΦA50XΓΦA
	51B60	SUP11A	60CrMnBA		51CrV4		50XΓP
	9254	SUP12		685A57, 685H57	54SiCr6	54SiCr6	
FREE CUTTING CARBON STEEL	4161	SUP13	60CrMnMoA	705A60, 705H60	60CrMn3-2	60CrMo4	
	1110	SUM11					
	1108	SUM12	Y12				
	1212	SUM21					
	1213	SUM22	Y15	(230M07)	9SMn28	S250	
	12L13	SUM22L	Y12Pb		9SMnPb28	S250Pb	
	1215	SUM23					
		SUM23L					
	12L14	SUM24L	Y15Pb		9SMnPb28	S250Pb	
		SUM25			9SMn36	S300	
	1117	SUM31			15S10		
		SUM31L					
		SUM32	Y20	210M15, 210A15		(13MF4)	
	1137	SUM41	Y30 Y35			(35MF6)	
	1141	SUM42	Y40Mn			(45MF6.1)	
	1144	SUM43		(226M44)		(45MF6.3)	
CARBON CHROMIUM BEARING STEEL	51100	SUJ1	GCr4				
	52100	SUJ2	GCr5		100Cr6	100Cr6	ШХ15
	ASTM A 485 Grade 1	SUJ3	GCr15SiMn				
		SUJ4	GCr15SiMo				
		SUJ5	GCr18Mo				

MATERIAL CROSS REFERENCE CHART

Cast Iron

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
GRAY CAST IRON	NO.20	FC100	HT100	100			CY10
	NO.30	FC150	HT150	150	GG15	FGL150	CY15
	NO.35	FC200	HT200	200	GG20	FGL200	CY20
	NO.45	FC250	HT250	250	GG25	FGL250	CY25
	NO.50	FC300	HT300	300	GG30	FGL300	CY30
	NO.60	FC350	HT350	350	GG35	FGL350	CY35
NODULAR CAST IRON					GG40	FGL400	CY40
	60-40-18	FCD400	QT400-18	400/17	GGG40	FGS370-17	BY40
	65-45-12	FCD450	QT450-10	420/12		FGS400-12	BY45
	70-50-05	FCD500	QT500-7	500/7	GGG50	FGS500-7	BY50
	80-60-03	FCD600	QT600-3	600/7	GGG60	FGS600-2	BY60
	100-70-03	FCD700	QT700-2	700/2	GGG70	FGS700-2	BY70
	120-90-02	FCD800	QT800-2	800/2	GGG80	FGS800-2	BY80
		QT900-2	900/2			BY100	

Non-Ferrous Metal

CLASS	USA AISI / SAE	JAPAN JIS	CHINA GB	UK BS	GERMANY DIN	FRANCE NF	RUSSIA ГОСТ
ALUMINUM ALLOY	1199		1A99		A199.99R		A99
			1A97		A199.98R		A97
			1A95				A95
		A1080	1A80	1080(1A)	A199.90	1080A	A8
	1050	A1050	1A50	1050(1B)	A199.50	1050A	A5
	5052	A5052	5A02	NS4	AlMg2.5	5052	Amg
			5A03	NS5			AMg3
	5056	A5056	5A05	NB6	AlMg5		AMg5V
	5456	A5556	5A30	NG61		5957	
	2036	A2117	2A01		AlCu2.5Mg0.5	2117	D18
		A2017	2A11	HF15	AlCuMg1	2017S	D1
	2124	A2024	2A12		AlCuMg2	2024	D16AVTV
	2319		2B16				
		A2N01	2A80				AK4
	2218	A2018	2A90				AK2
	2014	A2014	2A14		AlCuSiMn	2014	AK8
6061	A6061				6061		
7175	A7075	7A09		AlZnMgCu1.5	7075	V95P	
ALUMINUM ALLOY CASTING	356.2	AC4C	ZAlSi7Mn	LM25	G-AlSi7Mg		
	413.2	AC3A	ZAlSi12	LM6	G-Al12	A-S12-Y4	AL2
	355.2		ZAlSi5Cu1Mg				AL5
	413.0	AC8A	ZAlSi2Cu2Mg1		G-Al12(Cu)		
			ZAlCu5Mn				AL19
	201.0		ZAlCu5MnCdVA				
	520.2		ZAlMg10	LM10	G-AlMg10	AG11	AL8
		ZAlMg5Si		G-AlMg5Si		AL13	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

INSERT GRADES CROSS REFERENCE

CVD Coated Carbide (Turning)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	CA510 CA5505	JC110V	HG8010 HC5000 HG3305	UE6105 UE6005 UE6015	-	GC4305 GC4005 GC4205	TP0501 TP0500 TP1000	AC700G AC810P	T9005 T9105	KCP05B KCP05 KC9105	IC8150 IC9150
	P10	CA510 CA515 CA5505 CA5515	JC110V JC215V	GM10 GM20 GM8015 HG8010	MC6015 UE6105 UE6110 UE6005 UE6010 UE6020	CP2 CP5 CP7	GC4205 GC4015 GC3115 GC4215 GC4315	TP1501 TP1000 TP1500 TP100 TP100	AC700G AC2000 AC810P AC820P AC8015P AC8025P	T9005 T9105 T9015 T9115 T9215	KCK05 KCP10B KCP10 KC9010 KC9110	IC8150 IC9150 IC9250
	P20	CA025P CA525 CA5515 CA5525 CR9025	JC110V JC215V	GM20 GM8020 HG8025	MC6025 UC6010 UE6110 UE6020	CP2 CP5 CP7	GC4025 GC4215 GC4220 GC4225 GC4325	TP2501 TP2000 TP2500 TP200	AC2000 AC3000 AC820P AC830P AC8025P	T9015 T9115 T9025 T9125 T9225	KCP25B KCP25 KC9125 KC9225 KC9325	IC8250 IC9125 IC9250 IC9350
	P30	CA025P CA525 CA5525 CA530 CA5535 CR9025	JC215V JC325V	GM25 GM8035 HG8025	MC6025 UE6020 MC6035 UE6035 UH6400	-	GC4225 GC4230 GC4235 GC2135 GC4335	TP2501 TP3501 TP2500 TP2000 TP3500 TP200	AC3000 AC630M AC830P ACP100 AC8035P	T9125 T9035 T9135 T3130	KCP30B KCP30 KC9040 KC9140	IC635 IC8350 IC9350
	P40	CA530 CA5535	JC325V JC450V JC540V	GX30	MC6035 UE6035 UH6400	-	GC4035 GC4235 GC4240 GC4335	TP40	AC630M AC830P ACP100	T9035 T3130	KCP40B KCP40 KC9140 KC9240	IC635
M (Stainless Steel)	M10	CA6515	JC605X JC110V	GM10 HS9105	MC7015 US7020	CP2 CP5	GC2015 GC2220	TP1500 TP100	AC610M AC6020M	T9015 T9115	KCM15B KCM15 KC9010 KC9110 KC9210	IC8250 IC9250 IC9350 IC6015
	M20	CA6525	JC110V JC215V	GM8020 HG8025 HS9115	US7020 MC7025	CP2 CP5	GC1515 GC2015 GC2025 GC2220	TM2000 TP200	AC6020M AC630M AC610M AC630M AC830P	T6020 T6120 T9115 T9125	KCM25B KCM25 KC9025 KC9125 KC9225	IC8350 IC9250 IC9350 IC6025
	M30	-	JC215V JC325V JC525X	GM25 GM8035	MC7025 US735	-	GC2040 GC235	TM4000 TP3501 TP300	AC6030M AC630M AC830P	T6030 T6130 T9125	KCM35B KCM35 KC9240	IC8350 IC9350 IC4050
	M40	-	JC525X	GX30	US735	-	-	TP40	-	-	-	KC9045 KC9245	IC635
K (Cast Iron)	K01	CA310 CA4505 CA5505	JC105V JC605W JC050W	HG3305 HG3315 HX3505 HX3515	MC5005 UC5105 UC5015	CP1	GC3205 GC3210	TK0501 TH1000 TK1001	AC405K AC410K AC300G AC4010K	T5105 T5010	KCPK05 KC9315 KCK05B KCK05	IC5005 IC428 IC9007 IC9150
	K10	CA310 CA315 CA4505 CA4515 CA5505	JC050W JC110V JC605W JC108W	GM8015 HX3515 HG8010 HG3315	UC5015 UC5105 UC5115 UE6010 MC5015	CP1 CP2 CP5	GC3205 GC3210 GC3215 GC3115	TK1000 TK2000 TK2001 MK1500	AC4010K AC410K AC415K AC700G AC4015K	T515 T5105 T5115 T5010	KC9110 KC9120 KC9315 KCK15B KCK15	IC5010 IC418 IC428 IC9015 IC9007
	K20	CA315 CA320 CA4515	JC110V JC215V JC108W JC605W	GM8020 HG8025	MC5015 MY5015 UE6010 UC5115 UE6110	CP2 CP5	GC4225 GC3215 GC3220 GC3225	TK2000 TX150 TP200	AC4015K AC420K AC700G AC820P	T515 T5115 T5125 T5020	KC9125 KC9320 KC9325 KCK20B KCK20	IC418 IC9015
	K30	CA320	JC215V	GM25	UE6110	-	GC3040 GC4335	TP2500 TP200	-	T5125 T9125	KCP25B KC9320	-

INSERT GRADES CROSS REFERENCE

PVD Coated Carbide (for Turning)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar	INSERT GRADES
Class	Symbol												A
P (Steel)	P01	PR1705	JC5003						ACZ150		KC5510		B
	P10	PR1705 PR930 PR1025 PR1115 PR1215 PR1225 PR1725	JC5003 JC5030	CY15 CY150 IP2000	MS6015 VP10MF	VM1 TM1 TA1 TAS DT4 DM4	GC1025	CP200	ACZ150 ACZ310 AC520U	AH710	KC5010 KC5510 KU10T	IC507 IC807 IC907	C
	P20	PR930 PR1025 PR1115 PR1215 PR1225 PR1625 PR1725	JC5015 JC5030 JC5040	CY150 IP2000	MS6015 VP10RT VP15TF VP20MF UP20M VP20RT	QM1 VM1 TA1 TAS	GC1020 GC1025 GC4125 GC1125	CP250	ACZ310 ACZ330 AC520U	AH7025 AH710 AH725 AH730 SH725 SH730	KC5025 KC5525 KC7215 KC7315 KU25T	IC507 IC907 IC908	D
	P30	PR1025 PR1225 PR1535	JC5015 JC5040	CY250 CY9020 HC844 IP3000	VP10RT VP15TF VP20MF UP20M	ZM3 QM3 TAS	GC1125 GC1145 GC1115 GC1105	CP500	ACZ330 ACZ350 AC530U AC1030U	GH330 AH120 AH740 AH9030	KC7015 KC7020 KC7235 KU25T	IC328 IC928 IC3028	E
	P40	PR1535	JC5040	CY250 HC844		ZM3 QM3 TAS	GC1145 GC2145	CP600	ACZ350	AH140 AH740 J740	KC7030 KC7040 KC7140	IC328 IC3028	F
	M10	PR1025 PR1215 PR1225	JC5003	IP050S JP9105	VP10MF VP10RT	VM1 TM1 TA1	GC1005 GC1025 GC1105 GC15	TS2000 CP200 CP250	EH510Z ACZ150 AC510U	AH710	KC5010 KC5510 KC6005 KCU10	IC507 IC520 IC807 IC907	G
M (Stainless Steel)	M20	PR930 PR1025 PR1125 PR1215 PR1725 PR1225 PR1515	JC5015 JC5030 JC5040 JC8015 JC5118	IP100S GX30 JP9115	VP10RT VP15TF VP20MF UP20M VP20RT	ST4 QM1 VM1 TA1 TAS DT4 DM4	H5D6 GC1025 GC1115 GC4125 GC1125 GC30	TTP2050 TS2500 CP200 CP250 CP500	EH520Z ACZ150 ACZ310 AC520U AC1030U	AH630 AH725 AH730 GH330 GH730 SH725 SH730	KC5025 KC5525 KC7020 KC7025 KCU25	IC308 IC507 IC907 IC908 IC3028	H
	M30	PR1125 PR1535	JC5015 JC5030 JC5040 JC5118	CY250 CY9020	VP15TF VP20MF UP20M MP7035	ST4 ZM3 QM3 TAS	GC1020 GC2035 GC2030	CP500	ACZ330 ACZ350 AC530U AC6040M	AH6030 AH120 AH725	KC7030 KC7225	IC908 IC1008 IC1028 IC3028	J
	M40	PR1535	JC5118		MP7035	ZM3 QM3 TAS	GC2145 GC1145	CP600	AC6040M ACZ350	J740 AH140 AH645		IC228 IC928 IC328	K
	K01		JC5003							EH10Z	AH110	KC5515	IC910	M
K (Cast Iron)	K10	PR905 PR1215	JC5003 JC5015	CY100H CY10H	VP05RT	TA1 TM1	GC1010	TS2000 CP200	EH10Z EH510Z AC510U	GH110 AH110	KC5010 KC7210	IC807 IC910 IC507 IC908	N
	K20	PR905 PR1215	JC5015	IP2000 CY9020	VP10RT VP15TF VP20RT	QM1 TA1	GC1020 GC1120	TS2500 CP200 CP250	EH20Z ACZ310 AC520U AC530U AC1030U	AH120 AH725	KC5025 KC5525 KC7015 KC7215 KC7315	IC508 IC908	P
	K30				VP15TF VP20RT	QM3 TA3	GC1030	CP500	ACZ310		KC7225	IC508 IC908	R
	S01	PR005S	JC5003		MP9005 VP05RT					AH8005 AH905		IC804 IC806	T
S (Difficult-to-cut Materials)	S10	PR005S PR015S	JC5015 JC8015	JP9105	MP9005 MP9015 VP10RT		GC1105 GC1005 GC1025	CP200 TS2000	AC510U AC5015S	AH8015 AH905 SH730 AH110	KC5010 KC5510 KCU10 KCS10	IC807 IC808 IC907 IC908	
	S20	PR015S PR1535	JC5015 JC8015	JP9115	MP9015 MT9015 VP20RT MP9025		GC1025 GC1125	CP250 TS2500	AC510U AC520U AC5025S	AH8015 AH120 AH725	KC5025 KC5525 KCU25	IC806 IC808 IC908	
	S30	PR1535			MP9025		GC1125		AC520U	AH725		IC3028	

INSERT GRADES CROSS REFERENCE

Cermet (Turning)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P01	TN610 PV710	LN10 CX50	CH350	AP25N VP25N NX1010	T3N T15 Q15	-	-	T110A T1000A	NS520 GT530 GT720 J530	KT1120 KT125 HTX	IC20N IC520N
	P10	TN610 TN620 TN6020 TN60 PV710 PV720 CCX	LN10 CX50 CX75 NIT PX75	CH350 CZ25	NX2525 AP25N VP25N	T15 C7Z Z15	CT5015 CT525	TP1020 CM CMP	T1500Z T2000Z T1200A T1500A	NS9530 NS520 GT9530 GT530 GT730 AT9530	KT315 KT175 HT2 KTP10	IC20N IC520N IC530N IC75T
	P20	CCX TN620 TN90 TN6020 PV720	CX50 CX75 CX90 NAT PX90	CH550 CH7030 CZ1025 CZ25	MP3025 NX2525 NX3035 AP25N VP45N	T15 C7X C7Z	CT525 CT530 GC1525	TP1020 C15M TP1030	T1200A T1500A T2000Z T2500Z T3000Z	NS9530 NS530/730 GT9530 GT530/730 AT9530	PS5 KT5020	IC20N IC520N IC530N IC75T IC30N
	P30	PV730	CX90 CX99 SUZ	-	NX4545 VP45N	N40 C7X	CT530 GC1525	TP1030	T3000Z T250A	NS740	-	IC75T IC30N
M (Stainless Steel)	M10	TN620 TN60 TN6020 PV720	LN10	CH350	NX2525 AP25N VP25N	T15 C7X C7Z Z15	CT5015 CT525	CM CMP	T110A T1000A T2000Z	NS520 J530	KT1120 KT315 KT125	IC20N IC520N
	M20	TN620 TN90 TN6020 PV720	CX50 CX75 PX75 NIT NAT	CH550 CH7030 CZ1025	NX2525 NX3025 AP25N VP25N	C7X C7Z Q15	CT530 GC1525	TP1020 C15M	T1500A T2000Z	NS530 NS730 GT530 GT730	KT175 HT2 PS5 KT5020	IC30N IC530N
	M30	PV730	CX75 CX90 PX90 CX99 SUZ	CZ25	NX4545	C7X	-	TP1030	T3000Z T250A	NS740	-	-
K (Cast Iron)	K01	PV7005 CCX	LN10	-	AP25N VP25N	T3N T15 Q15	-	-	T110A T1000A	NS520	KT1120	-
	K10	TN610 CCX PV710 PV7005	LN10	CH350	NX2525 AP25N VP25N	T15 C7X C7Z Z15	CT5015	-	T1200A T1500A T2000Z	NS530 NS730 GT530 GT730	KT315 HTX KTP10	-
	K20	-	NIT	CZ25	NX2525 AP25N VP25N	-	-	-	T3000Z	-	KT5020	-

Carbide

• Boldface grade shows PVD Coated Cermet.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	-	SRT	WS10	ST110T	-	S1P	-	ST10P	TX10S	K2885	IC70
	P20	-	SRT DX30	EX35	ST120 UT120T	-	SMA	S10M	ST20E	TX20 TX25	K125M	IC70 IC50M
	P30	-	SR30 DX30 DX35	EX35 EX40	UT120T	-	SM30	S25M	A30N A30 ST30E	TX30 UX30	KMF	IC50M IC54
	P40	-	SR30 DX35	EX45	-	-	S6	S60M	ST40E	TX40	PVA	IC54
K (Cast Iron)	K01	-	KG03	WH02 WH05	HT105T	-	H1P	-	H1 H2	TH03 KS05F	K68 K10	IC04
	K10	KW10 GW15	KG10 KT9	WH10	HT110	KM1	H1P H10 HM	890	EH10 EH510	G1F TH10 H10T	KMI K8735 K313	IC20
	K20	GW25	CR1 KG20	WH20	HT120T UT120T	KM3	H13A	883 890 HX	G10E EH20 EH520	G2F KS15F KS20	KMF	IC20 IC10
	K30	-	KG30	-	-	-	-	883	G3 G10E	G3 UX30	THR	IC10 IC28
V (Wear and Shock Resistant Tool)	V40	-	G5 GD195	WH50	GT130	-	-	-	G5	D40	-	-
	V50	VW50	MH3 MH4 GD174 GD201	WH60	GT135 GT140 GT130S	-	-	-	G6	D50	-	-
	V60	-	MH5 MH7 MH8 GD206	WB60	GT140S GT150S	-	-	-	G7 G8	D60	-	-

INSERT GRADES CROSS REFERENCE

Coated Carbide (Milling / Drilling)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar	INSERT GRADES
Class	Symbol												A
P (Steel)	P10	PR1225	JC5003 JC5030 JC8003 DH103	JP4105 JX1020 JP4005	F7010	-	GC1025 GC1010	-	ACP100	-	KC715M	-	TURNING INSERTS
	P20	PR1525 PR1225 PR1230 CA520D	DH108 DH110 DH115 JC8015 JC8118	JP4120 JS4045 JP4020 TB6020 JX1015 GX2140	MC7020 MP6120 F7030 UP20M MV1020	TM1 DT4 DM4	GC1130 GC1030 GC4220 GC4020 GC4030 GC4334	MP1500 T250M T25M T20M	ACP200 ACP2000 ACU2500	T313W AH725	KC522M KC525M KCPM20	IC330 IC250 IC520M IC950 IC5400 IC1008	GEN/PCD INSERTS
	P30	PR1230 PR1535	JC6235 JC5015 JC5040 JC5240 JC8050 JC7550	CY250 CY9020 TB6045 JX1045 JM4060 GX2160	MP6130 F7030 VP15TF VP30RT	ZM3	GC1130 GC4040 GC4230 GC4330	MP2500 T250M T25M F25M F30M	AC230 ACP300 ACP3000	T3130 GH330 AH120 AH330 AH730 AH3135	KC994M KC725M KC792M KC5300 KCPK30 KCPM40	IC330 IC328 IC635 IC830 IC908 IC928	TURNING HOLDERS
	P40	-	JC7550 JC5040 JC7560	CY250 HC844 TB6060 JX1060	VP30RT	-	GC4040 GC4240 GC4340	MP3000 T350M T60M T25M	AC230 ACZ330 ACZ350	AH140	KC735M	IC635 IC928 IC4050	SMALL TOOLS
	M10	PR1225	DH108	CY9020 JX1020 JP4020	F7010	-	GC1025 GC1030	-	ACM100 ACM200 EH10Z	-	KC522M	-	BORING
M (Stainless Steel)	M20	PR1525 PR1225	JC730U JC835S JC8118 JC5015 JC5030 JC5040	PN215 CY150 TB6020 JX1015 CY250	MC7020 MH515 F7030 VP15TF VP20RT MP7030 MP7130	DT4 DM4	GC2030 S30T GC2334 GC2044	MS2050 MP2500 T250M T25M F20M F25M F30M	ACM200 ACP200 EH20Z ACU2500	GH330 AH330 AH120 AH130 AH725 AH3135	KC730M KC525M	IC380 IC908 IC928	GROOVING
	M30	CA6535 PR1535	JC835S JC8015 JC5015 JC5118 JC8050	JM4160 JM4060 TB6045 JX1045 GX2160	F7030 VP30RT MP7140	ZM3	GC1040 GC2040 S40T	T350M T250M F40M	ACM300 ACP300 ACZ350	T3130 AH130	KC994M KC725M KCPK30	IC380 IC328 IC330	CUT-OFF
	M40	-	JC7560	-	VP30RT	-	-	MM4500	ACZ350	AH140	-	IC830	THREADING
	K01	-	DH202 DH102	TB6005	-	-	-	MH1000	ACK100	AH110	-	IC5100 IC4100	DRILLING
K (Cast Iron)	K10	PR1510 PR905 PR1210	DH103 JC8015 JC610 JC605W JC8118	JP4005 CY10H CY100H CY9020	MP8010 MC5020 VP10RT MV1020	-	GC1010 GC3220 K15W	MK1500 T150M F15M	ACK2000 ACK200 AC211 ACU2500	T1015 T1115 AH110 T1215	KCK15 KC915M	IC5100 IC4010 IC910 DT7150 IC810	MILLING
	K20	CA420M PR905 PR1210 CA415D	JC605X JC610 JC5015 JC8015 JC8118	TH315 CY150 TB6020 JX1015	VP15TF VP20RT	-	GC1020 GC3020 K20W/K20D GC3330 GC3334	MP1500 T150M T250M MK2000 MK2050	EH20Z ACZ310 ACK300 ACK3000	AH120 AH725 T1215	KC520M KC920M KC925M KC992M	IC810 IC910 IC928	QUICK CHANGE TOOLING
	K30	-	JC5080 JC6235	-	-	-	GC3040 GC4040	MK3000 T250M	-	GH130	KC930M	IC928	SPARE PARTS
	S10	CA6535 PR1535 PR1210	DH202 DH102 DH103 JC7518	PCS08M PTH13S JS1025	MP9120 VP15TF	-	GC1030 GC1025 GC1010	MS2050	ACM100 ACM200 ACK300	-	KC510M	IC903 IC807 IC808 IC908	TECHNICAL
S (Heat-resistant Alloy)	S20	CA6535 PR1535 PR1210	JC8118 IC5015 JC8050 JC7560 JC7550	CY100H CY10H	MP9120 VP15TF MP9130 MP9030	-	GC1030 GC2030 S30T GC1130 GC4344	MP2050	ACU2500 ACM200	-	KC525M	IC903 IC807 IC808 IC908 IC830 IC928	INDEX
	S30	PR1535	JC8050 JC7560	-	MP9140	-	GC2040 S40T	F40M	ACM300	-	KC725M KCSM40	IC328 IC330	

INSERT GRADES CROSS REFERENCE

Cermet (Milling)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	TN60 TN620M PV60M	NIT CX75	CH550 MZ1000	NX2525	-	-	C15M	-	NS530 NS730	KT530M KT195M	-
	P20	TN620M TN100M TN60 PV60M	NAT CX75 CX90	CH570 CH7030	NX2525 MX3020	C7X C7Z	CT530	C15M MP1020	T2500A T250A T1500A	NS530 NS730 NS740	HT7 KT530M KT605M	IC30N
	P30	-	CX90 CX99 SC30	CH7035	NX4545 MX3030	-	-	-	T4500A	NS540	-	IC30N
M (Stainless Steel)	M10	TN60 TN620M PV60M	-	MZ1000	NX2525	-	-	C15M	-	-	-	-
	M20	TN620M TN100M TN60 PV60M	NIT CX75 NAT	CH550 CH570 CH7030	NX2525	-	CT530	C15M	T2500A T250A	NS530	KT7 KT530M KT605M	IC30N
	M30	-	CX75 CX90 CX99 SC30	-	NX4545	-	-	-	T4500A	NS740 N308	-	-
K (Cast Iron)	K01	-	LN10	-	-	-	-	-	-	-	-	-
	K10	PV60M	LN10 CX75	MZ1000 CH550	NX2525	-	-	-	-	-	-	IC30N
	K20	-	NIT	CH7030 CH7035	NX2525	-	-	-	-	-	-	-

Ceramic

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KA30 A65 KT66 PT600M CS7050 KS6015	-	NPC-H2 NPC-A2	-	SE1 HC1 HC2 HC5 HC6 HW2	CC620 CC650	-	NB90S NB90M WX120	TZ120	KW80 KY1615 AC5	IN11 IS6
	K10	KS6015 A65 KT66 A66N PT600M CS7050 KS6050	-	NX NXA Whiskal WIN	-	WA1 HC2 HC6 HC7	CC6090 CC6190 GC1690	-	WX120 NS260C	LX11 LX21	KYK10 KYK25 KB90 KY1320 KY3000 KY3400	IN420 IN22 IN23 IS80
	K20	KS6050	-	-	-	SX6 SX9 SP9	CC6090 CC6190 GC1690	-	WX120	WG300 FX105 CX710	KYK35 KY3400 KY3500	IS8
S (Difficult-to-cut Material)	S01	-	-	-	-	-	CC650	-	-	-	KY2100	-
	S10	CF1 KS6030 KS6040	CA200	Whiskal WIN	-	JX1 JP2 WA1 WA5 SX3 SX7 SX9	CC670 CC6060 CC6065 CC6160	-	WX120	WG300	KYS25 KY4300 KY1525 KY1540	IS25 IS9
	S20	-	-	-	-	JX3	CC6220 CC6230	-	WX120	-	KYS30	IS35 IW7
H (Hardened Material)	H01	A65 KT66 A66N PT600M	-	NPC-A2	-	HC4 HC7 ZC7	CC650 CC670 CC6050	-	NB100C	LX11 LX21	KY4400	-
	H10	A65 KT66 A66N PT600M	-	NPC-A2 Whiskal WIN	-	ZC7 WA1 WA5	CC670	-	-	WG300	KY4300	-

• Boldface grade shows PVD Coated Ceramic.

R
TECHNICAL

INSERT GRADES CROSS REFERENCE

CBN

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
K (Cast Iron)	K01	KBN475	JBN795	-	BC5110	B20 B22 B30	CB7525 CB50 CB7050	CBN050C CBN300P	BN500 BNC500	BX910 BX930 BX950	-	IB50 IB85
	K10	KBN60M KBN900	JBN330	BH200	MB710 MB5015 MB4020	B22 B23	CB50 CB7050	CBN20 CBN200 CBN300	BN600 BN700 BN7000	BX950 BXC90 BX470	KB1630 KB1345 KB9610	IB55 IB90
	K20	KBN900	-	BH250	MB4120 MBS140 BC5030	B16 B40	-	CBN350 CBN500 CBN600	BN7000 BNS800	BX950 BXC90 BX90S	KB9640	-
H (Hardened Material)	H01	KBN510 KBN05M KBN10M	DH102	-	BC8105 BC8110 MBC010 MB810	B24 B52 B5K	CB20	CBN050C CBN010 CBN10 CBN100	BN1000 BNX10 BNC100 BNC160 BNC2010	BXA30 BX310 BXC30 BXM10	KB1610	IB20H IB25HC IB50
	H10	KBN510 KBN525 KBN05M KBN10M KBN25M	JC6102 JC8003 JBN500 JBN300 JBN330	BH200	BC8120 MBC020 BC8020 MB8025 MB825	B24 B36 B54 B52 B5K	CB7015 CB7050 CB50 CB7105	CBN150 CBN060K CBN200 CBN160C	BNC160 BNX20 BN2000 BNC200 BNC2020	BXM10 BXA40 BX330 BX360 BXC50 BXA20	KBH10 KBH10B KB1615 KB1625 KB5610 KB9610	IB10HC IB50
	H20	KBN25M KBN35M KBN900	JC8003 JC5015 JBN245	BH250	BC8120 MBC020 BC8020 MB8025	B22 B36 B6K	CB7025 CB7525 CB7115	CBN350 CBN300P CBN400C CBN500 CH2540	BNX25 BN350 BNC300	BX380 BXC50 BXM20 BXA20	KBH20 KBH20B KB1340 KB5625 KB9640	IB55 IB25HA
	H30	KBN35M KBN900	JBN245	BH250	MB835 BC8130	B40 B6K	CB7125 CB7525 CB7135	CH3515	BNC300 BN350	BX380 BXC50 BXM20 BXA20	KB5630 KB9640	IB55 IB25HA
Stainless Steel	-	KBN65B KBN570 KBN65M KBN70M	JBN795 JBN500	-	MB4120 MB4020	-	-	CBN200	BN350 BN7000 BN7500	BX450 BX470 BX480	KB5630	IB05S IB10H IB10S

• Boldface grade shows PVD Coated CBN.

PCD (Diamond)

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
N (Non-ferrous Metals)	N01	KPD001	JDA30 JDA735	-	MD205	PD1	CD05 CD10	PCD05 PCD10	DA90 DA1000 DA2200	DX180 DX160	PD100 KD1400 KD1405	-
	N10	KPD001 KPD010 KPD230 KPD250	JDA40 JDA745	-	MD220	PD2	CD10	PCD10 PCD20	DA150 DA1000 DA2200	DX140	KD100 KD1400 KD1415	ID5
	N20	KPD001 KPD010 KPD230 KPD250	JDA10 JDA715	-	MD230	-	-	PCD30 PCD30M	DA1000 DA2200	DX110 DX120	KD1425	-

INSERT GRADES	A
TURNING INSERTS	B
CBN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Molded Chipbreaker Cross Reference Table

Negative Inserts

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Cutting Range		Kyocera		Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Finishing (With Wiper Edge)	WF WP	-	-	-	SW	-	WL WF	W-FF2 W-MF2	SEW LUW	AFW FW	FW	WF
	Finishing - Medium (With Wiper Edge)	WE WQ	-	-	-	MW	-	WM WMX	W-M3 W-M5	GUW	ASW SW	MW	WG
	Finishing	DP GP PP	XF XP	F1 FA FT PF	BE BH FE	F FH FS FY PK FP	UL WM ZF1	XF QF	FF1	FP FB FE SP FA FL LU	TF 01 AS TSF	FF UF FS LF	F3P SF PF
	Finishing - Medium	HQ PQ CQ CJ VC VF	XQ	UA UT	AB B CE CT	SH C SA LP SY	WV WR	LC PF	FF2 MF2	SU EX SJ SX UJ SE	TS NS CB 11 17 27 ZF	K RP FN FM	NF SM
	Medium - Roughing	PG GS PS	XS	UR UB	AE DE AH	MV MP MA MH	Z5 ZW1	XM QM SM SMC PM PMC	M3 MF3	UA UG GE GU	AM DM NM TM ZM	MN	M3P TF PP
	Medium - Roughing High Feed Rate	PT GT	-	GC PQ	AR AY	GH RP	GS	MR XMR	M5 MR5 MR6	MU UX ME	TH 32Y 32 37	RP RN	R3P NR
	Roughing	Standard PH	-	GG LG GQ	RE	MT Standard	G	Standard 23 HM	MR7	MC MU MX UZ	31 33 F-K THS	PR MG	GN
	Roughing Single Sided High Feed Rate	PX	-	GS RM UC UP UD	H HX HE TE UE	HV HR HX HZ HL HM	-	QR PR HR	R4 R5 R6 R7 RR6 R57 RP	HG HP MP HF	TU TRS 57 65 TUS	RP RH RM RW	TNM NM
Stainless Steel	Finishing	MQ SQ	-	SF	BH MP	FS SH FJ LM LS	ZF1	MF	M1	SU EF	SF SS	FP	F3M VL F3S
	Medium - Roughing	MS MU TK SG SX	-	GP SZ	DE SE PV VI	MS MA GM MJ MM ES MH GH GJ RM RS	ZP WS	MM MMC MR XMR SM SMR SF SGF SMC MRR	MF1 MF3 A3 A5 M5 56 R8 RR9 MF4	EG EX MU UP EM	HMM SM SA S SH HRM HPF	P MP MS UP	TF PP M3M R3M
Cast Iron	Medium	KQ KG C Standard	-	-	AH VA VY	LK MF Standard	-	KF KM	-	UZ UX UJ	Standard 33 CF	FN	GN
	Roughing	KH GC ZS	-	-	-	GH RK	-	KR KRR	MR9	GZ	CM CH	RP UN	NR
Non-ferrous Metals	Medium - Roughing	AH	-	-	-	-	-	AL	95	AG	P	GP MS	PP

CHIPBREAKER CROSS REFERENCE

Positive Inserts

Cutting Range		Kyocera		Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
		General Chipbreaker	Chipbreaker for Gummy Material / Soft Steel										
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	-	01	-	-
	Finishing (with Wiper Edge)	WP	-	-	-	SW	-	WF WK	W-F1 W-F2	LUW SDW	SW	FW	WF
	Finishing	PF DP GP PP VF	XP	ASF	-	FV SQ FP SMG	AZ3 AMX AZ7	PF UF XF	FF1	FB GU FC FK FP LU	PF PSF 23	11 GF UF FP	PF SM
	Finishing - Medium ①	HQ	XQ	ACB FT	JE	MQ MV LP	AF1	PM UM SMC	F1 M3	LB SF SU SS	PS PSS 24	LF	14
	Finishing - Medium ②	GK	-	BM	JQ	Without Indication	QD CL	PF PMC XM	MF2 M5	US GU	-	-	F3P
	Medium	Standard	-	-	J	MP Standard	AM3	PR UR KM XR	F2	MU SC	PM	GM MP MR	Standard
Stainless Steel	Finishing	MQ	-	-	MP	FM FV SV LM LS MS	-	MF MMC SM MR	-	LU	PSS JS PF PSF PS PM	FW FP MW	PF WF F2M
Non-ferrous Metals	Finishing - Medium	AP AH	-	ALU	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Positive Inserts (For Small Parts Machining)

Cutting Range		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Carbon Steel / Alloy Steel	Minute D.O.C.	CF	-	-	-	-	-	-	-	01	-	-
	Finishing	PF CK GF SKS	ASF	JQ	FP FV SMG LS-P	AZ7 AMX ZR	PF XF	FF1	SI FC	PF	11 UF FP	PF SM
	Finishing - Medium	GQ SK	ACB FT	JE	LP AM MV	AM3 YL	PM XM	F1 MF2	SU	PS	LF	14
	Medium	GK	-	J	MP Standard	QD CL	PR	F2	SC	PM	MF MP	Standard
Stainless Steel	Finishing	MQ	-	MP	FM FV SV LM	-	MF	-	LU	JS PF PSF	FW FP MW	WF
Non-ferrous Metals	Finishing - Medium	AP AH	ALU	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Cera-Notch Conversion Chart

Insert Style	Kyocera	Horizon	Tool-Flo	Kennametal	RTW	Valenite	Sandvik	Mitsubishi
Notch Style Grooving Insert								
Face Grooving	KCFP	HF	FLF	NF	-	-	TLF*	EF
ID/OD Grooving	KCG/KCGP	HG	FLG	NG	PG	VLG	TLG*	EG
ID/OD with Chipbreaker	KCGP MY	HG RK-LK	FLG CB	NG RK-LK	PG RK-LK	-	-	EG RK-LK
ID/OD with Positive Rake	KCGP	HGP	FLGP	NGP	-	VLGP	TLGP*	EGP
ID/OD Deep Grooving	KCGDP	HGD	FLGD	NGD	PGD	-	-	EGD
Full Nose Radius	KCRP	HR	FLR	NR	PR	VLR	TLR*	EGR
Full Nose Radius with Positive Rake	KCRP	HRP	FLRP	NRP	PRP	VLRP	TLRP*	-
Notch Style Threading Insert								
60° V Partial Profile	KCT	HT	FLT	NT	PT	VLT	TLT*	ET
60° V Fine Pitch Positive	KCTK	HTK	FLTK	NTK	PTK	VLTK	TLTK*	-
60° V Postive	KCTP	HTP	FLTP	NTP	PTP	VLTP	TLTP*	-

* Sandvik inserts require a Kyocera or industrial standard clamp due to different clamping system.

INSERT GRADES **A**
 TURNING INSERTS **B**
 GEN/PCD INSERTS **C**
 TURNING HOLDERS **D**
 SMALL TOOLS **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 DRILLING **K**
 MILLING **M**
 QUICK CHANGE TOOLING **N**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

MILLING INSERT CROSS REFERENCE

Milling Insert Part Number Cross Reference

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Kyocera		Class	Applications	Hitachi	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SDMR42AUER-H SDKR42AUEN-S	SDMR1203AUER-H SDKR1203AUEN-S	M K	Steel	SDKR42TN	(SDNR1203AEEN-JS)		SDMR1203AEEN SDMR1203AETN	SDMR1203AETN-MJ SDKR1203AESR-MJ SDKR1203AETN-MJ SDKR1203AEPN-MS SDKR42ZSR-MJ SDKR42ZPN-MS	SDKR1203AUTR-HS SDKR1203AUN-76
SDKN42AUTN	SDKN1203AUTN	K		SDK42TN-C9	SDKN1203AEN SDKN1203AETN (SDNN1203AETN1)		SDKN42MT (SDNN1203AETN)	SDKN1203AETN-12 SDKN42ZTN	SDKN1203AETN
SDKN42AUFN	SDKN1203AUFN	K	Cast Iron	SDK42FN-C9			SDKN42M (SDNN1203AEEN)	SDKN1203AEFN-12 SDKN42ZFN	
			Non-Ferrous				SDKN42M	(SDCN1203AEFN-D) (SDCN42ZFN-DIA)	
SDKN53AUTN	SDKN1504AUTN	K	Steel	SDK53TN-C9	SDKN1504AEN SDKN1504AETN		SDKN53MT	SDKN1504AETN SDKN53ZTN	SDKN1504AETN
SEMR42AFER-H SEKR42AFEN-S	SEMR1203AFER-H SEKR1203AFEN-S	M K	Steel	SEKR42TN	(SEER1203AFEN-JS)	SEKR1203AZ-WM (SEER1203AZ-WL)	SEMR1203AFEN (SEER1203AFEN)	SEMR1203AFTN-MJ SEKR1203AFSR-MJ SEKR1203AFTN-MJ SEKR1203AFPV-MS	SEKR1203AFTR-HS SEKR1203AFR-HS SEKR1203AFN-76 SEKR1203AF-N-42
SEEN42AFTN	SEEN1203AFTN	E		SEE42TN-C9	SEEN1203AFTN1		SEEN42MT	SEEN1203AFTNCR-14	
SEKN42AFTN	SEKN1203AFTN	K		SEK42TN-C9	SEKN1203AFTN1 (SENN1203AFTN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42MT (SENN1203AFTN)	SEKN1203AFTN SEKN1203AFTN-16 SEKN42AFTN SEKN42AFTN16	
SEKN42AFFN	SEKN1203AFFN	K	Cast Iron	SEK42FN-C9	(SEEN1203AFFN1)	SEKN1203AZ (SEMN1203AZ)	SEKN42M (SENN1203AFEN)	SEKN1203AFFN SEKN42AFFN	
SEEN42AFFN	SEEN1203AFFN	E	Non-Ferrous	SEE42FN-C9	(SECN1203AFFR1)				
SEKN42EFTR	SEKN1203EFTR	K	Steel	SEK42TR-G3	SEKN1203EFTR1	(SECN1203EER)		SEKN1203EFTR (SECN1203EFTR) (SEEN1203EFTR) (SECN42EFTRCR) (SEEN42EFTRCR)	
SEKN53AFTN	SEKN1504AFTN	K	Steel	SEK53TN-C9		SEKN1504AZ	SEKN53MT		SEKN1504AFTN
SPEN42EESR	SPEN1203EESR	E	Cast Iron	(SPK42FR-A3E)	SPEN42EFSR1 SPEN1203EESR1 SPEN1203EEER1 (SPNN1203EEER1)				
SPMR42EDER-H SPKR42EDER-S	SPMR1203EDER-H SPKR1203EDER-S	M K	Steel		(SPER1203EDER-JS)	SPKN1203EDR-WH		SPKR1203EDSR-MJ SPKR42SSR-MJ	SPKR1203EDR-76 SPKR1203EDTR-HS
SPCN42EDTR	SPCN1203EDTR	C				(SPEN1203EDR)	(SPAN1203EDR)	SPCH42TR-R	SPCN1203EDTR SPCN42STR
SPKN42EDTR	SPKN1203EDTR	K			SPK42TR-A3	SPKN1203EDR	SPKN1203EDR	(SPCH42TR) (SPCH42TR-R)	SPKN1203EDTR SPKN42STR (SPEN1203EDTR) (SPEN42STR)	SPKN1203EDTR SPKN1203EDTR-42
SPKN42EDFR	SPKN1203EDFR	K	Cast Iron	SPK42FR-A3		SPKN1203EDR	(SPCH42R)	SPKN1203EDFR SPKN42SFR	SPKN1203EDFR
SPKN53EDTR	SPKN1504EDTR	K	Steel	SPK53TR-A3	SPKN1504EDR	SPKN1504EDR	(SPCH53TR-R)	SPKN1504EDTR SPKN53STR (SPCN1504EDTR) (SPCN53STR)	SPKN1504EDTR
SPKN53EDFR	SPKN1504EDFR	K	Cast Iron	SPK53FR-A3			(SPCH53R-R) (SPCH53TR-R)	SPKN1504EDFR SPKN53SFR	SPKN1504EDFR

- Tolerance is different for part numbers in ().
- Since edge shape of milling inserts is slightly different by each manufacturer, please adjust edges (Z axis direction) during operation.

MILLING INSERT CROSS REFERENCE

Milling Insert Part Number Cross Reference

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Kyocera		Class	Applications	Hitachi	Mitsubishi	Sandvik	Sumitomo	Tungaloy	Iscar
ANSI	ISO								
SPCN42XPTR	SPCN1203XPTR	C	Steel	SPC42TR-A5				SPCN1203ZPTR SPCN42ZTR	
SPKN42XPTR	SPKN1203XPTR	K		SPK42TR-A5				SPKN1203ZPTR SPKN42ZTR (SPEN1203ZPTR) (SPEN42ZTR)	
SPKN42XPFR	SPKN1203XPFR	K	Cast Iron	SPK42FR-A5				SPKN1203ZPFR SPKN42ZFR	
SPKN53XETR	SPKN1504XETR	K	Steel		SPK53C2SR				
TPMR32PDER-H	TPMR1603PDER-H	M	Steel		(TPER1603PPER-JS)	(TPKN1603PPR-WH)			(TPKR1603PPTR-HS)
TPKN32PDTR	TPKN1603PDTR	K		TPK32TR-E0 TPK32TR-G0	TPKN1603PPR (TPEN1603PPR)	TPKN1603PPR	TPKN32TR		TPKN1603PPTR
TPKN32PDFR	TPKN1603PDFR	K	Cast Iron	TPK32FR-E0		TPKN1603PPR	TPKN32R		TPKN1603PPFR
TPMR43PDER-H TPKR43PDER-S	TPMR2204PDER-H TPKR2204PDER-S	M K	Steel		(TPER2204PDER-JS)	TPKN2204PDR-WH		TPMR2204PDSR-MJ TPKR2204PDSR-MJ TPKR43ZSR-MJ	TPKR2204PDTR-HS TPKR2204PD-R-76
TPKN43PDTR	TPKN2204PDTR	K		TPK43TR-E0 TPK43TR-G0	TPKN2204PDR (TPEN2204PDR)	TPKN2204PDR	(TPCH43TR)	TPKN2204PPTR TPKN43ZTR (TPCN2204PPTR) (TPCN43ZTR)	TPKN2204PDTR TPKN2204PDTR-42
TPKN43PDFR	TPKN2204PDFR	K	Cast Iron	TPK43FR-E0			(TPCH43R)	TPKN2204PPFR TPKN43ZFR (TPCN2204PPFR) (TPCN43ZFR) (TPEN2204PPTR-16) (TPEN43ZTR)	TPKN2204PDFR
TEMR32PTER-H	TEMR1603PTER-H	M	Steel		(TEER1603PEER-JS)			(TEKR1603PEPR-MS)	
TEKN32PTTR	TEKN1603PTTR	K		TEK32TR-G0 (TEE32TR-G0)	(TEEN1603PETR1)		TEKN32TR	(TECN1603PETR) (TEEN1603PETR) (TECN32ZTR) (TEEN32ZTR)	
TEKN32PTFR	TEKN1603PTFR	K	Cast Iron	TEK32FR-G0 (TEE32FR-G0)	(TEEN1603PEFR1)		TEKN32R	(TEEN1603PEFR) (TEEN32ZFR)	
TEEN32PTFR	TEEN1603PTFR	E	Non-Ferrous		(TECN1603PEFR1)		TEEN32R	(TECN1603PEFR-D) (TECN32ZFR-DIA)	
TEMR43PTER-H TEKR43PTER-S	TEMR2204PTER-H TEKR2204PTER-S	M K	Steel		(TEER2204PEER-JS)			TEKR2204PEPR-MS	
TEEN43PTTR	TEEN2204PTTR	E		TEE43TR-G0E (TEK43TR-G0E)	TEEN2204PETR1		TEEN43TR	TEEN2204PETR (TECN2204PETR) TEEN43ZTR (TECN43ZTR)	
TEKN43PTTR	TEKN2204PTTR	K		TEK43TR-G0E	TEKN2204PETR1		TEKN43TR	(TEEN2204PETR) (TECN2204PETR) (TEEN43ZTR) (TECN43ZTR)	
TEKN43PTFR	TEKN2204PTFR	K	Cast Iron	TEK43FR-G0E	(TEEN2204PEFR1)		TEKN43R	(TEEN2204PEFR) (TEEN43ZFR)	
			Non-Ferrous		(TECN2204PEFR1)		(TEEN43R)	(TECN2204PEFR-D) (TECN43ZFR-DIA)	
SNCN43XNTN	SNCN1204XNTN	C	Steel	SNC43TN-D5	SNC43B2S		(CSN43MT)	SNCN1204ZNTN SNCN43ZTN	
SNKN43XNTN	SNKN1204XNTN	K		SNK43TN-D5	SNK43B2S		(CSN43MT)	SNKN1204ZNTN SNKN43ZTN	
SNMF43XNTN	SNMF1204XNTN	M	Steel	(SNKF43TN-D5)	(SNKF43B2S)		(CSNB43MT)	(SNKF1204ZNTN) (SNKF43ZFN)	

- Tolerance is different for part numbers in ().
- Since edge shape of milling inserts is slightly different by each manufacturer, please adjust edges (Z axis direction) during operation.

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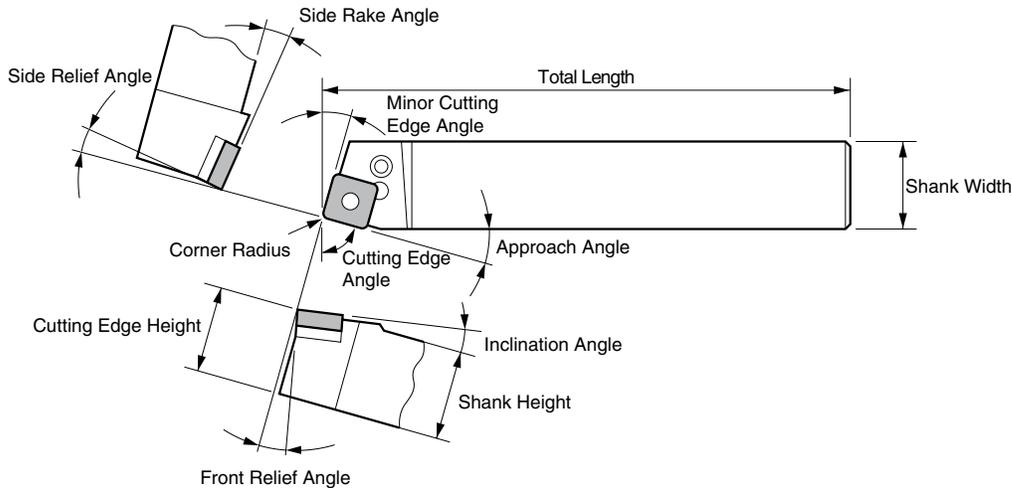
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INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Terms and Angles of Turning Toolholder



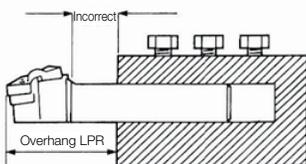
Function of Tool Angles

Tool Angle	Name	Function	Effect
Rake Angle	Side Rake Angle	<ul style="list-style-type: none"> Affects cutting force, cutting heat, chip evacuation and tool life. 	<ul style="list-style-type: none"> If it is positive (+) angle, sharper cutting performance is obtained. (less cutting resistance, less edge strength) Positive (+) angle is recommended for easy to machine workpieces or thin workpieces. Smaller rake angle or negative (-) angle is recommended when a stronger edge is required like scale cutting or interrupted cutting.
	Inclination Angle		
Relief Angle	Front Relief Angle Side Relief Angle	<ul style="list-style-type: none"> Prevents the tool's contact to the workpiece surface, except the cutting edge. 	<ul style="list-style-type: none"> When it is small, the cutting edge becomes strong, but the wear at relief faces may shorten the tool life.
Cutting Edge Angle	Cutting Edge Angle	<ul style="list-style-type: none"> Affects chip control and the direction of cutting force. 	<ul style="list-style-type: none"> When it is large, chip thickness becomes thick and chip control improves.
	Approach Angle	<ul style="list-style-type: none"> Affects chip control and the direction of cutting force. 	<ul style="list-style-type: none"> When it is large, chip thickness becomes thin and chip control worsens, but cutting force is dispersed and edge strength improves. When it is small, chip control ability improves.
	Minor Cutting Edge Angle	<ul style="list-style-type: none"> Prevents friction between cutting edge and work surface. 	<ul style="list-style-type: none"> When it is large, edge strength deteriorates.

Toolholder Rigidity

1. Flexure of Toolholder

$$\delta = \frac{4 \times F \times L^3}{E \times b \times H^3} = \frac{4 \times k \times ap \times f \times L^3}{E \times b \times H^3}$$



Symbol	Name	Unit
δ (Delta)	Deflection	mm
b	Shank Width	mm
H	Shank Height	mm
E	Young ratio	N/mm ²
ap	Depth of Cut	mm
f	Feed Rate	mm/rev
k	Specific Cutting Force	N/mm ²
LPR	Overhang	mm
F	Cutting force	N

$$(F = k \times ap \times f)$$

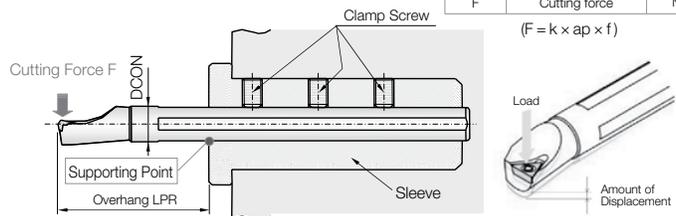
The flexural strength of toolholder will decrease by increasing of shank height by third root and will decrease of reducing over hang by third root. Minimizing toolholder shank over hang as much as possible is important as well as shank's sectional square measure.

2. Flexure of Boring Bar

$$\delta = \frac{64 \times F \times (LPR)^3}{3 \times E \times \pi \times (DCON)^3} = \frac{64 \times k \times ap \times f \times (LPR)^3}{3 \times E \times \pi \times (DCON)^3}$$

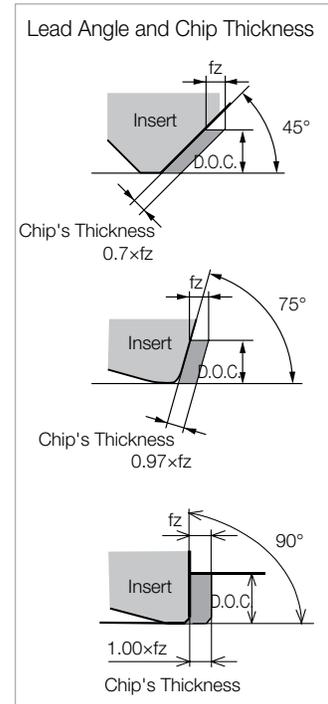
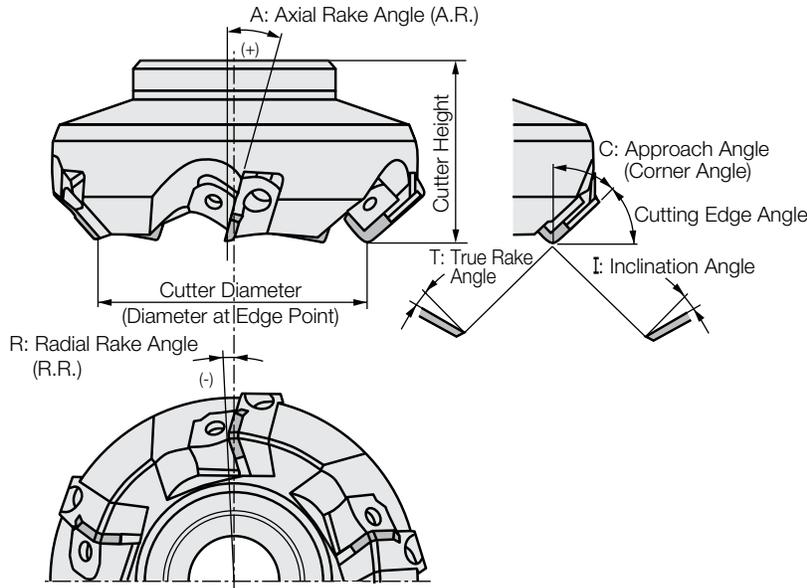
Symbol	Name	Unit
δ (Delta)	Deflection	mm
DCON	Shank Dia.	mm
E	Young ratio	N/mm ²
ap	Depth of Cut	mm
f	Feed Rate	mm/rev
k	Specific Cutting Force	N/mm ²
LPR	Overhang	mm
F	Cutting force	N

$$(F = k \times ap \times f)$$



TECHNICAL

Terms and Angles of Milling Cutters



Function of Tool Angles

Symbol	Name	Function	Effect
A	Axial Rake Angle (A.R.)	Controls chip flow direction and cutting force	When it is positive ... Good cutting performance and less chip welding
R	Radial Rake Angle (R.R.)	Controls chip flow direction and cutting force	When it is negative ... Good chip evacuation
C	Approach Angle	Controls chip thickness and chip flow direction	When it is large ... Thinner chip thickness Lower cutting load
T	True Rake Angle	Actual rake angle	When it is positive ... Good cutting performance and less chip welding, but lower edge strength When it is negative ... Higher edge strength but easier to weld
I	Inclination Angle	Controls chip flow direction	When it is positive ... Good chip evacuation Less cutting force Lower edge stability of the corner part

True Rake Calculation Formula : $\tan T = \tan R \times \cos C + \tan A \times \sin C$

Cutting Edge Inclination Angle Formula : $\tan I = \tan A \times \cos C - \tan R \times \sin C$

Number of Inserts (Z)

1) If there is one stage

If the number of stage is one, it is not indicated on the catalog. Please use "No. of inserts" of the catalogue for "Z" of the formula to calculate cutting conditions.

2) If the number of stages is more than two

If the number of stages is more than two, it is indicated on the catalog. Please use "No. of Flutes" of the catalogue for "Z" of the formula to calculate cutting conditions.

MECX End Mill

Toolholder Dimensions

Description	Std.	No. of Inserts	ØD
MECX 08-S10-07-1T	●	8	
14-S12-07-2T	●	14	
17-S16-07-3T	●	17	
18-S18-07-3T	●	18	
21-S16-07-4T	●	20	

$f_z = \frac{V_f}{Z \times n}$ → $V_f = f_z \times Z \times n$

MSR

Toolholder Dimensions (Bore ød: inch)

Description	Std.	No. of Inserts	No. of Flutes	No. of Stages	ØD	Ød
MSR 063R-1	●	4	4	1	63	50
063R-2	●	4	2	2	63	50
080R-1	●	4	4	1	80	65
080R-2	●	4	2	2	80	65
080R-3(ø1.75)	●	8	4	2	80	70
090R-4	●	16	4	4	90	75

$f_z = \frac{V_f}{Z \times n}$ → $V_f = f_z \times Z \times n$

- INSERT GRADES **A**
- TURNING INSERTS **B**
- GEN/PCD INSERTS **C**
- TURNING HOLDERS **D**
- SMALL TOOLS **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- DRILLING **K**
- MILLING **M**
- QUICK CHANGE TOOLING **N**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

WF / WE CHIPBREAKER (NEGATIVE) EDGE POSITION OFFSET ADJUSTMENT

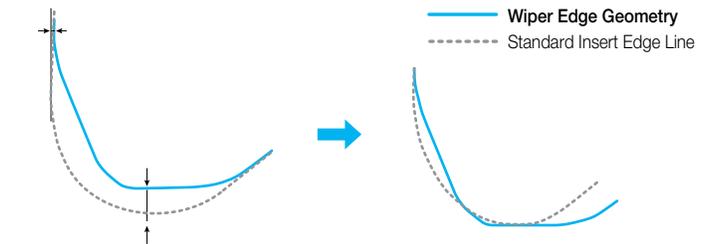
WF / WE Chipbreaker Edge Position Offset Adjustment

For D type and T type, cutting edge offsets are required.

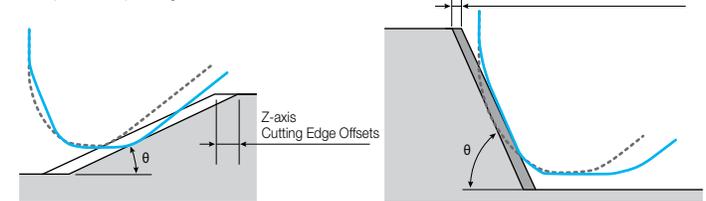
Cutting Edge Offsets (in)					
DNMX431WF DNMX441WF		DNMX432WF DNMX442WF		DNMX433WF DNMX443WF	
X-axis	Z-axis	X-axis	Z-axis	X-axis	Z-axis
0.0094	0.0008	0.0055	0.0004	0.0043	0.0004

Cutting Edge Offsets (in)					
TNMX331WF		TNMX332WF		TNMX333WF	
X-axis	Z-axis	X-axis	Z-axis	X-axis	Z-axis
0.0094	0.0004	0.0063	0.0000	0.0043	0.0000

For DNMX and TNMX inserts, cutting edge offsets are required



For DNMX and TNMX inserts, program corrections are required for up facing



DNMX43 Insert DNMX44 Insert

Z-axis Cutting Edge Offsets (in)

Corner-R (RE) (in)	Ramping Angle θ					
	0°	5°	10°	15°	20°	25°
1/64	0.0000	-0.0134	-0.0138	-0.0142	-0.0142	-0.0142
1/32	0.0000	-0.0102	-0.0102	-0.0098	-0.0094	-0.0087
3/64	0.0000	-0.0059	-0.0067	-0.0063	-0.0059	-0.0059

Z-axis Cutting Edge Offsets (in)

Corner-R (RE) (in)	Up Facing Angle θ																		
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
1/64	0.0000	-0.0008	-0.0012	-0.0012	-0.0016	-0.0020	-0.0024	-0.0028	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0039	-0.0031	-0.0024	-0.0016	-0.0008	0.0000
1/32	0.0000	0.0051	0.0047	0.0043	0.0035	0.0028	0.0020	0.0016	0.0008	0.0000	-0.0008	-0.0020	-0.0028	-0.0024	-0.0016	-0.0008	-0.0004	-0.0004	0.0000
3/64	0.0000	0.0142	0.0134	0.0122	0.0106	0.0094	0.0079	0.0063	0.0051	0.0035	0.0020	0.0000	-0.0016	-0.0016	-0.0012	-0.0008	-0.0004	-0.0004	0.0000

TNMX33 Insert

Z-axis Cutting Edge Offsets (in)

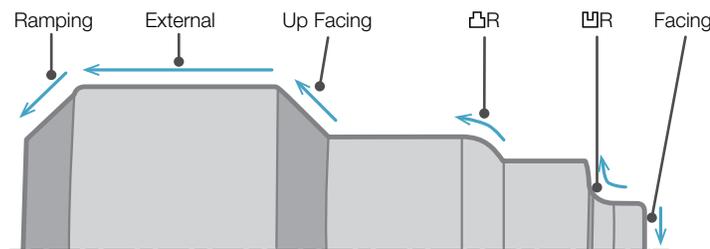
Corner-R (RE) (in)	Ramping Angle θ					
	0°	5°	10°	15°	20°	25°
1/64	0.0000					
1/32	0.0000					
3/64	0.0000					

Do not use TNMX33 insert for ramping

Z-axis Cutting Edge Offsets (in)

Corner-R (RE) (in)	Up Facing Angle θ																		
	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
1/64	0.0000	-0.0024	-0.0020	-0.0020	-0.0024	-0.0028	-0.0031	-0.0031	-0.0035	-0.0039	-0.0043	-0.0047	-0.0051	-0.0047	-0.0039	-0.0028	-0.0020	-0.0008	0.0000
1/32	0.0000	0.0043	0.0043	0.0039	0.0031	0.0024	0.0016	0.0008	0.0000	-0.0008	-0.0016	-0.0024	-0.0031	-0.0031	-0.0024	-0.0016	-0.0008	-0.0004	0.0000
3/64	0.0000	0.0134	0.0126	0.0114	0.0098	0.0087	0.0075	0.0059	0.0055	0.0031	0.0016	0.0000	-0.0020	-0.0020	-0.0012	-0.0004	0.0000	0.0000	0.0000

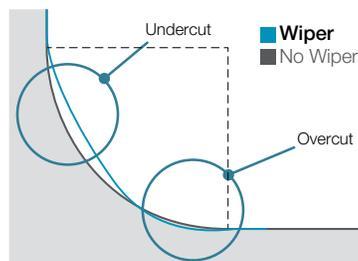
Caution (Finished Edge Line)



Application	Caution
External / Facing	Please check the applicable toolholder to confirm the lead angle matches the angle of the wiper.
Up Facing Ramping	For D type and T type inserts, Z-axis program corrections are required.
UR • CR	Do not use wiper inserts if a precise radial shape is needed.

Radius Cutting (Differences from Non-wiper Insert)

When machining a profile or radius on a workpiece, please note that DNMX and TNMX wiper inserts have some limitations. Please refer to the list on the right for finished dimensions.



D Type Inserts

Unit: in

Nominal Corner R	Finished Dimension
0.016 (1/64)	R0.016 $^{+0.016}_0$
0.032 (1/32)	R0.032 ± 0.008
0.047 (3/64)	R0.047 $^{+0.012}_{-0.016}$

T Type Inserts

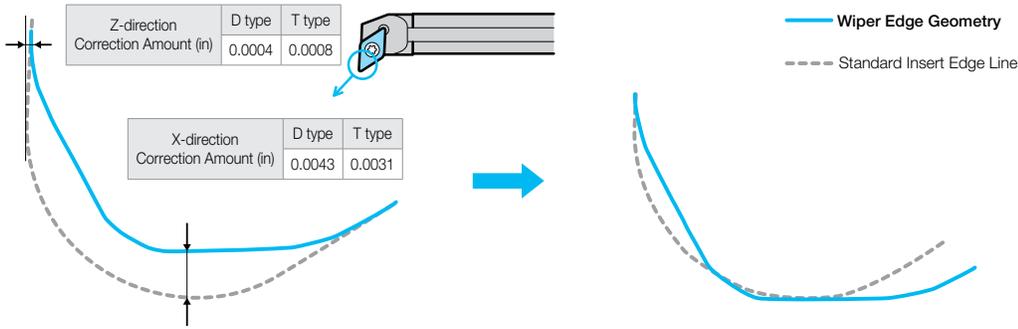
Unit: in

Nominal Corner R	Finished Dimension
0.016 (1/64)	R0.016 $^{+0.016}_0$
0.032 (1/32)	R0.032 ± 0.008
0.047 (3/64)	R0.047 $^{+0}_{-0.016}$

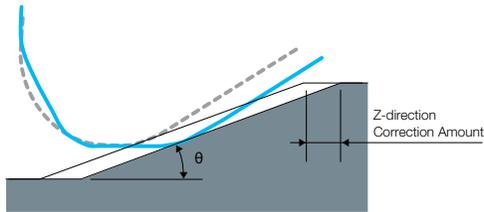
WP CHIPBREAKER (POSITIVE) EDGE POSITION OFFSET ADJUSTMENT

WP Chipbreaker Edge Position Offset Adjustment

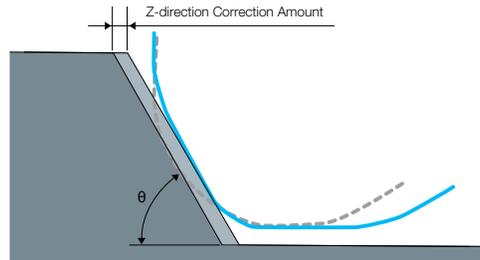
For D type and T type, cutting edge offsets are required.



For D type and T type, program corrections are required for ramping and profiling.



Ramping Angle θ	0°	5°	10°	15°	20°	25°
Z-direction Correction Amount (in) D type	0	-0.0055	-0.0059	-0.0063	-0.0063	-0.0067
Z-direction Correction Amount (in) T type	0	-0.0063	-0.0067	-0.0067	-0.0067	-

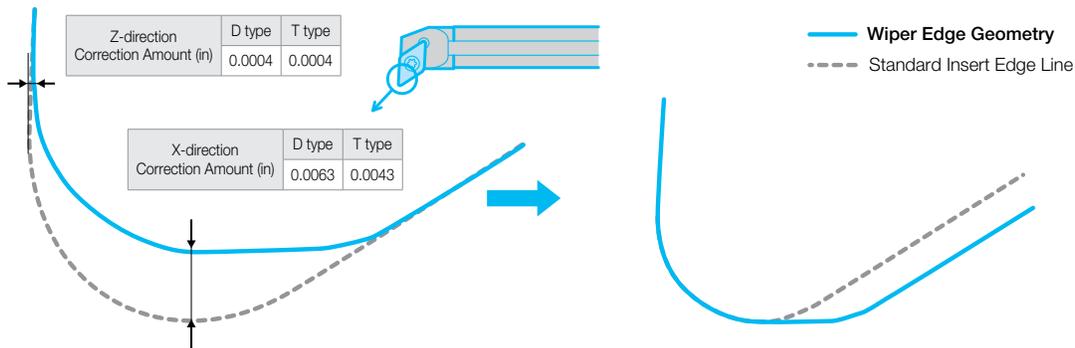


Profiling Angle θ	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
Z-direction Correction Amount (in) D type	0.0000	0.0028	0.0024	0.0016	0.0012	0.0008	0.0004	0.0000	-	-	-
Z-direction Correction Amount (in) T type	0.0000	0.0028	0.0024	0.0020	0.0020	0.0016	0.0012	0.0008	0.0004	0.0004	0.0000

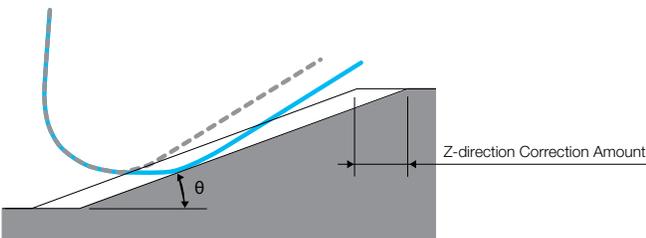
Profiling Angle θ	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
Z-direction Correction Amount (in) D type	-0.0004	-0.0008	-0.0012	-0.0016	-0.0020	-0.0020	-0.0016	-0.0012	-0.0008	-0.0004	0.0000
Z-direction Correction Amount (in) T type	-	-	-	-0.0004	-0.0008	-0.0012	-0.0016	-0.0012	-0.0008	-0.0004	0.0000

Handed Insert

For D type and T type, cutting edge offsets are required.



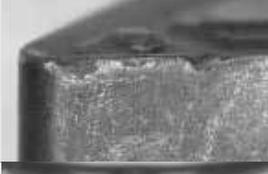
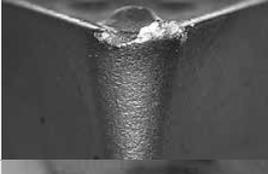
For D type and T type, program corrections are required for ramping.



Ramping Angle θ	0°	5°	10°	15°	20°	25°
Z-direction Correction Amount (in) D type	0	-0.0087	-0.0094	-0.0094	-0.0098	-0.0098
Z-direction Correction Amount (in) T type		-0.0094	-0.0094	-0.0098	-0.0094	-

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QUICK CHANGE TOOLING	N
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Cutting Edges Figuration and Countermeasures

Typical Cutting Edge Figuration	Observation	Causes	Countermeasures	
Nose Wear		<ul style="list-style-type: none"> Deterioration of surface roughness and dimensional accuracy 	<ul style="list-style-type: none"> Too high Vc End of tool life 	<ul style="list-style-type: none"> Reduce Vc Change to higher wear resistant grade
Notching		<ul style="list-style-type: none"> Burr formation Cutting force increase 	<ul style="list-style-type: none"> Too high f and Vc 	<ul style="list-style-type: none"> Sharper cutting performance Reduce Vc Change to higher heat resistant grade
Crater Wear		<ul style="list-style-type: none"> Chip control deterioration Surface finish deterioration (peeled surface) 	<ul style="list-style-type: none"> Too high Vc 	<ul style="list-style-type: none"> Reduce Vc Change to high speed type like Cermet or Al2O3 coated insert
Plastic Deformation		<ul style="list-style-type: none"> Workpiece dimension's change Crack at nose 	<ul style="list-style-type: none"> Too high cutting load Inappropriate tool grade 	<ul style="list-style-type: none"> Change to harder grade Reduce f and ap
Crack from Wear		<ul style="list-style-type: none"> Surface finish's sudden deterioration Workpiece dimension changes 	<ul style="list-style-type: none"> Too high Vc 	<ul style="list-style-type: none"> Reduce the pre-set tool life Change to higher wear resistant grade
Chipping		<ul style="list-style-type: none"> Cutting force increase Surface roughness deterioration 	<ul style="list-style-type: none"> Too high f Chattering Lack of insert toughness 	<ul style="list-style-type: none"> Reduce f and ap Change to more rigid toolholder Change to tougher grade
Crack from Welding or Built-up Edge		<ul style="list-style-type: none"> Surface finish deterioration Cutting force increase 	<ul style="list-style-type: none"> Too low Vc 	<ul style="list-style-type: none"> Increase Vc Improve sharp cutting performance (rake angle, chamfer)
Mechanical Fracture		<ul style="list-style-type: none"> Sudden cracking Unstable tool life 	<ul style="list-style-type: none"> Too high f and ap Chattering 	<ul style="list-style-type: none"> Change to tougher grade Enlarge chamfer Enlarge Corner-R(r) Change to more rigid toolholder
Fracture from Thermal Crack		<ul style="list-style-type: none"> Cracking by heat cycle Possible in interrupted cutting and milling 	<ul style="list-style-type: none"> Too high Vc and f 	<ul style="list-style-type: none"> Reduce f Reduce Vc Change to dry cutting
Flaking		<ul style="list-style-type: none"> Possible in high-hardness material cutting Possible in machining with chattering 	<ul style="list-style-type: none"> Lack of insert toughness Lack of toolholder's rigidity 	<ul style="list-style-type: none"> Change to harder grade (TiC-base ceramic to CBN.) Change to more rigid toolholder Change edge preparation

Milling

Problem	Problem Item	Check Item	Insert Grade				Cutting Conditions				Tool Geometry						Setting		Machine					
			Change to Harder Grade	Change to Tougher Grade	Change to More Thermal Shock Resistant Grade	Change to More Welding Resistant Grade	Vc	fz	D.O.C.	Tool Path Review	Coolant		Relief Angle	Corner Angle	Approach Angle	Edge Strength / Honing	Number of Inserts	Chip Pocket		Wiper Edge (Relief Angle) Review	Insert Runout Check	Cutter Rigidity	Workpiece / Tool Installation	Overhang Length
											Usage of Mist	Dry													Higher (Larger) ↑ Lower (Smaller) ↓	Larger ↑ Smaller ↓
Edge Damage	Flank Wear Increase	Unsuitable Cutting Conditions					● ↓					●												
		Unsuitable Tool Geometry	●										● ↑		● ↓			●						
	Rake Face Wear Increase	Unsuitable Cutting Conditions					● ↓	● ↓	● ↓			●												
		Unsuitable Tool Geometry	●										● ↑	● ↑	● ↓									
	Chipping, Cracking	Unsuitable Cutting Conditions						● ↓	● ↓	●	●													
		Unsuitable Tool Geometry		●										● ↓	● ↑	● ↑			●	●	●	●	●	●
Edge Breakage by Thermal Shock	Unsuitable Cutting Conditions					● ↓	● ↓	● ↓				●												
	Unsuitable Tool Geometry		●										● ↑		● ↓									
Built-up Edge	Unsuitable Cutting Conditions					● ↑	● ↑				●													
	Unsuitable Tool Geometry			●									● ↑		● ↓									
Cutting Accuracy	Poor Surface Finish	Unsuitable Cutting Conditions					● ↑	● ↓	● ↓			●												
		Unsuitable Tool Geometry	●		●										● ↓	● ↓		●	●		●	●	●	
	Burr Formation	Unsuitable Cutting Conditions					● ↓	● ↓	● ↓	●	●													
		Unsuitable Tool Geometry												● ↑	● ↓	● ↓			●					
Workpiece Chip Off	Unsuitable Cutting Conditions						● ↓	● ↓			●													
	Unsuitable Tool Geometry												● ↑	● ↑	● ↓	● ↑		●						
Poor Planeness / Parallelness	Tool and Workpiece Evacuation						● ↓	● ↓				● ^{*5}	●	● ↑	● ↓	● ↓	● ↓	●	●	●	●	●	●	
	Unsuitable Cutting Conditions, Installation					● ↓	● ^{*1} ↓	● ^{*2} ↓	● ^{*4}	●	●		●	● ↑	● ↓	● ↓	● ↓			●	●	●	●	
Others	Damaging Chips	Unsuitable Cutting Conditions				● ↑	● ^{*3} ↓		●		● ^{*6}	●												
		Unsuitable Tool Geometry											●	● ↑			● ↓	● ↑						

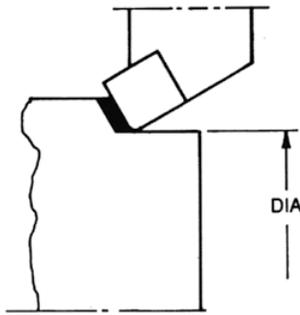
*1) To prevent chattering, the higher fz may be suitable.
 *2) To prevent chattering, the larger ap may be suitable.
 *3) Higher fz may be suitable.
 *4) Down-cut method is recommended for helical end milling.
 *5) If the surface is warped by cutting heat.
 *6) Compressed air is recommended.

■ Drilling

Problem	Problem Item	Check Item	Insert Grade		Cutting Conditions		Tool Geometry			Setting				Machine	
			Change to Harder Grade	Change to Tougher Grade	Vc	f	Coolant Discharge Condition	Chipbreaker Review	Inner Edge's Center Height Check (Core Dia. Check)	Tool Rigidity Improvement (Short Type)	Workpiece / Tool Installation	Insert Installation	Offset Check (Lathe Operation Only)		Adjustable Sleeve Usage
Edge Damage	Unusual Wear	Unsuitable Cutting Speed (too high)	●		● ↓										
		Unsuitable Cutting Speed (too low)		●	● ↑										
		Unsuitable Coolant Discharge					●								
		Poor Rigidity of Machine / Workpiece								●					●
		Small Hole Dia.										●	●		
		Unsuitable Tool Grade	●												
	Inner Edge Cracking	No core, Too Small Core							● ↑						
		Poor Rigidity of Machine / Workpiece								●	●				●
		Unstable Drilling Start				● ↓									
		High Hardness Workpiece	●		● ↓	● ↓									
		Clogged Chips			● ↑				● ↓						
		Unstable Insert Installation										●			
	Outer Edge Cracking	Poor Rigidity of Machine / Workpiece									●				●
		Unstable Drilling Start				● ↓									
		High Hardness Workpiece	●		● ↓	● ↓									
Poor Chip Control			●	● ↑											
Unstable Insert Installation											●				
Toolholder, Others	Scratches on Tool Body	Poor Rigidity of Machine / Workpiece								●				●	
		Inaccurate Tool Installment										●	●		
		Clogged Chips			● ↑	● ↓									
		Unstable Drilling Start				● ↓									
	Poor Hole Dia. Accuracy / Surface Finish	Poor Rigidity of Machine / Workpiece								●					●
		Poor Rigidity of Toolholder								●		●			
		Inaccurate Tool Installment										●	●		
		Clogged Chips			● ↑	● ↓			● ↓						
		Large Core Dia.							● ↓						
		Unstable Drilling Start				● ↓									
		Unsuitable Coolant Discharge					●								
	Large Chattering / Vibration	Unsuitable Cutting Conditions, Installation			● ↑	● ↓				●	●				●
		Unsuitable Cutting Conditions			● ↑										
	Long Chips	Unsuitable Chipbreaker							●						
		Lack of Machine Power			● ↓	● ↓			●						●

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
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GROOVING	G
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THREADING	J
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Turning



Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

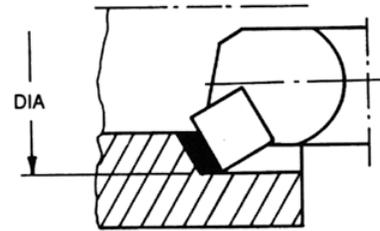
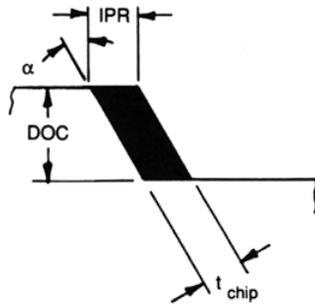
Revolutions per Minute
 $RPM = \frac{3.820 \times SFM}{DIA}$

Feedrate (inches/minute)
 $IPM = IPR \times RPM$

Chip Thinning for Non-Round Inserts (inches/revolution)
 Programmed IPR = $\frac{t_{chip\ Max}}{\cos 1}$

Chip Thinning for Round Inserts (inches/revolution)
 Programmed IPR = $\frac{t_{chip\ Max}}{\sqrt{\frac{4ap}{ic} - \left(\frac{2ap}{ic}\right)^2}}$

Boring



Metal Removal Rate
 $Q = 12 \times DOC \times IPR \times SFM$ (in³/minute)

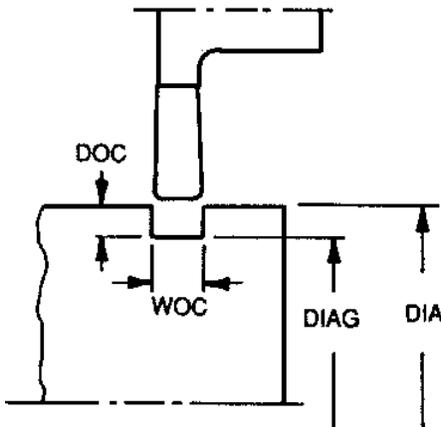
Horsepower Required at the Spindle
 $HPS = Q \times UHP$

Horsepower Required at the Motor
 $HPM = \frac{HPS}{EFF}$

Time in Cut (seconds)
 $T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$

or
 $T = \frac{60 \times LOC}{IPM}$

External Grooving



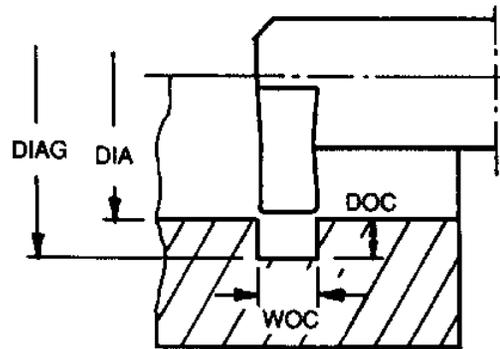
Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute
 $RPM = \frac{3.820 \times SFM}{DIA}$

Feedrate (inches/minute)
 $IPM = IPR \times RPM$

Feedrate (inches/revolution)
 $IPR = t_{chip}$

Internal Grooving



Metal Removal Rate
 $Q = 12 \times WOC \times IPR \times SFM$ (cu.in/minute)

Horsepower Required at the Spindle
 $HPS = Q \times UHP$

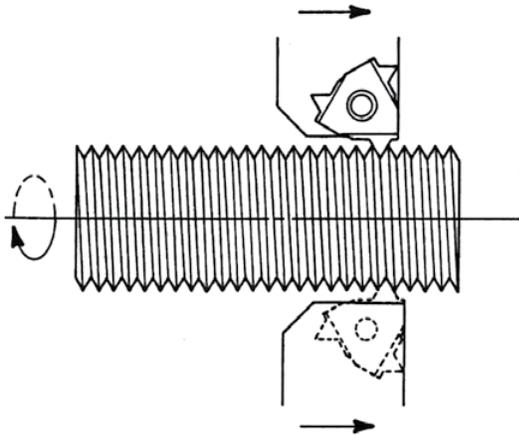
Horsepower Required at the Motor
 $HPM = \frac{HPS}{EFF}$

Time in Cut (seconds)
 $T = \frac{7.85 \times DOC \times (DIA + DIAG)}{SFM \times IPR}$

or
 $T = \frac{60 \times LOC}{IPM}$

R
 TECHNICAL

External Threading

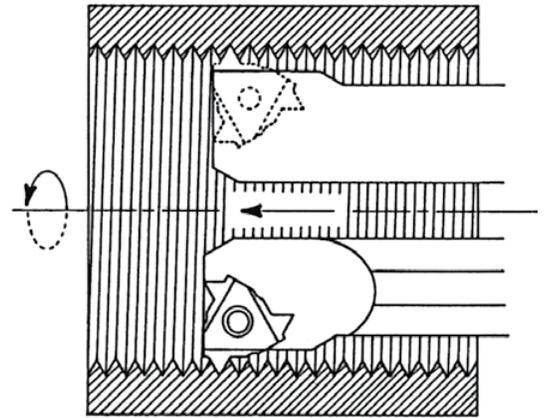


Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute
 $RPM = \frac{3.820 \times SFM}{DIA}$

Feedrate (inches/minute)
 $IPM = IPR \times RPM$

Internal Threading



Time in Cut (seconds)
 $T = \frac{60 \times LOC \times NO. \text{ OF PASSES}}{IPR \times RPM}$

Feedrate
Standard Threads

$$IPR = \frac{1}{TPI}$$

Metric Threads

$$IPR = \frac{P_{mm}}{25.4}$$

Definition of Terms

DIA = Diameter of the Workpiece (Inches)

DOC = Depth of Cut (Inches)

EFF = Machine Efficiency

f = Feedrate (See IPM and IPR)

HPM = Horsepower Required at the Motor

HPS = Horsepower Required at the Spindle

IPM = Feedrate (Inches per Minute)

IPR = Feedrate (Inches per Revolution)

IC = Insert inscribed circle (inches)

LOC = Length of Cut (Inches)

Q = Metal Removal Rate (Cubic Inches per Minute)

RPM = Revolutions per Minute

SFM = Surface Speed (Feet per Minute)

T = Time (in Seconds)

tchip Max = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

1 = Lead Angle

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
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Turning

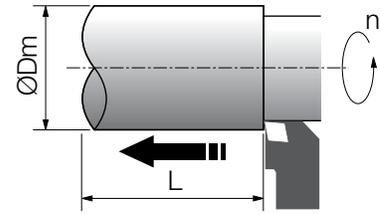
Cutting Speed

$$V_c = \frac{\pi \times D_m \times n}{1000}$$

V_c : Cutting Speed [m/min]

D_m : Workpiece Diameter [mm]

n : Spindle Revolution [min⁻¹]



Power Requirement

$$P_C = \frac{K_s \times V_c \times a_p \times f}{6120 \times \eta}$$

P_C : Power Requirement [kW]

P_{HP} : Power Requirement (Horse Power) [HP]

$$P_{HP} = \frac{K_s \times V_c \times a_p \times f}{4500 \times \eta}$$

V_c : Cutting Speed [m/min]

a_p : Depth Of Cut [mm]

f : Feed Rate [mm/rev]

K_s : Specific Cutting Resistance [kgf/mm²]

η : Mechanical Efficiency (0.7 ~ 0.8)

Ks Figure	
Low Carbon Steel	190
Medium Carbon Steel	210
High Carbon Steel	240
Low Alloy Steel	190
High Alloy Steel	245
Cast Iron	93
Malleable Cast Iron	120
Bronze, Brass	70

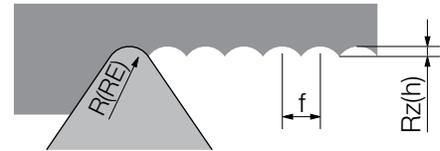
Surface Roughness

$$R_z = h = \frac{f^2}{8 \times R(RE)} \times 1000$$

$R_z = h$: Theoretical Surface Roughness [μm]

f : Feed Rate [mm/rev]

$R(RE)$: Corner Radius of Insert [mm]



Chip Removal Volume

$$Q = V_c \times a_p \times f$$

Q : Chip Removal Volume [cm³/min]

V_c : Cutting Speed [m/min]

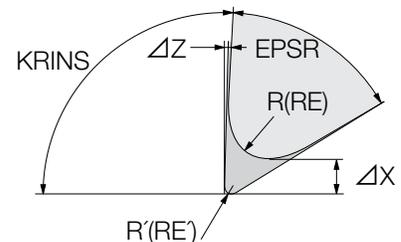
a_p : Depth Of Cut [mm]

f : Feed Rate [mm/rev]

Edge Position Compensation

$$\Delta X = (R - R') \times \left\{ \frac{\cos\left(\frac{\alpha}{2} + (\beta - 90^\circ)\right)}{\sin\frac{\alpha}{2}} - 1 \right\}$$

$$\Delta Z = (R - R') \times \left\{ \frac{\sin\left(\frac{\alpha}{2} + (\beta - 90^\circ)\right)}{\sin\frac{\alpha}{2}} - 1 \right\}$$



ΔX : X-axis Direction Edge Position Compensation [mm]

ΔZ : Z-axis Direction Edge Position Compensation [mm]

R : Corner-R before Change [mm]

R' : Corner-R before Change [mm]

EPSR : Insert Corner Angle [°]

KRINS : Toolholder's Cutting Edge Angle [°]

Toolholder Type	Insert Corner Angle (EPSR)	Cutting Edge Angle (KRINS)	ΔX	ΔZ
PCLN	80°	95°	0.100 x (R-R')	0.100 x (R-R')
PTGN	60°	91°	0.714 x (R-R')	0.030 x (R-R')
PDJN	55°	93°	0.866 x (R-R')	0.099 x (R-R')
PDHN	55°	107.5°	0.531 x (R-R')	0.531 x (R-R')
PVLN	35°	95°	2.072 x (R-R')	0.273 x (R-R')
PVPN	35°	117.5°	1.351 x (R-R')	1.351 x (R-R')
PSBN	90°	75°	0.225 x (R-R')	-0.293 x (R-R')

Example: Compensation when changing corner-R from 0.80 to 0.40, using PCLN type holder,

$$\Delta X = 0.100 \times (0.80 - 0.40) = 0.04 \text{ (mm)}$$

$$\Delta Z = 0.100 \times (0.80 - 0.40) = 0.04 \text{ (mm)}$$

Turning (Cutting Time)

● Cutting Time (External Turning Case 1: 1 Pass machining)

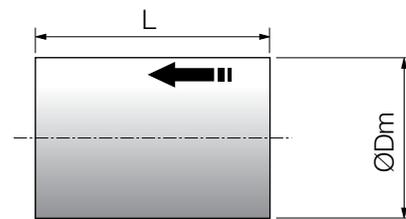
- At Constant Revolution

$$T = \frac{60 \times L}{f \times n}$$

- At Constant Cutting Speed

$$T = \frac{60 \times \pi \times L \times D_m}{1000 \times f \times V_c}$$

T : Cutting Time [second]
 L : Cutting Length [mm]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 D_m : Workpiece Diameter [mm]
 V_c : Cutting Speed [m/min]



● Cutting Time (External Turning Case 2: Multi-Pass machining)

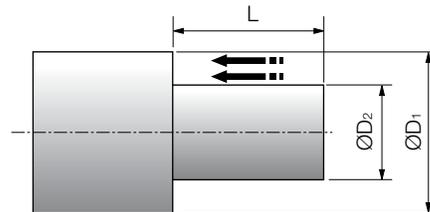
- At Constant Revolution

$$T = \frac{60 \times L}{f \times n} \times N$$

- At Constant Cutting Speed

$$T = \frac{60 \times \pi \times L \times (D_1 + D_2)}{2 \times 1000 \times f \times V_c} \times N$$

T : Cutting Time [second]
 L : Cutting Length [mm]
 a_p : Depth Of Cut per Pass [mm]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 D₁ : Max. Diameter of Workpiece [mm]
 D₂ : Min. Diameter of Workpiece [mm]
 V_c : Cutting Speed [m/min]
 N : Number of Passes = (D₁ · D₂)/a_p/2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



● Cutting Time (Facing)

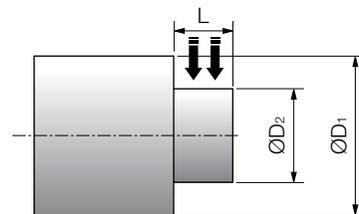
- At Constant Revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

- At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2 \times D_1 - D_2)}{4000 \times f \times V_c} \times N$$

T : Cutting Time [second]
 T₁ : Machining Time before reaching Max. Spindle Revolution [second]
 L : Cutting Length [mm]
 a_p : Depth Of Cut per Pass [mm]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 D₁ : Max. Diameter of Workpiece [mm]
 D₂ : Min. Diameter of Workpiece [mm]
 V_c : Cutting Speed [m/min]
 N : Number of Passes = (D₁ · D₂)/a_p/2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



● Cutting Time (Grooving)

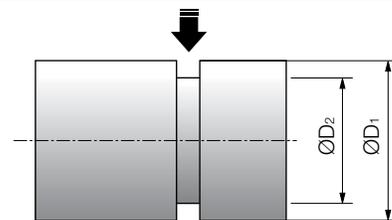
- At Constant Revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

- At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f \times V_c}$$

T : Cutting Time [second]
 T₁ : Machining Time before reaching Max. Spindle Revolution [second]
 L : Cutting Length [mm]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 D₁ : Max. Diameter of Workpiece [mm]
 D₂ : Min. Diameter of Workpiece [mm]
 V_c : Cutting Speed [m/min]



● Cutting Time (Cut-Off)

- At Constant Revolution

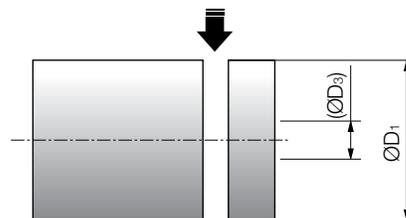
$$T = \frac{60 \times D_1}{2 \times f \times n}$$

- At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_3) \times (D_1 - D_3)}{4000 \times f \times V_c}$$

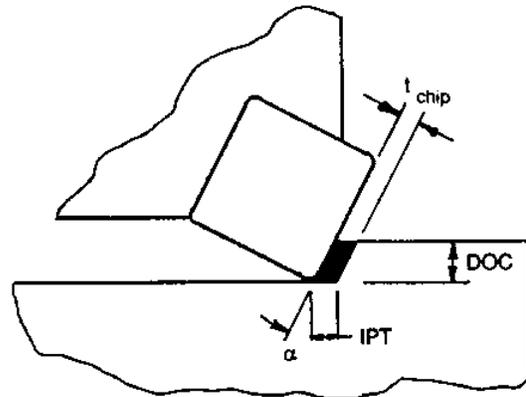
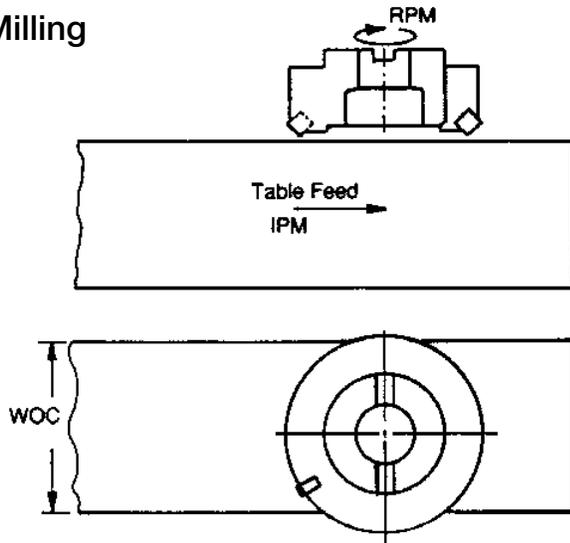
$$T_3 = T_1 + \frac{60 \times D_3}{2 \times f \times N_{max}}$$

T : Cutting Time [second]
 T₁ : Machining Time before reaching Max. Spindle Revolution [second]
 T₃ : Machining Time when reaching Max. Spindle Revolution [second]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 n_{max} : Max. Spindle Revolution [min⁻¹]
 D₁ : Max. Diameter of Workpiece [mm]
 D₃ : Diameter when reaching Max. Spindle Revolution [mm]
 V_c : Cutting Speed [m/min]



INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Milling



Surface Speed per Minute

$$SFM = 0.262 \times DIA \times RPM$$

Revolutions per Minute

$$RPM = \frac{3.820 \times SFM}{DIA}$$

Feedrate (inches/minute)

$$IPM = IPT \times N \times RPM$$

Feedrate (inches/tooth)

$$\text{Programmed IPT} = \frac{t_{chip \text{ Max}}}{\cos \alpha}$$

Radial Chip Thinning for 90° Cutters

$$f_1 = \frac{1/2 \left(\frac{DIA}{Ae} \right)}{\sqrt{\left(\frac{DIA}{Ae} \right) - 1}}$$

Table Feed with f_1 Compensation (inches/minute)
 $= IPT \times N \times RPM \times f_1$

Metal Removal Rate

$$Q = WOC \text{ DOC} \times IPM \text{ (in/min)}$$

Horsepower Required at the Spindle

$$HPS = Q \times UHP$$

Horsepower Required at the Motor

$$HPM = HPS/EFF$$

Time in Cut (Seconds)

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR \times N}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

Definition of Terms

DIA = Diameter of the Workpiece (Inches)

D.O.C. = Axial Depth of Cut (Inches)

EFF = Machine Efficiency

f = Feedrate (See IPM, IPR, and IPT)

HPM = Horsepower Required at the Motor (HP)

HPS = Horsepower Required at the Spindle (HP)

IPM = Feedrate (Inches per Minute)

IPR = Feedrate (Inches per Revolution)

IPT = Feedrate (Inches per Tooth)

f_1 = Cutter Compensation Factor

WOC = Width of Cut (Inches)

LOC = Length of Cut (Inches)

N = Number of Effective Teeth in Cutter

Q = Metal Removal Rate (Cubic Inches per Minute)

RPM = Revolutions per Minute

SFM = Surface Speed (Feet per Minute)

T = Time (in Seconds)

$t_{chip \text{ Max}}$ = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

α = Lead Angle

Milling

Cutting Speed

$$V_c = \frac{\pi \times DC \times n}{1,000}$$

V_c : Cutting Speed [m/min]
 DC : Cutter Diameter [mm]
 n : Spindle Revolution [min⁻¹]

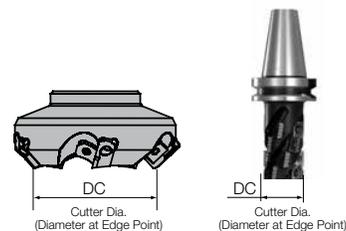
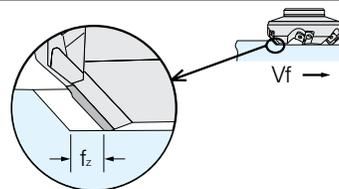


Table Feed & Feed per Tooth

$$V_c = \frac{V_f}{Z \times n}$$

f_z : Feed per Tooth [mm/t]
 V_f : Table Feed [mm/min]
 Z : Number of Inserts
 n : Spindle Revolution [min⁻¹]



Power Requirement

$$P_c = \frac{K_s \times Q}{6,120 \times \eta} = \frac{K_s \times a_e \times V_f \times a_p}{6,120,000 \times \eta}$$

$$= \frac{K_s \times a_e \times f_z \times Z \times n \times a_p}{6,120,000 \times \eta}$$

P_c : Power Requirement [kW]
 V_f : Power Requirement (Horse Power) [HP]
 a_e : Width of Cut [mm]
 V_f : Table Feed [mm/min]
 f_z : Feed per Tooth [mm/t]
 Z : Number of Inserts
 n : Spindle Revolution [min⁻¹]
 a_p : Depth of Cut [mm]
 K_s : Specific Cutting Force [kgf/mm²]
 η : Mechanical Efficiency (0.7~0.8)
 Q : Chip Removal Volume [cm³/min = cc/min]

Ks Figure	
Low Carbon Steel	190
Medium Carbon Steel	210
High Carbon Steel	240
Low Alloy Steel	190
High Alloy Steel	245
Cast Iron	93
Malleable Cast Iron	120
Bronze, Brass	70

Chip Removal Volume

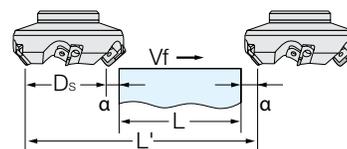
$$Q = \frac{a_e \times V_f \times a_p}{1,000} = \frac{a_e \times f_z \times Z \times n \times a_p}{1,000}$$

Q : Chip Removal Volume [cm³/min = cc/min]
 a_e : Width of Cut [mm]
 V_f : Table Feed [mm/min]
 f_z : Feed per Tooth [mm/t]
 Z : Number of Inserts
 n : Spindle Revolution [min⁻¹]
 a_p : Depth of Cut [mm]

Cutting Time

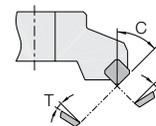
$$T = \frac{60 \times L'}{V_f} = \frac{60 \times L'}{f_z \times Z \times n}$$

T : Cutting Time [seconds]
 L' : Total Table Transfer Length [mm]
 (= $L + D_s + 2a$)
 L : Workpiece Length [mm]
 D_s : Cutter Diameter [mm]
 a : Idling Distance [mm]
 V_f : Table Feed [mm/min]
 f_z : Feed per Tooth [mm/t]
 Z : Number of Inserts
 n : Spindle Revolution [min⁻¹]



True Rake Angle

$$\tan T = \tan R \times \cos C + \tan A \times \sin C$$



True Rake Angle

$$\tan I = \tan A \times \cos C - \tan R \times \sin C$$

A (GAMP) : Axial Rake Angle (A.R.) [°] (-90° < A < 90°)
 R (GAMF) : Radial Rake Angle (R.R.) [°] (-90° < R < 90°)
 C (KAPR) : Approach Angle [°] (0° < C < 90°)
 T (GAMN) : True Rake Angle [°] (-90° < T < 90°)
 I (GAMO) : Inclination Angle [°] (-90° < I < 90°)

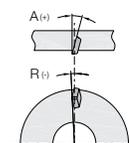
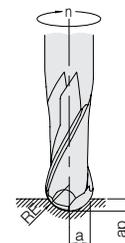


Table Feed & Feed per Tooth

$$n = \frac{1,000 \times V_a}{2 \times \pi \times \sqrt{a(2RE - a_p)}}$$

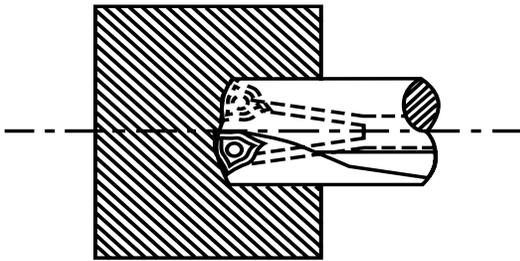
n : Revolution [min⁻¹]
 RE : Radius of Ball-Nose End Mill (Ball Part's Radius [mm])
 a_p : Depth of Cut [mm]
 V_a : Cutting Speed at Position a [m/min]



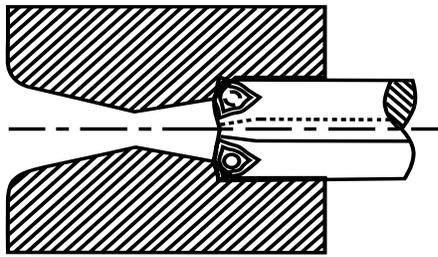
INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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■ Drilling

DRILLING



CORE DRILLING



SURFACE SPEED PER MINUTE

$$SFM = 0.262 \times DIA \times RPM$$

REVOLUTIONS PER MINUTE

$$RPM = \frac{3.82 \times SFM}{DIA}$$

FEEDRATE (inches per minute)

$$IPM = IPR \times RPM$$

FEEDRATE (inches per revolution)

$$IPR = IPT \times N$$

METAL REMOVAL RATE (in³ per minute)

DRILL: $Q = 3 \times DIA \times IPR \times SFM$

COREDRILL: $Q = 12 \times DOC \times IPR \times SFM$

HORSEPOWER REQUIRED AT THE SPINDLE

$$HPS = Q \times UHP$$

HORSEPOWER REQUIRED AT THE MOTOR

$$HPM = \frac{HPS}{EFF}$$

TIME IN CUT

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

■ Definition of Terms

DIA = DIAMETER OF THE DRILL (INCHES)

DOC = DEPTH OF CUT (INCHES)

EFF = MACHINE EFFICIENCY

HPM = HORSEPOWER AT MOTOR

HPS = HORSEPOWER AT SPINDLE

IPM = FEEDRATE (INCHES PER MINUTE)

IPR = FEEDRATE (INCHES PER REVOLUTION)

IPT = CHIPLOAD (INCHES PER TOOTH)

LOC = LENGTH OF CUT (INCHES)

N = NUMBER OF EFFECTIVE FLUTES

N = 1 FOR DRILLS

N = 2 FOR COREDRILLS

Q = METAL REMOVAL RATE (CUBIC INCHES PER MINUTE)

RPM = REVOLUTIONS PER MINUTE

SFM = SURFACE SPEED (FEET PER MINUTE)

T = TIME (SECONDS)

UHP = UNIT HORSEPOWER (SEE TABLE BELOW)

UNIT HORSEPOWER FACTORS

Material	Hardness (BHN)	UHP Factor (HP/in3/min)	Material	Hardness (BHN)	UHP Factor (HP/in3/min)
Aluminum	---	0.25	1050	225	0.80
Brass	---	0.25	4140	275	0.70
Copper	---	0.30	52100	225	0.67
Gray Cast Iron	200	0.33	6150	375	1.30
Nodular Iron	225	0.54	Cast Steel	225	0.62
Inconel 700	330	1.10	Stainless Steel	225	0.73
1020	165	0.58			

R
TECHNICAL

■ Drilling

● Cutting Speed

$$V_c = \frac{\pi \times DC \times n}{1,000}$$

V_c : Cutting Speed [m/min]
 DC : Drill Diameter [mm]
 n : Spindle Revolution [min⁻¹]

● Feed Rate

$$V_f = f_z \times Z \times n$$

V_f : Table Feed [mm/min]
 f_z : Feed per Tooth [mm/t]
 Z : Number of Inserts
 n : Spindle Revolution [min⁻¹]

● Cutting Time

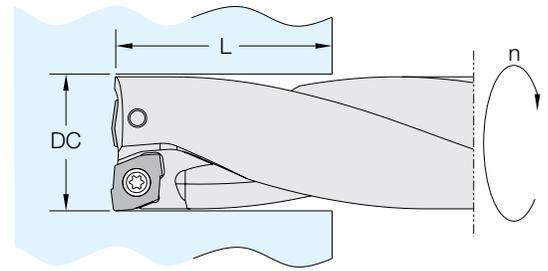
$$T = \frac{60 \times L}{f \times n} = \frac{60 \times \pi \times DC \times L}{1,000 \times V_c \times f}$$

T : Cutting Time [second]
 L : Drilling Depth [mm]
 f : Feed Rate [mm/rev]
 n : Spindle Revolution [min⁻¹]
 DC : Drill Diameter [mm]
 V_c : Cutting Speed [m/min]

● Power Requirement

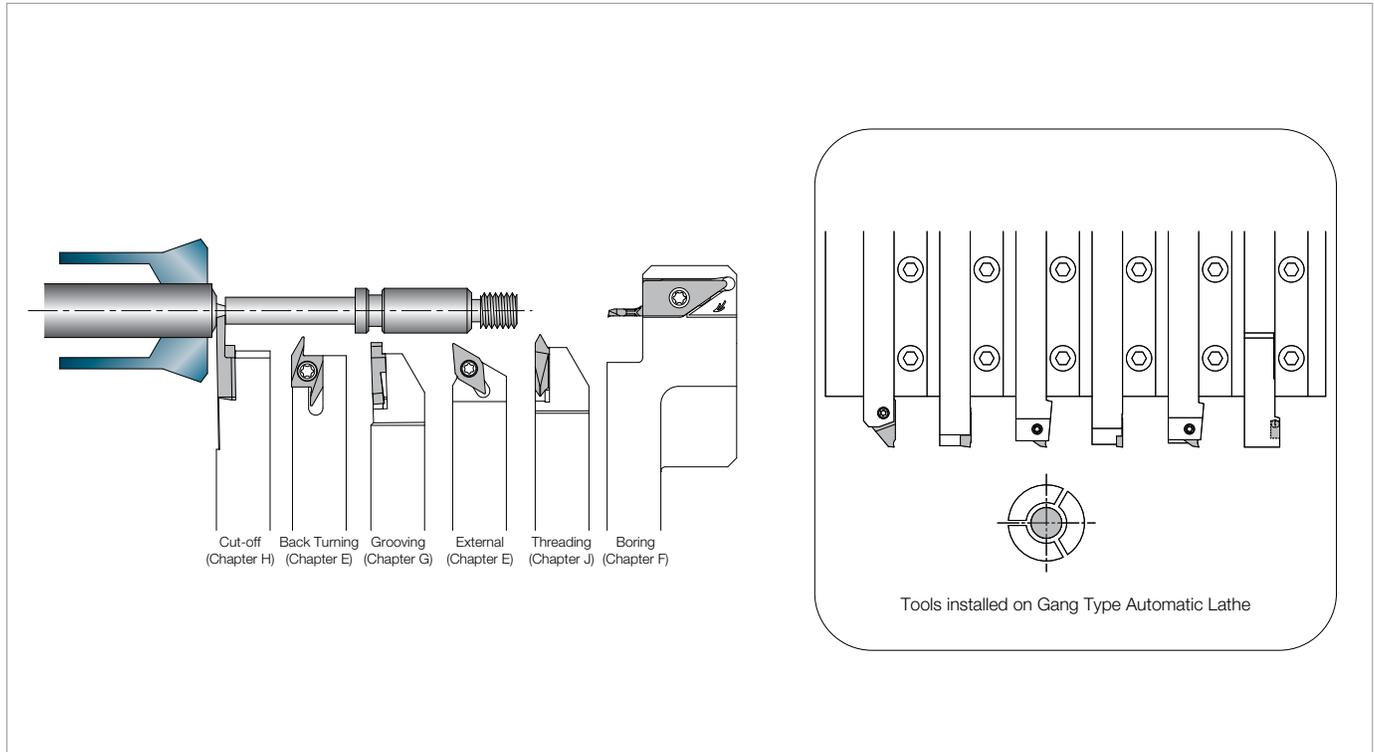
$$P_c = \frac{DC}{20} \times \frac{V_c}{100} \times \left(1 + \left(\frac{2.5 \times f}{0.1} \right) \right)$$

P_c : Power Requirement [kW]
 DC : Drill Diameter [mm]
 V_c : Cutting Speed [m/min]
 f : Feed Rate [mm/rev]

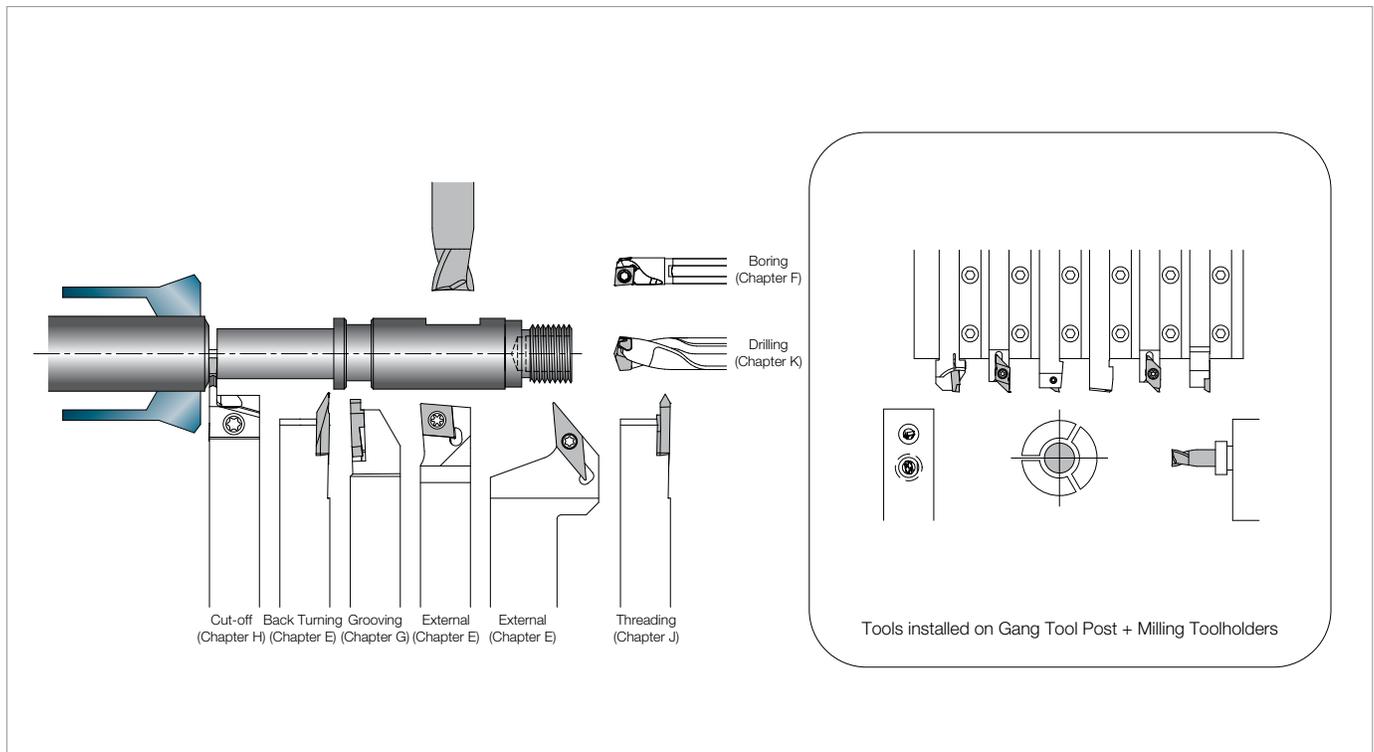


INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
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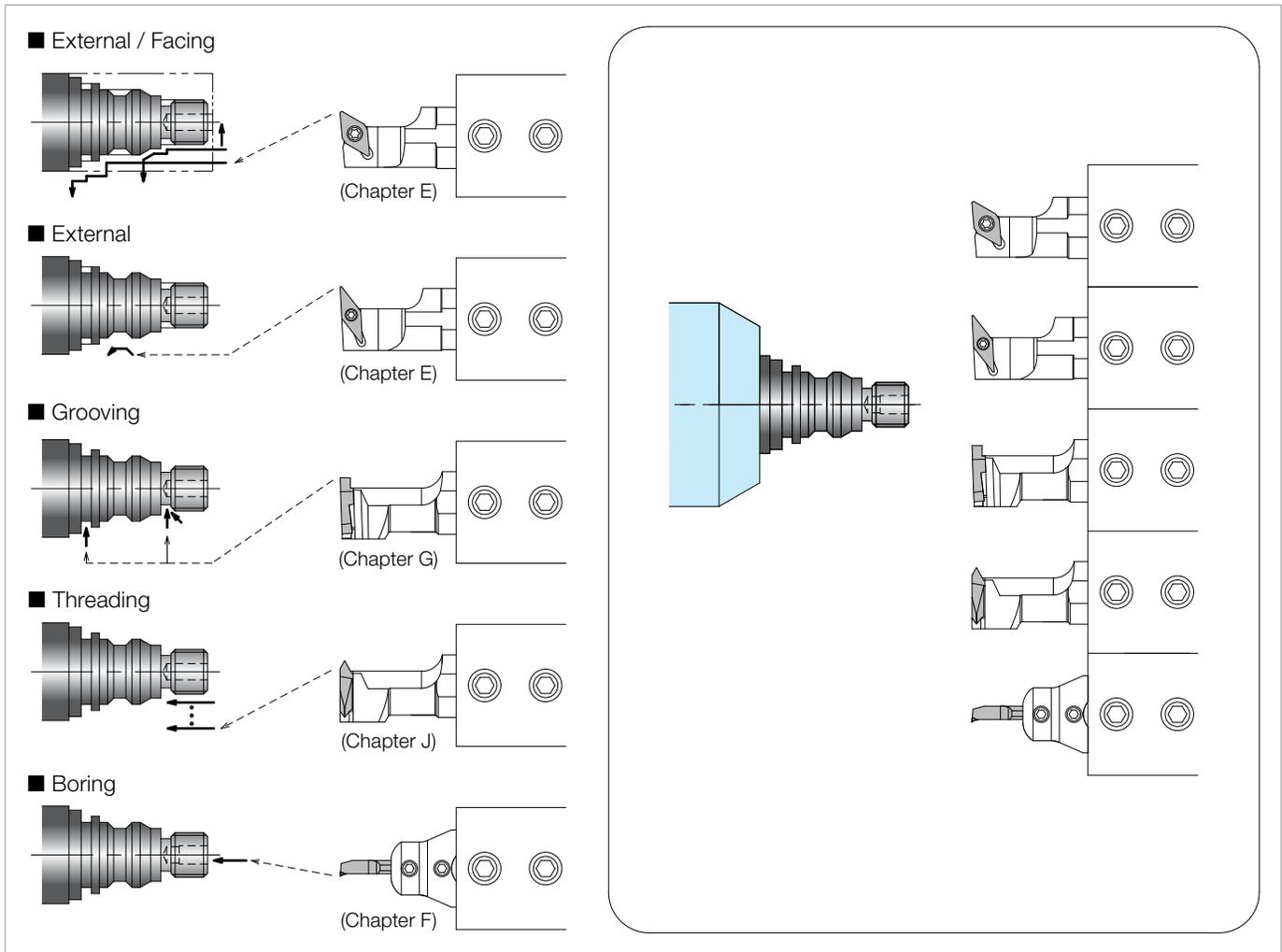
■ Tooling Example ① CNC Automatic Lathe (Gang Type)



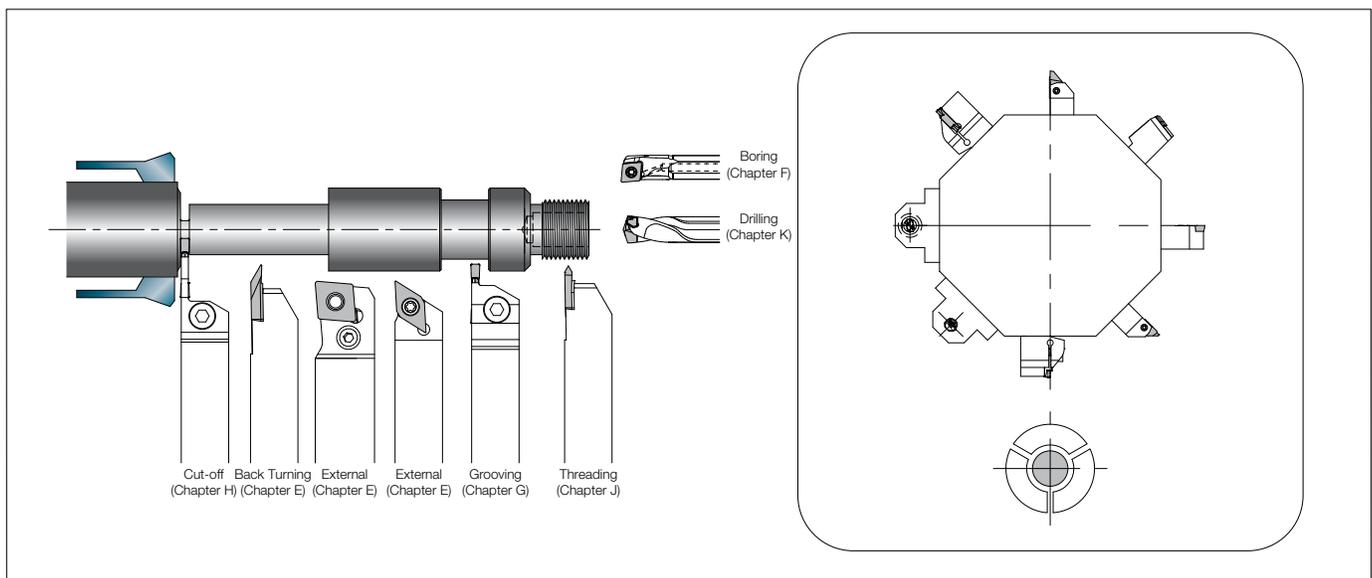
■ Tooling Example ② CNC Automatic Lathe (Gang Type)



Tooling Example ③ CNC Automatic Lathe (Opposed Gang Type)



Tooling Example ④ CNC Automatic Lathe (Turret Type)



Automatic Lathe List by Manufacturer and Tooling Examples see page [R66-R71](#)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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AUTOMATIC LATHE LIST BY MANUFACTURER

CITIZEN MACHINERY (Cincom Products)

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
A12/16	10 x 10 x 100	5			Ø19.05/Ø20	Ø12/Ø16	Ø12 / Ø16	-
A20	12(13) x 12(13) x 120 Cut-Off Toolholder : □16mm	6			Ø25.4	Ø20	Ø20	-
A20 VII	12(13) x 12(13) x 120 Cut-Off Toolholder : □16mm	6			Ø25.4	Ø20	Ø20	-
A32	16 x 16 x 150	6			Ø25.4	Ø32	Ø32	-
B12	10 x 10 x 100	5			Ø19.05/Ø20	Ø12	Ø12	-
B12E/B16E	10 x 10 x 120(60)	5			Ø19.05(Ø20OP)	Ø12/Ø16	Ø12 / Ø16	-
B20	12(13) x 12(13) x 120	6			Ø19.05/Ø20	Ø20	Ø20	-
BL12	10 x 10 x 60 ~ 120	5			Ø20(Ø19.05)	Ø12	Ø12	-
BL20/25	12(13) x 12(13) x 120	4 ~ 7			Ø20(Ø19.05)	Ø20/Ø25	Ø20 / Ø25	-
C12/16	10 x 10 x 120	6			Ø19.05	Ø12/Ø16	Ø12 / Ø16	-
C32	16 x 16 x 130	5			Ø25.4	Ø32	Ø32	-
D25	16 x 16 x 150 Cut-Off Toolholder : □19mm				Ø25.4	Ø25	Ø16	-
F10			10 x 10 x 60	10	Ø19.05	Ø10	Ø20	-
F12			10 x 10 x 60	10	Ø19.05	Ø12	Ø25	-
F16			10 x 10 x 60	10	Ø19.05	Ø16	Ø32	-
F20			16(19) x 16(13) x 90	10	Ø25.4	Ø20	Ø10	-
F25			16(19) x 16(13) x 90	10	Ø25.4	Ø25	Ø12	-
FL25			16 x 16 x 90	12		Ø25	Ø16	-
FL42			16 x 16 x 90	12		Ø42	Ø20	-
G32			16(19) x 16(19) x 90	10	-	Ø32	Ø25	-
K12/16	12(10) x 12(10) x 100	6(7)			Ø19.05/Ø20	Ø12/Ø16	Ø25	-
K12E/K16E	12 x 12 x 120	6			Ø19.05/Ø20	Ø12/Ø16	Ø42	-
L10	8 x 8 x 100 ~ 130	5			Ø15.875	Ø10	Ø32	-
L12	10 x 10 x 100	6			Ø19.05	Ø12	Ø12 / Ø16	-
L16	12(10) x 12(10) x 130	5			Ø19.05	Ø16	Ø12 / Ø16	-
L20,L20E	12 x 12 x 130 Cut-Off Toolholder : □16mm	5			Ø19.05	Ø20	Ø10	-
L20X,L220	12(13,16) x 12(13,16) x 120 Cut-Off Toolholder : □16mm	5 ~ 7			Ø19.05/Ø25	Ø20	Ø12	-
L25	16 x 16 x 130	5			Ø25.4	Ø25	Ø16	-
L32	16 x 16 x 130	5			Ø25.4	Ø32		-
M12	10 x 10 x 120	5	10 x 10 x 60	10+α	Ø19.05	Ø12		-
M16	10 x 10 x 120	5	10 x 10 x 60	10+α	Ø19.05	Ø16	Ø25	-
M20	16 x 16 x 130	5	16 x 16 x 90	10+α	Ø25.4	Ø20	Ø32	-
M32	16 x 16 x 130	5	16 x 16 x 90	10+α	Ø25.4	Ø32	Ø12	-
MC20	13 x 13 x 120	2 + 2 + 2			Ø19.05/Ø20.0	Ø20.0	Ø16	-
MSL12	10 x 10 x 120				-	Ø12	Ø20	-
R04	8 x 8 x 120	5			Ø15.875	Ø4	Ø32	-
R07	8 x 8 x 120	5			Ø15.875	Ø7	Ø16	-
RL01	10(8) x 10(8) x 90				Ø16(Ø20)	Ø10	Ø20	-
RL02	16 x 16 x 90				Ø20	Ø20	Ø20.0	-
RL21	10(12) x 10(12) x 90				Ø19.05	Ø35	Ø12	-

- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

AUTOMATIC LATHE LIST BY MANUFACTURER

CITIZEN MACHINERY (Miyno Products)

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
ABX-51SY2			20 x 20 x 125(100)	24	Ø25	48	Ø51	
ABX-51SYY2			20 x 20 x 125(100)	24	Ø25	48	Ø51	
ABX-51TH5			20 x 20 x 125(100)	36	Ø25	72	Ø51	
ABX-51THY2			20 x 20 x 125(100)	36	Ø25	72	Ø51	
ABX-64SY2			20 x 20 x 125(100)	24	Ø25	48	Ø64	
ABX-64SYY2			20 x 20 x 125(100)	24	Ø25	48	Ø64	
ABX-64TH5			20 x 20 x 125(100)	36	Ø25	72	Ø64	
ABX-64THY2			20 x 20 x 125(100)	36	Ø25	72	Ø64	
BNA-34C			20 x 20 x 125(100)	8(16)	Ø25	24	Ø34	
BNA-34DHY			20 x 20 x 125(100)	14(22)	Ø25	27	Ø34	
BNA-34S			20 x 20 x 125(100)	8(16)	Ø25	24	Ø34	
BNA-42C/C2			20 x 20 x 125(100)	8(16)	Ø25	24	Ø42	
BNA-42DHY			20 x 20 x 125(100)	14(22)	Ø25	27	Ø42	
BNA-42DHY2			20 x 20 x 125(100)	14(22)	Ø25	27	Ø42	
BNA-42DHY3			20 x 20 x 125(100)	14(22)	Ø25	27	Ø42	
BNA-42GTY	20 x 20 x 125(100)	3	20 x 20 x 125(100)	8(16)	Ø25	24(7)	Ø42	
BNA-42MSY2			20 x 20 x 125(100)	8(16)	Ø25	24	Ø42	
BNA-42S/S2			20 x 20 x 125(100)	8(16)	Ø25	24	Ø42	
BNA-42C5/SY5			20 x 20 x 125(100)	12(24)	Ø25	24	Ø42	
BNC-42C7			20 x 20 x 125(100)	8(16)	Ø25	24	Ø42	
BND-51C2			20 x 20 x 125(100)	12	Ø25	24	Ø51	
BND-51S2			20 x 20 x 125(100)	12	Ø25	24	Ø51	
BND-51SY2			20 x 20 x 125(100)	12	Ø25	24	Ø51	
BNE-42S6			20 x 20 x 125(100)	24	Ø25	48	Ø42	
BNE-42SY6			20 x 20 x 125(100)	24	Ø25	48	Ø42	
BNE-51S6			20 x 20 x 125(100)	24	Ø25	48	Ø51	
BNE-51SY6			20 x 20 x 125(100)	24	Ø25	48	Ø51	
BNE-51MSY			20 x 20 x 125(100)	24	Ø25	48	Ø51	
BNJ-34S3/S5			20 x 20 x 125(100)	18	Ø25	30	Ø34	
BNJ-34SY3/SY5			20 x 20 x 125(100)	18	Ø25	30	Ø34	
BNJ-42S3/S5			20 x 20 x 125(100)	18	Ø25	30	Ø42	
BNJ-42S6			20 x 20 x 125(100)	20	Ø25	40	Ø42	
BNJ-42SY3/SY5			20 x 20 x 125(100)	18	Ø25	30	Ø42	
BNJ-42SY5			20 x 20 x 125(100)	18	Ø25	30	Ø42	
BNJ-42SY6			20 x 20 x 125(100)	20	Ø25	40	Ø42	
BNJ-51S3/S5			20 x 20 x 125(100)	18	Ø25	30	Ø51	
BNJ-51SY3/SY5			20 x 20 x 125(100)	18	Ø25	30	Ø51	
BNJ-51SY6			20 x 20 x 125(100)	20	Ø25	40	Ø51	
GN-3200	12(16) x 12(16) x 70 - 120	4 ~ 5			Ø20	4 ~ 5	Ø40	
GN-3200W	12(16) x 12(16) x 70 - 120	4 ~ 5			Ø20	4 ~ 5	Ø40	
GN-4200	12(16) x 12(16) x 70 - 120	7 ~ 8			Ø20	7 ~ 8	Ø40	
LX-06E2			20 x 20 x 125(100)	8	Ø32	8		6 inch power chuck
LX-06E3			20 x 20 x 125(100)	8	Ø32	8		6 inch power chuck
LX-08C			25 x 25 x 150	10	Ø40	10		8 inch power chuck
LX-08E2			25 x 25 x 150	8	Ø40	8		8 inch power chuck
LX-08E3			25 x 25 x 150	8	Ø40	8		8 inch power chuck
LX-08R			20 x 20 x 125(100)	10	Ø25	20		8 inch power chuck
LZ-01R2			20 x 20 x 125(100)	12	Ø25	24		8 inch power chuck
LZ-01RY2			20 x 20 x 125(100)	12	Ø25	24		8 inch power chuck
LZ-02R2			20 x 20 x 125(100)	10	Ø25	20		8 inch power chuck
LZ-02RY2			20 x 20 x 125(100)	10	Ø25	20		8 inch power chuck
RL01 III	10 x 10 x 70 - 120	2 ~ 3			Ø16	2 ~ 3	Ø10	
RL01 V	10 x 10 x 70 - 120	2 ~ 3			Ø16	2 ~ 3	Ø10	
RL03	12(16) x 12(16) x 70 - 120	4 ~ 5			Ø20	4 ~ 5	Ø40	
VC03	12(16) x 12(16) x 70 - 120	4 ~ 5			Ø20	4 ~ 5	Ø40	

* Number of tools shown in parentheses () is the maximum number of toolholders mountable including Ø25 sleeves.

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INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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AUTOMATIC LATHE LIST BY MANUFACTURER

STAR MICRONICS

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
ECAS-12	10x10x95~150	6			Ø22		Ø13	
ECAS-20	12x12x80~150 16x16x80~144	6			Ø22		Ø20	
ECAS-20T			16x16x60~78 16x16x80~88		Ø22 / Ø32		Ø20	
ECAS-32T			16x16x60~78 16x16x80~88	10 10	Ø22 / Ø32		Ø32	
JNC-10			8x8x65	6			Ø10	
JNC-16			10x10x80	6			Ø16	
JNC-25/32			10x10x78~120	10	Ø22		Ø25 / 32	
KJR-16B/25B			16x16x78	12/16	Ø22 / Ø32			
KNC-16/20			16x16x68	16	Ø22			
KNC-25II/32II			16x16x78	20	Ø22 / Ø32			
RNC-10	10x10x80~120	5			Ø22			
RNC-16	10x10x80~120	5			Ø22			
SA-16R	10x10x95~120	6			Ø22			
SB-16 (A/C/D/E)	12x12x95~130 12x12x95~130 10x10x95~130	5 6 6			Ø22 (Front & Rear) / (Ø22)	4/4 4/4 4/4		Only D/E for Back Clamp Sleeves
SB-12II (C/E)	12x12x95~130	6				4/4		Only E for Back Clamp Sleeves
SB-16II (C/E)	12x12x95~130	6				4/4		
SB-20 A/C/E	10x10x95~130	6				4/4		
SB-12R typeG	12x12x95~130	6				4/4	Ø13	
	10x10x95~130	7				4/4		
SB-16R/20R typeN	12x12x95~130	6				4/4	Ø16 / Ø23	
	10x10x95~130	7				4/4		
SB-16R/20R typeG	12x12x95~130	6				4/4	Ø16 / Ø23	
	10x10x95~130	7				4/4		
SC20	12x12x95~130	5			Ø22 / -	4		
	10x10x95~130	6				4/4		
SE-12B/16B	10x10x95~120	5			Ø22		Ø13 / 16	
SG-42			16x16x84~88 16x16x71~82 20x20x84~88		Ø22 / Ø32		Ø42	
SH-7	8x8x95~120	5			Ø22		Ø7	
SH-12/16	10x10x95~120	5			Ø22		Ø13 / 16	
SI-12/12C	10x10x80~130	6			Ø22		Ø13	
SR-10J	8x8x67~110 (Spacer is needed)	6			Ø16	4		
SR-20RII	12x12x100~135	6		4	Ø22	6/8	Ø23	Toolpost for 2 Toolholders (Deep Boring) on the Front Side
SR-20III	12x12x95~135	6			Ø22	6/8	Ø23	
SR-20IVtypeA	12x12x100~130	7			Ø22 (Front & Rear) / Ø22	6/8	Ø23	
SR-20IVtypeB	12x12x100~130	7			Ø22 (Front & Rear) / Ø22	6/8	Ø23	
SR-25J/32J	16x16x95~155	6		4	Ø22+Ø32 (Front & Rear) / Ø22		Ø32	
SW-12RII	10x10x95~115	7			Ø16(Front & Rear) / Ø22	4/8	Ø13	
ST-20			12x12x73~79 12x12x65~73(Cut-Off) 16x16x64~73 16x16x65~73(Cut-Off)		Ø22 / Ø32		Ø20	
ST-38			16x16x83~88 16x16x71~82 16x16x84~88(Cut-Off) 20x20x84~88 20x20x84~88(Cut-Off)		Ø22 / Ø32		Ø32 / Ø38	
SV-38R	16x16x105~135 20x20x115~135(Cut-Off)	4 1	16x16x84~88 16x16x71~82 20x20x84~88		Ø22 / Ø32	- / 8	Ø32 / Ø38	
SV-12/20	12x12x95~135 16x16x95~135	5 4	12x12x70~78 16x16x65~70		Ø22 / Ø32			
SV-32	16x16x95~135	4	16x16x60~78 16x16x80~88		Ø22 / Ø32			
SW-7	8x8x80~120	6					Ø7	

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AUTOMATIC LATHE LIST BY MANUFACTURER

TSUGAMI

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
B0123-III	12x12x85	9	-	-	Ø20 / -	4 / -	Ø12	
B0124/125/126-III	12x12x85	9	-	-	Ø20 / Ø20	4 / 4	Ø12	
B0203-III	12x12x85	9	-	-	Ø20 / Ø20	4 / 4	Ø20	
B0204/205/206-III	12x12x85	9	-	-	Ø20 / Ø20	4 / 4	Ø20	
B020M-II	-	-	-	-	- / Ø20	- / 1	Ø20	
B0265/265B/266-II	16x16x100	12	-	-	Ø25 / Ø25	5 / 4	Ø26	
B0325/325B/326-II	16x16x100	12	-	-	Ø25 / Ø25	5 / 4	Ø32	
B0385/385L	20x20x125	8	-	-	Ø32 / Ø32	3 / 5	Ø38	
B038T	-	-	20x20x125	St.8	Ø32 / Ø25		Ø38	
B073/074-II	8x8x85	9			Ø20	4	Ø7	
BH20/BH20Z	12x12x85	4	12x12x85	St.12	Ø25 / Ø32		Ø20	
BH38	16x16x125	5	20x20x125	St.12	Ø25 / Ø32		Ø38.1	
BM163-III	12x12x85	9	-	-	Ø20 / -	4 / -	Ø16	
BM164/165-III	12x12x85	9	-	-	Ø20 / Ø20	4 / 4	Ø16	
C150/CH154	12x12x60-100	4-6	-	-	-		Ø80	
C180	12x12x60-100	4-6	-	-	-		Ø120	
C220/220T	12x12x60-100	6-8	-	-	-		Ø120	
C300-IV	16x16x100-130	6-10	-	-	-		Ø165	
C300H	16x16x100-130	6-10	-	-	-		Ø165	
P013	8x8x100-120	6	-	-	Ø16 / -	3 / -	Ø1	
P013-II	8x8x100-120	6	-	-	Ø16 / -	3 / -	Ø1	
P014	8x8x100-120	6	-	-	Ø16 / Ø16	3 / 3	Ø1	
P014-II	8x8x100-120	6	-	-	Ø16 / Ø16	3 / 3	Ø1	
P033	8x8x100-120	6	-	-	Ø16 / -	3 / -	Ø3	
P033-II	8x8x100-120	6	-	-	Ø16 / -	3 / -	Ø3	
P034	8x8x100-120	6	-	-	Ø16 / Ø16	3 / 3	Ø3	
P034-II	8x8x100-120	6	-	-	Ø16 / Ø16	3 / 3	Ø3	
S205/206/SS207	12x12x100	8	-	-	Ø22 / Ø20	5 / 4	Ø20	
SS26	16x16x100	7	-	-	Ø22 / Ø20	5 / 4	Ø26	
SS32/32L	16x16x100	7	-	-	Ø22 / Ø20	5 / 4	Ø32	
SS20M	-	-	-	-	- / Ø20	- / 1	Ø20	
SS267	16x16x100	7	-	-	Ø22 / Ø20	5 / 4	Ø26	
SS327	16x16x100	7	-	-	Ø22 / Ø20	5 / 4	Ø32	
MB25	-	-	20x20x90	2xSt.8	Ø20 / Ø32	5 / 4	Ø25	
M42J/M42SD	-	-	20x20x125	St.12	Ø25 / Ø32		Ø42	
M50J/M50SY-III	-	-	20x20x100	St.12	Ø20 / Ø32		Ø51	
M06JC	-	-	20x20x125	St.8	Ø25		Ø220 / Ø42	
M06J	-	-	25x25x150	St.8	Ø32 / Ø40		Ø260 / Ø51	
M08J	-	-	25x25x150	St.8	Ø32 / Ø40		Ø280 / Ø65	
M06D	-	-	25x25x150	St.12	Ø40		Ø260 / Ø51	
M08D	-	-	25x25x150	St.12	Ø40		Ø280 / Ø65	
M06SD	-	-	25x25x150	St.12	Ø40		Ø260 / Ø51	
M08SD	-	-	25x25x150	St.12	Ø40		Ø280 / Ø65	
M06SY	-	-	25x25x150	St.12	Ø40		Ø260 / Ø51	
M08SY	-	-	25x25x150	St.12	Ø40		Ø280 / Ø65	
TMU1	20x20x100-125	1	20x20x125	St.16	Ø32 / Ø32		Ø38	
TMB2	20x20x100-125	1	20x20x125	St.16	Ø32 / Ø32		Ø51	
TMA8-IV	20x20x100-125	1			Ø32 / Ø32		Ø65	
TMA8J	20x20x100-125	1			Ø32 / Ø32		Ø65	
TMA8H	20x20x100-125	1			Ø32 / Ø32		Ø65	

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

AUTOMATIC LATHE LIST BY MANUFACTURER

AMADA

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
G05	16x16				Ø20		Ø50x40	
G06	16x16				Ø20		Ø60x60	
G07	16x16				Ø20		Ø100x100	
G07M	20x20				Ø20		Ø100x100	
G07F	16x16				Ø20		Ø120x120	
GG5	16x16				Ø20		Ø50x40	
GS04	16x16				Ø20		Ø30x20	
J1			20x20	8	Ø25		Ø120x120	
J3			25x25	8	Ø32		Ø170	
J5			25x25	8	Ø32		Ø240	
JJ1			20x20	8	Ø32		Ø50x50	
JJ3			25x25	8	Ø32		Ø100x100	
JJ3M			25x25	12	Ø32		Ø100x100	
Ai8			20x20	8	Ø25		Ø50x50	
A12			16x16	12	Ø25		Ø80x50	
A18S			20x20	18	Ø25		Ø80x50	
AD12			16x16	9	Ø25		Ø80x50	
AD18S			20x20	15	Ø25		Ø80x50	
AA1			20x20	8	Ø25		Ø50x50	
Mi8			16x16	5	Ø20		Ø70x70	
S10			20x20	12	Ø25		Ø250x150	
V8G			20x20	15	Ø32		Ø220x450	
V10T			20x20	30(15x2)	Ø32		Ø250x450	

Nomura DS

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
NN-10C	10x10x130	6			Ø17		Ø10	
NN-10CS	10x10x130	5			Ø17	4	Ø10	
NN-10SII	10x10x130	5			Ø23		Ø10	
NN-10SB5	10x10x130	5			Ø23		Ø13	
NN-10T	10x10x130	7			Ø23		Ø10	
NN-16HIII	12x12x130	6			Ø23		Ø16	
NN-16J	12.7x12.7x130	6			Ø23		Ø16	
NN-16SB5	10x10x130	5			Ø23		Ø16	
NN-16SB6 Type1	12.7x12.7x130	7			Ø17(Ø22)	4	Ø16	
NN-16SB6 Type2	12.7x12.7x130	5			Ø17(Ø22)	4	Ø16	
NN-16SB6 Type2.5	12.7x12.7x130	6			Ø17(Ø22)	5	Ø16	
NN-16SB6 Type3	12.7x12.7x130	5			Ø17(Ø22)	4	Ø16	
NN-16SB7	12.7x12.7x130	5			Ø16	4	Ø16	
NN-16UIII	12x12x130	5			Ø23		Ø16	
NN-16UB5	12x12x130	5			Ø23		Ø16	
NN-20CS	12.7x12.7x130	5(6)			Ø22	4	Ø20(Ø25)	
NN-20HIII	12x12x130	6			Ø23		Ø20	
NN-20J	12.7x12.7x130	6			Ø23		Ø20	
NN-20J2	12.7x12.7x130	6			Ø22	4	Ø20	
NN-20UIII	12x12x130	5			Ø23		Ø20	
NN-20U5	12.7x12.7x150	5(6)			Ø22	4	Ø20(Ø25)	
NN-20UB5	12x12x130	5			Ø23		Ø20	
NN-20UB7	12x12x130	6			Ø23		Ø20	
NN-20UB8	12.7x12.7x150	5(6)			Ø22	4	Ø20(Ø25)	
NN-20YB	12x12x130	8			Ø23		Ø20	
NN-25YB/32YB	16x16x130	8			Ø23 / Ø32		Ø25 / Ø32	
NN-32YB2	16x16x130	5			Ø22 / Ø32	4	Ø32	

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AUTOMATIC LATHE LIST BY MANUFACTURER

EGURO

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Diameter (Horizontal / Opposed)	Number of tools	Max. Cutting Dia.	Notes
SANAX-6	12x12	5 (Max.)	-	5	Ø16	-	Ø15.0	-
SANAX-8	16x16	5 (Max.)	-	5	Ø25 / Ø30	-	Ø20.0	-
	12x12	7 (Max.)	-	5	Ø25 / Ø30	-	Ø20.0	-
SANAX-10	16x16	5 (Max.)	-	5	Ø25 / Ø30	-	Ø25.5	-
EBN-10EX	12x12	6 (Max.)	-	-	Ø20	-	Ø25.5	-
NUCBOY-8EX	12x12	6 (Max.)	-	-	Ø20	-	Ø20.0	-
NUCLET-10EX	16x16	10 (Max.)	-	-	Ø20	-	Ø25.5	-
NUCPAL-10EX	16x16	10 (Max.)	-	-	Ø20	-	Ø25.5	-

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List of Instruments and Applicable Small Tools and Toolholders

Models of Major Machine Tool Manufacturers				Applicable Toolholders	
Manufacturer	Model (Automatic Lathe)	Toolholder Size	Total Length of Attached Toolholder (MAX)		
Citizen Machinery	A12,A16,B12,L12,M416,RL01,RL21	10x10	100	...1010F...	
	K12,K16	12x12		...1212F...	
	RL02	16x16		...1616H...	
	Star Micronics	B12E,B16E,BL12,C12,C16,M ₂ 12,M ₂ 16 M ₃ 12,M ₃ 16,MSL12	10x10	120	...1010JX...
		A20,A20VII,B20,BL20,BL25,K12E,K16E L20X,L220	12x12		...1212JX...
		L16,L20,L20E	12x12	130	...1212JX...
		C32,L25,L32,M20,M ₂ 20,M ₂ 32 M ₃ 20,M ₃ 32,M ₃ 32	16x16		...1616JX...
Tsumami	RNC-10,RNC-16,SA-16R,SE-12B/16B SH-12/16	10x10	120	...1010JX...	
	SI-12,SI-12C	10x10	130	...1010JX...	
	SB-16A,SB-16C,SB-16D,SC20	12x12	130	...1212JX...	
	SR20RII,SR20III,SV12,SV20	12x12	135	...1212JX...	
	SV32,SV32J,SV32JII	16x16		...1616JX...	
	ECAS-12	10x10	150	...1010JX...	
	ECAS-20	12x12		...1212JX...	
SR25J,SR32J	16x16	...1616JX...			
Nomura DS	B007	10x10	85	...1010F...	
	B0,BA,BC,BH20,BM,BU12,BU20 BS12,BS18,BS20	12x12		...1212F...	
	C004,C150,C180,C220	12x12	100	...1212F...	
	BH38,BS26,BS32,BU26,BU38	16x16		...1616H...	
Nomura DS	NN-10C,NN-10CS,NN-10SII NN-10SB5,NN-10SII,NN-10T,NN-16SB5	10x10	130	...1010JX...	
	NN-16HIII,NN-16UB5,NN-16UIII,NN-16J NN-20HIII,NN-20UIII,NN-20UB5,NN-20YB	12x12		...1212JX...	
	NN-25YB	16x16		...1616JX...	

• Manufacturers are in no particular order.

INSERT GRADES	A
TURNING INSERTS	B
GEM/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

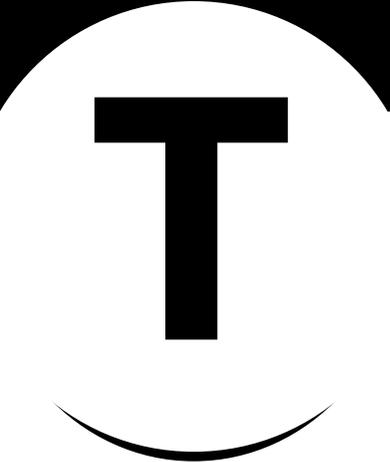
PARTS COMPATIBILITY OF LEVER LOCK TOOLHOLDERS

Parts Compatibility of Lever Lock Toolholders

- 1) For better usability of lever lock toolholders, some levers, lock screws and shims are modified.
- 2) It is highly recommended to use only new parts. However, they are compatible with conventional parts and can be used together with them.
- 3) It is possible to use new parts only with a toolholder which has been in use.
- 4) When purchasing replacements, order them stating the new numbers.
- 5) Some of the shims remain unmodified.

Category	Ref. Page	Toolholder Description		Spare Parts					
				Lever		Lock Screw		Shim	
				New No.	Conventional	New No.	Conventional	New No.	Conventional
External Toolholders	D9	PCLN%	.....09	LL-1N	LL-1	LS-1N	LS-1	LC-32N	LC-32
			.....12	LL-2N	LL-2	LS-2N	LS-2	LC-42N	LC-42
			.....16	LL-5N	LL-5	LS-4N	LS-4	LC-53N	LC-53
	D13	PDJN%	.....11	LL-1DN	LL-1D	LS-1N	LS-1	LD-32N	LD-32
			.....15	LL-3N	LL-3	LS-2N	LS-2	LD-42	
	D15	PSBN%	.....09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			.....12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
		PSKN%	.....09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			.....12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
		PSSN%	.....09	LL-1N	LL-1	LS-1N	LS-1	LS-32	
			.....12	LL-2N	LL-2	LS-2N	LS-2	LS-42	
	D17	PTGN%	1212F-11	LL-03N	LL-03	LS-03N	LS-03	-	
			.....11	LL-03TN	LL-03T	LS-03SN	LS-03S	-	
			.....16	LL-1N	LL-1	LS-1N	LS-1	LT-32N	LT-32
			.....22	LL-2N	LL-2	LS-2N	LS-2	LT-42N	LT-42
		PTFN%	1212F-11	LL-03N	LL-03	LS-03N	LS-03	-	
			.....11	LL-03TN	LL-03T	LS-03SN	LS-03S	-	
	D23	PRGC%	.....12	LL-1CN	LL-1C	LS-1N	LS-1	LR-12C	
		PRXC%	.....12						
		PRGN%	.....09	LL-1N	LL-1	LS-1N	LS-1	LR-80	
			.....12	LL-2N	LL-2	LS-2N	LS-2	LR-81	
	D25	PWLN%	.....06	LL-1N	LL-1	LS-1N	LS-1	LW-32N	LW-32
			.....08	LL-2N	LL-2	LS-2N	LS-2	LW-42N	LW-42
Boring Bars	F86	□16M- PCLN%	09-20	LL-03SN	LL-03S	LS-03SN	LS-03S	-	
		□20Q-	09-27	LL-1N	LL-1	LS-1SN	LS-1S	LC-32N	LC-32
		□25R-	09-32						
		..... PCLN%	12...	LL-2N	LL-2	LS-2N	LS-2	LC-42N%	LC-42%
	F87	..... PDUN%	11...	LL-1DN	LL-1D	LS-1SN	LS-1S	LD-32N	LD-32
	F93	..... PTUN%	11...	LL-03TN	LL-03T	LS-03SN	LS-03S	-	
		S25R- PTUN%	16-30	LL-03SN	LL-03S	LS-03SN	LS-03S	-	
		S32S-	16-40	LL-1N	LL-1	LS-1N	LS-1	LT-32N	LT-32
	S40T-	16-50							
	F94	□16M- PWLN%	06-20	LL-03SN	LL-03S	LS-03SN	LS-03S	-	
□20Q-		06-27	LL-1N	LL-1	LS-1SN	LS-1S	LW-32N	LW-32	
□25R-		06-32							
F96	..... PWLN%	08...	LL-2N	LL-2	LS-2N	LS-2	LW-42N%	LW-42%	
Turning Mill	N15	T63H- PCLN%	-DX12	LL-2N	LL-2	LS-2N	LS-2	LC-42N	LC-42
		T63H- PCMNN	-□12						
	N16	T63H- PDJN%	-DX15	LL-3N	LL-3	LS-2N	LS-2	LD-42	
		T63H- PDNNN	-□15						
		T63H- PTGN%	-DX16					LL-1N	LL-1
N17	T63H- PWLN%	-DX08	LL-2N	LL-2	LS-2N	LS-2	LW-42N	LW-42	

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T

T2 - T28

Listed in Alphanumeric Order

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
Numeric		
○-○○/○○- (○○○)SET	M245	Toolholder (API Ring Groover)
○/○(○)- SHCS-CB	K116	Toolholder (Drilling) Counterbore (SHCS-CB)
06IR ○○○○(○)	J17, J19	Insert (Threading)
08IR ○○○○(○)	J17, J19	Insert (Threading)
11IR A○○	J17, J19	Insert (Threading)
11IR ○○BSPT	J13	Insert (Threading)
11IR ○○BSPT-TF	J13	Insert (Threading) / TF Series
11IR ○○BSPT-TQ	J13	Insert (Threading) / TQ Series
11I% ○○○ISO	J7	Insert (Threading)
11IR ○○○ISO-TF	J7	Insert (Threading) / TF Series
11IR ○○○ISO-TQ	J7	Insert (Threading) / TQ Series
11IR ○○○○○	J17, J19	Insert (Threading)
16ER ○○BSPT	J12	Insert (Threading)
16ER ○○BSPT-TF	J12	Insert (Threading) / TF Series
16ER ○○BSPT-TQ	J12	Insert (Threading) / TQ Series
16ER ○○(○)NPT	J14	Insert (Threading)
16ER ○○UN	J8	Insert (Threading)
16ER ○○UN-TF	J8	Insert (Threading) / TF Series
16ER ○○UN-TQ	J8	Insert (Threading) / TQ Series
16ER ○○W	J10	Insert (Threading)
16ER ○○W-TF	J10	Insert (Threading) / TF Series
16ER ○○W-TQ	J10	Insert (Threading) / TQ Series
16E% ○○○ISO	J6	Insert (Threading)
16ER ○○○ISO-TF	J6	Insert (Threading) / TF Series
16ER ○○○ISO-TQ	J6	Insert (Threading) / TQ Series
16ER ○○○TR	J18	Insert (Threading)
16ER ○○○○	J16, J18	Insert (Threading)
16ER A○○	J16, J18	Insert (Threading)
16ER AG○○	J16, J18	Insert (Threading)
16ER G○○	J16, J18	Insert (Threading)
16ER A○○-TF	J16, J18	Insert (Threading) / TF Series
16ER A○○-TQ	J16	Insert (Threading) / TQ Series
16ER AG○○-TF	J16, J18	Insert (Threading) / TF Series
16ER AG○○-TQ	J16	Insert (Threading) / TQ Series
16ER G○○-TF	J16	Insert (Threading) / TF Series
16ER G○○-TQ	J16	Insert (Threading) / TQ Series
16IR ○○BSPT	J13	Insert (Threading)
16IR ○○BSPT-TF	J13	Insert (Threading) / TF Series
16IR ○○BSPT-TQ	J13	Insert (Threading) / TQ Series
16IR ○○(○)NPT	J15, J35	Insert (Threading)
16IR ○○UN	J9	Insert (Threading)
16IR ○○UN-TF	J9	Insert (Threading) / TF Series
16IR ○○UN-TQ	J9	Insert (Threading) / TQ Series
16IR ○○W	J11	Insert (Threading)
16IR ○○W-TF	J11	Insert (Threading) / TF Series
16IR ○○W-TQ	J11	Insert (Threading) / TQ Series
16I% ○○○ISO	J7	Insert (Threading)
16IR ○○○ISO-TF	J7	Insert (Threading) / TF Series

Part Number	Page	Description
16IR ○○○ISO-TQ	J7	Insert (Threading) / TQ Series
16IR ○○○TR	J19	Insert (Threading)
16IR ○○○○(○)	J17, J19	Insert (Threading)
16IR A○○	J17, J19	Insert (Threading)
16IR AG○○	J17, J19	Insert (Threading)
16IR G○○	J17, J19	Insert (Threading)
22ER N○○	J16, J18	Insert (Threading)
22ER ○○UN	J8	Insert (Threading)
22ER ○○○ISO	J6	Insert (Threading)
22ER ○○○TR	J18	Insert (Threading)
22IR N○○	J17, J19	Insert (Threading)
22IR ○○UN	J9	Insert (Threading)
22IR ○○○ISO	J7	Insert (Threading)
22IR ○○○TR	J19	Insert (Threading)
556C%	P9	Spare Parts (Shim)
A		
A○○□- DCLN%○	F85	Boring Bars (Double Clamp)
A○○□- DCLN%○○-○○	F85	Boring Bars (Double Clamp)
A○○□- DDUN%○	F88	Boring Bars (Double Clamp)
A○○□- DDUN%○○-○○	F88	Boring Bars (Double Clamp)
A○○□- DSKN%○○-○○	F91	Boring Bars (Double Clamp)
A○○□- DTFN%○○-○○	F92	Boring Bars (Double Clamp)
A○○□- DWLN%○	F95	Boring Bars (Double Clamp)
A○○□- DWLN%○○-○○	F95	Boring Bars (Double Clamp)
A○○□- KKC%○-○	G85, J24	Toolholder (Cera-Notch Grooving / Threading)
A○○□- PCLN%○	F86	Boring Bars
A○○□- PCLN%○○-○○	F86	Boring Bars
A○○□- PDUN%○	F87	Boring Bars
A○○□- PDUN%○○-○○	F87	Boring Bars
A○○□- PTUN%○○-○○	F93	Boring Bars
A○○□- PWLN%○○-○○	F94	Boring Bars
A○○□- SCLC%○	F47	Boring Bars (General Purpose)
A○○□- SCLC%○OAE	F45	Boring Bars (Dynamic Bar)
A○○□- SCLC%○○-○○OAE	F45	Boring Bars (Dynamic Bar)
A○○□- SCLC%○OE	F47	Boring Bars (General Purpose)
A○○□- SCLP%○(○)AE	F49	Boring Bars (Dynamic Bar)
A○○□- SCLP%○○-○○OAE	F49	Boring Bars (Dynamic Bar)
A○○□- SCLP%○(○)E	F51	Boring Bars (General Purpose)
A○○□- SDQC%○OAE	F54	Boring Bars (Dynamic Bar)
A○○□- SDQC%○○-○○OAE	F54	Boring Bars (Dynamic Bar)
A○○□- SDUC%○OAE	F53	Boring Bars (Dynamic Bar)
A○○□- SDUC%○○-○○OAE	F53	Boring Bars (Dynamic Bar)
A○○□- SDZC%○○-○○OAE	F55	Boring Bars (Dynamic Bar)
A○○□- STLБ%○O.OAE	F61	Boring Bars (Dynamic Bar)
A○○□- STLC%○○-○○OAE	F59	Boring Bars (Dynamic Bar)
A○○□- STLP%○(○)AE	F61	Boring Bars (Dynamic Bar)
A○○□- STLP%○○-○○OAE	F61	Boring Bars (Dynamic Bar)
A○○□- SVJB%○OAE	F66	Boring Bars (Dynamic Bar)
A○○□- SVJB%○○-○○OAE	F66	Boring Bars (Dynamic Bar)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
AO□□- SVJC%○○-OOAE	F66	Boring Bars (Dynamic Bar)
AO□□- SVJP%○○-OOAE	F66	Boring Bars (Dynamic Bar)
AO□□- SVPB%○OAE	F68	Boring Bars (Dynamic Bar)
AO□□- SVPB%○○-OOAE	F68	Boring Bars (Dynamic Bar)
AO□□- SVPC%○O.OAE	F68	Boring Bars (Dynamic Bar)
AO□□- SVPC%○○-OOAE	F68	Boring Bars (Dynamic Bar)
AO□□- SVUB%○OAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVUB%○○-OOAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVUC%○O.OAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVUC%○○-OOAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVZB%○OAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVZB%○○-OOAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVZC%○O.OAE	F71	Boring Bars (Dynamic Bar)
AO□□- SVZC%○○-OOAE	F71	Boring Bars (Dynamic Bar)
AO□□- SWUB%○O.OAE	F75	Boring Bars (Dynamic Bar)
AO□□- SWUB%○○-OOAE	F75	Boring Bars (Dynamic Bar)
AO□□- SWUP%○OAE	F75	Boring Bars (Dynamic Bar)
AO□□- SWUP%○○-OOAE	F75	Boring Bars (Dynamic Bar)
AABSR ○(○)-○○□(□)F	E19	Toolholder (Back Turning)
AABSR ○○○□(□)-OOF	E19	Toolholder (Back Turning)
AABWR ○(○)-○○□(□)F	E20, E21	Toolholder (Back Turning)
AABWR ○○○□(□)-OOF	E20, E21	Toolholder (Back Turning)
ABS ○OR○○○	B102, E19	Insert (Back Turning)
ABS ○OR○○○OM	B102, E19	Insert (Back Turning)
ABW ○OR○○○	B102, E20, E21	Insert (Back Turning)
ABW ○OR○○○OM	B102, E20, E21	Insert (Back Turning)
ACLC% ○(○)-○□(□)FF	E24	Toolholder (Turning)
ACLC% ○○○□(□)-OOFF	E24	Toolholder (Turning)
AD○○□	F84	Boring Bars (AD Bar Adaptor)
ADJC% ○(○)-○□□FF	E26	Toolholder (Turning)
ADJC% ○○○□□-OOFF	E26	Toolholder (Turning)
AJ-519TR	P2	Spare Parts (Adjustment Screw)
AJ-6X38	P2	Spare Parts (Screw)
AJ-8X44-9.5	P2	Spare Parts (Screw)
AJ-10X46	P2	Spare Parts (Screw)
APET ○○○○PDR	M29, M159, M247	Insert (Milling) FM-AL / EM-AL / CM-AL
APET ○○○○○	M29, M159, M247	Insert (Milling) FM-AL / EM-AL / CM-AL
API-RG-○ BTO○	M245	Body Part (API Ring Groovers)
API-RG-○ CVO○	M245	Body Part (API Ring Groovers)
API-RG-○ DIN-○○○○○	M245	Body Part (API Ring Groovers)
APKT ○○○○(○○)PDER-V	M22, M160	Insert (Milling) MAP
APMT ○○○○○○E%-NBO	M22, M131-M133	Insert (Milling) MSR
APMT ○○○○○○ER-NBOP	M22, M131-M133	Insert (Milling) MSR
ASL ○○○○○-○○○	K96	Adjustable Sleeve (Drilling) for MAGIC DRILL (DRV / DRZ / DRX)
AVJB% ○-○□(□)FF	E34	Toolholder (Turning)
AVJB% ○○○□(□)-OOFF	E34	Toolholder (Turning)
B		
BB-G1/8	D11, G33	Piping Banjo Bolt

Part Number	Page	Description
BB-M10X1.5	D11, G33	Piping Banjo Bolt
BCS -○	P15	Spare Parts (Clamp Set)
BDGT ○○○○○FR	M30	Insert (Milling)
BDGT ○○(□)○○○(○)FR-JA	M22, M68-M73	Insert (Milling) MEC
BDGT ○○○○○FR-LE	M30	Insert (Milling)
BDMT ○○(□)○○○(○)ER-JS	M22, M68-M73, M80, M81, M105	Insert (Milling) MEC / MECX / MECHT
BDMT ○○(□)○○○(○)ER-JT	M22, M23, M68-M73, M80, M81	Insert (Milling) MEC / MECX
BDMT ○○(□)○○○(○)ER-NO	M23, M96-M99	Insert (Milling) MECH
BDMT ○○(□)○○○(○)FR	M30	Insert (Milling)
BGIAR ○○-○	G82	Blade (Grooving)
BH3X6	P2	Spare Parts (Screw)
BH3X12	P2	Spare Parts (Screw)
BH6X10TR	P2	Spare Parts (Screw)
BH6X25	P2	Spare Parts (Screw)
BH8X30	P2	Spare Parts (Screw)
BT30K- M○○-○○	M88	Arbor Attachment
BT40K- M○○-○○	M88	Arbor Attachment
BX ○○○-SET	M245	Cartridge Set (API Ring Groover)
BX ○○○-R-SET	M245	Cartridge Set (API Ring Groover)
C		
○○□□- SCLC%○(○)	F47	Boring Bars (General Purpose)
○○□□- SCLC%○○-○○AN	F45	Boring Bars (Dynamic Bar)
○○○○□□- SCLCRO○-○○○EZ	F27	Boring Bars (EZ Bar PLUS)
○○○○□□- SCLCRO○-○○○EZP	F27	Boring Bars (EZ Bar PLUS)
○○□□- SCLP%○(○)	F51	Boring Bars (General Purpose)
○○□□- SJLC%○○-○○○	F58	Boring Bars
○○□□- SJZC%○○-○○○	F58	Boring Bars
○○□□- STLB%○○-○○A	F61	Boring Bars (Dynamic Bar)
○○□□- STLB%○○-○○AN	F61	Boring Bars (Dynamic Bar)
○○○○□□- STLBRO○-○○○EZP	F28	Boring Bars (EZ Bar PLUS)
○○○○□□- STLPRO○-○○○EZP	F28	Boring Bars (EZ Bar PLUS)
○○□□- STXB%○○-○○○	F65	Boring Bars
○○□□- STXP%○○-○○	F65	Boring Bars
○○□□- STZB%○○-○○○	F65	Boring Bars
○○○○□□- SWUB%○.○	F77	Boring Bars (General Purpose)
○○○○□□- SWUB%○○.○	F77	Boring Bars (General Purpose)
○○□□- SWUB%○○-○○AN	F75	Boring Bars (Dynamic Bar)
○○○○□□- SWUBRO○-○○○EZP	F29	Boring Bars (EZ Bar PLUS)
C08R	P17	Spare Parts (Clamp)
C09N	P17	Spare Parts (Clamp)
C17R	P17	Spare Parts (Clamp)
C20R	P17	Spare Parts (Clamp)
C25R	P17	Spare Parts (Clamp)
CB-11	P18	Spare Parts (Chipbreaker)
CB-12	P18	Spare Parts (Chipbreaker)
CB-13	P18	Spare Parts (Chipbreaker)
CB-14	P18	Spare Parts (Chipbreaker)
CB-15	P18	Spare Parts (Chipbreaker)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Part Number	Page	Description
CB-16	P18	Spare Parts (Chipbreaker)
CB-17	P18	Spare Parts (Chipbreaker)
CB-51	P18	Spare Parts (Chipbreaker)
CB-S3220	P18	Spare Parts (Chipbreaker)
CB-S4220	P18	Spare Parts (Chipbreaker)
CBSN% 〇〇〇〇□-〇〇	D38	Toolholder (Turning)
CBSN% 〇〇〇〇B-12-A20	F80	Boring Bar (for Bearing Machining)
CB-T2212	P18	Spare Parts (Chipbreaker)
CB-T3220	P18	Spare Parts (Chipbreaker)
CC-125-MFAH	P21	Spare Parts (Coolant Cover)
CC-160-MFAH	P21	Spare Parts (Coolant Cover)
CC-200-MFAH	P21	Spare Parts (Coolant Cover)
CC-250-MFAH	P21	Spare Parts (Coolant Cover)
CC-315-MFAH	P21	Spare Parts (Coolant Cover)
CCET 〇〇〇〇F%-USF	B57	Insert (Turning)
CCET 〇〇〇〇(○)(○)MF%-J	B59	Insert (Turning)
CCET 〇〇〇〇(○)(○)MF%-U	B57	Insert (Turning)
CCET 〇〇〇〇〇(○)MF%-USF	B57	Insert (Turning)
CCET 〇〇〇〇〇(○)(○)M%-F	B56	Insert (Turning)
CCET 〇〇〇〇〇(○)(○)M%-FSF	B55	Insert (Turning)
CCET 〇〇〇〇(○)M%-P	B57	Insert (Turning)
CCET 〇〇〇〇〇(○)M%-FSF	B55	Insert (Turning)
CCGT 〇〇〇〇(○)	B54	Insert (Turning)
CCGT 〇〇〇〇AH	B60	Insert (Turning)
CCGT 〇〇〇〇(○)AP	B60	Insert (Turning)
CCGT 〇〇〇〇(○)E%-U	B59	Insert (Turning)
CCGT 〇〇〇〇〇F%-L-U	B58	Insert (Turning)
CCGT 〇〇〇〇(○)M	B54	Insert (Turning)
CCGT 〇〇〇〇〇M-CF	B53	Insert (Turning)
CCGT 〇〇〇〇(○)ME%-U	B59	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MF	B55	Insert (Turning)
CCGT 〇〇〇〇(○)MF-GF	B53	Insert (Turning)
CCGT 〇〇〇〇(○)MF-GQ	B53	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-GF	B53	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-GQ	B54	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MFP-PF	B53	Insert (Turning)
CCGT 〇〇〇〇(○)MFP-SK	B53	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MFP-SKS	B53	Insert (Turning)
CCGT 〇〇〇〇(○)(○)MF%-U	B58	Insert (Turning)
CCGT 〇〇〇〇〇MP-CF	B53	Insert (Turning)
CCGT 〇〇〇〇(○)MP-CK	B53	Insert (Turning)
CCGT 〇〇〇〇〇(○)(○)M%-F	B56	Insert (Turning)
CCGT 〇〇〇(○)(○)M%-A3	B60	Insert (Turning)
CCGT 〇〇〇〇〇(○)(○)M%-F	B56	Insert (Turning)
CCGW 〇〇〇〇(○)(○)	B60, C24	Insert (Turning)
CCGW 〇〇〇〇(○)(○)NE	C24	Insert (Turning)
CCGW 〇〇〇〇(○)(○)SE	C24	Insert (Turning)
CCLN% 〇〇〇〇□-〇〇	D26	Toolholder (Turning)
CCLN% 〇〇〇〇□-〇〇A	D32	Toolholder (Turning)

Part Number	Page	Description
CCMT 〇〇〇〇(○)	B54, C24	Insert (Turning)
CCMT 〇〇〇〇(○)APD	C24	Insert (Turning)
CCMT 〇〇〇〇(○)(○)GK	B54	Insert (Turning)
CCMT 〇〇〇〇(○)HQ	B54	Insert (Turning)
CCMT 〇〇〇〇MQ	B55	Insert (Turning)
CCMT 〇〇〇〇(○)NE	C24	Insert (Turning)
CCMT 〇〇〇〇(○)PP	B54	Insert (Turning)
CCMT 〇〇〇〇(○)SE	C24	Insert (Turning)
CCMT 〇〇〇〇(○)WP	B54	Insert (Turning)
CCMW 〇〇〇〇MEF	C14	Insert (Turning)
CCMW 〇〇〇〇S〇〇〇〇〇〇MES	C14	Insert (Turning)
CCMW 〇〇〇〇(○)(○)S〇〇〇〇〇〇SET	C14	Insert (Turning)
CCMW 〇〇〇〇(○)T〇〇〇〇〇〇〇ME	C14	Insert (Turning)
CCMW 〇〇〇〇(○)(○)T〇〇〇〇〇〇〇SE	C14	Insert (Turning)
CCMW 〇〇〇〇S〇〇〇〇〇〇〇MET	C14	Insert (Turning)
CCN-5	H47	Coolant Piping
CCRN% 〇〇〇〇□-〇〇A	D32	Toolholder (Turning)
CD -〇〇〇〇(-G)	K110	Toolholder (Drilling) Coremaster Coredrill (CD)
CD -〇〇〇〇-LC	K111	Toolholder (Drilling) Coremaster Coredrill (CD-LC)
CD -〇〇〇〇-XL	K111	Toolholder (Drilling) Coremaster Coredrill (CD-XL)
CDJN% 〇〇〇〇□-〇〇	D27	Toolholder (Turning)
CE-010	P15	Spare Parts (Clamp Set)
CE-020	P15	Spare Parts (Clamp Set)
CE-030	P15	Spare Parts (Clamp Set)
CE-030A	P15	Spare Parts (Clamp Set)
CE-040	P15	Spare Parts (Clamp Set)
CE-111	P17	Spare Parts (Clamp)
CE-121	P17	Spare Parts (Clamp)
CE-131	P17	Spare Parts (Clamp)
CE-141	P17	Spare Parts (Clamp)
CE-220	P15	Spare Parts (Clamp Set)
CE-320	P15	Spare Parts (Clamp Set)
CE-360S	P15	Spare Parts (Clamp Set)
CE-410	P15	Spare Parts (Clamp Set)
CE-430	P15	Spare Parts (Clamp Set)
CELN% 〇〇〇〇□-〇〇	D27	Toolholder (Turning)
CEM 〇〇〇〇-〇W(-7.5)	M161	End Mill (CEM)
CGA-3%	P17	Spare Parts (Clamp)
CGA-4%	P17	Spare Parts (Clamp)
CGA-5%	P17	Spare Parts (Clamp)
CGB%	P17	Spare Parts (Clamp)
CGH-1%	P17	Spare Parts (Clamp)
CGH-2%	P17	Spare Parts (Clamp)
CGH-3%	P17	Spare Parts (Clamp)
CGIA-3R	P17	Spare Parts (Clamp)
CGIA-4R	P17	Spare Parts (Clamp)
CGIA-5R	P17	Spare Parts (Clamp)
CH0503-45	K61	Insert (Drilling) DRV MAGIC DRILL

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Part Numbers in Alphanumeric Order

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Part Number	Page	Description
CH-20R	P17	Spare Parts (Clamp)
CIN% 0000S-00	J22	Toolholder (Threading)
CL63-1	P21	Spare Parts (Coolant Pipe)
CL100-1	P21	Spare Parts (Coolant Pipe)
CM 0000-00(O)	M247	End Mill (Chamfering)
CM 0000-00-00	M247	End Mill (Chamfering)
CM 0000-00-AL	M247	End Mill (Chamfering)
CNGA 000	B21	Insert (Turning)
CNGA 000MEF	C6	Insert (Turning)
CNGA 000ME4	C6	Insert (Turning)
CNGA 000S000000	B106	Insert (Turning)
CNGA 000(O)S000000ME	C6	Insert (Turning)
CNGA 000S000000MEH	C6	Insert (Turning)
CNGA 000S000000MEP	C6	Insert (Turning)
CNGA 000S000000MET	C6	Insert (Turning)
CNGA 000S000000MEW	C6	Insert (Turning)
CNGA 000S000000SE	C7	Insert (Turning)
CNGA 000S000000SET	C7	Insert (Turning)
CNGA 000T000000	B106	Insert (Turning)
CNGA 000T000000AA	B106	Insert (Turning)
CNGA 000T000000OME	C6	Insert (Turning)
CNGG 000AH	B22	Insert (Turning)
CNGG 000FP-TK	B19	Insert (Turning)
CNGG 000HQ	B16	Insert (Turning)
CNGG 000(O)MFP-SK	B19	Insert (Turning)
CNGG 000(O)MU	B20	Insert (Turning)
CNGG 000%	B22	Insert (Turning)
CNGG 000F%	B22	Insert (Turning)
CNGG 000%-25R	B22	Insert (Turning)
CNGG 000%-A3	B22	Insert (Turning)
CNGG 000(O)%-S	B22	Insert (Turning)
CNGG 000TK	B19	Insert (Turning)
CNGG 000Z	B22	Insert (Turning)
CNGM 000ME-HD	C7	Insert (Turning)
CNGM 000ME-HH	C7	Insert (Turning)
CNGM 000ME-HL	C7	Insert (Turning)
CNGM 000S000000BBO	C7	Insert (Turning)
CNG 000T000000AA	B106	Insert (Turning)
CNG 000T000000	B106	Insert (Turning)
CNGU 0000(O)MER-U	B50	Insert (Turning)
CNGU 0000(O)(O)MFR-F	B50	Insert (Turning)
CNGU 0000(O)(O)MFR-U	B50	Insert (Turning)
CNGU 00000MF-SK	B50	Insert (Turning)
CNGU 00000MFP-SK	B50	Insert (Turning)
CNGX 000T000000	B106	Insert (Turning)
CNM 000	C19	Insert (Turning)
CNM 000T000000	B106	Insert (Turning)
CNMA 000	B21	Insert (Turning)
CNMA 000T000000AA	B106	Insert (Turning)

Part Number	Page	Description
CNMG 000	B18	Insert (Turning)
CNMG 000AH	B22	Insert (Turning)
CNMG 000C	B21	Insert (Turning)
CNMG 000CJ	B17	Insert (Turning)
CNMG 000CQ	B17	Insert (Turning)
CNMG 000GC	B21	Insert (Turning)
CNMG 000(O)GP	B16	Insert (Turning)
CNMG 000GS	B17	Insert (Turning)
CNMG 000GT	B18	Insert (Turning)
CNMG 000HQ	B16	Insert (Turning)
CNMG 000HS	B17	Insert (Turning)
CNMG 000KG	B21	Insert (Turning)
CNMG 000KH	B21	Insert (Turning)
CNMG 000KQ	B21	Insert (Turning)
CNMG 000MQ	B20	Insert (Turning)
CNMG 000MS	B20	Insert (Turning)
CNMG 000MU	B20	Insert (Turning)
CNMG 000PG	B17	Insert (Turning)
CNMG 000PH	B18	Insert (Turning)
CNMG 000(O)PP	B16	Insert (Turning)
CNMG 000PQ	B16	Insert (Turning)
CNMG 000PS	B17	Insert (Turning)
CNMG 000PT	B18	Insert (Turning)
CNMG 000SG	B20	Insert (Turning)
CNMG 000SQ	B20	Insert (Turning)
CNMG 000TK	B19	Insert (Turning)
CNMG 000TN-V	B17	Insert (Turning)
CNMG 000WE	B16	Insert (Turning)
CNMG 000WF	B16	Insert (Turning)
CNMG 000WP	B16	Insert (Turning)
CNMG 000WQ	B16	Insert (Turning)
CNMG 000XF	B19	Insert (Turning)
CNMG 000XP	B19	Insert (Turning)
CNMG 000XQ	B19	Insert (Turning)
CNMG 000XS	B19	Insert (Turning)
CNMG 000ZS	B21	Insert (Turning)
CNMM 000(O)M	C23	Insert (Turning)
CNMM 000(O)M-NE	C23	Insert (Turning)
CNMM 000(O)M-SE	C23	Insert (Turning)
CNMM 000PX	B19	Insert (Turning)
CNMM 000X%-SX	B21	Insert (Turning)
CNMU 0000(O)E-GK	B50	Insert (Turning)
CP-2D	P18	Spare Parts (Clamp)
CP-2D-%-JCT	P18	Spare Parts (Clamp)
CP-3D	P18	Spare Parts (Clamp)
CP-3D-%-JCT	P18	Spare Parts (Clamp)
CP-4D-%-JCT	P18	Spare Parts (Clamp)
CP-5D	P18	Spare Parts (Clamp)
CP-5D-JCT	P18	Spare Parts (Clamp)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Part Numbers in Alphanumeric Order

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Part Number	Page	Description
CP-8TE	P18	Spare Parts (Clamp)
CP-8W	P18	Spare Parts (Clamp)
CP8X15TL	P2	Spare Parts (Screw)
CP8X23TL	P2	Spare Parts (Screw)
CPGB ○○○○○○○○MES	C14	Insert (Turning)
CPGB ○○○(○)○S○○○○○MET	C14	Insert (Turning)
CPGB ○○○(○)○S○○○○○SET	C14	Insert (Turning)
CPGB ○○○(○)○T○○○○○OME	C14	Insert (Turning)
CPGB ○○○(○)○(○)T○○○○○OSE	C14	Insert (Turning)
CPGT ○○○○(○)	B60	Insert (Turning)
CPMB ○○○(○)○(○)	B61	Insert (Turning)
CPMH ○○○(○)○(○)	B61, C25	Insert (Turning)
CPMH ○○○(○)○(○)HQ	B61	Insert (Turning)
CPMH ○○○(○)○(○)NE	C25	Insert (Turning)
CPMH ○○○(○)○(○)Y	B61	Insert (Turning)
CPMH ○○○(○)SE	C25	Insert (Turning)
CPMT ○○○(○)○(○)GP	B61	Insert (Turning)
CPMT ○○○(○)○(○)PP	B61	Insert (Turning)
CPMT ○○○(○)○(○)XP	B61	Insert (Turning)
CPMT ○○○XQ	B61	Insert (Turning)
CP-RC%	P15	Spare Parts (Clamp Set)
CPS-1	P16	Spare Parts (Clamp Set)
CPS-2	P16	Spare Parts (Clamp Set)
CPS-2P	P16	Spare Parts (Clamp Set)
CPS-2S	P16	Spare Parts (Clamp Set)
CPS-2TR	P16	Spare Parts (Clamp Set)
CPS-3	P16	Spare Parts (Clamp Set)
CPS-4V	P16	Spare Parts (Clamp Set)
CPS-5E	P16	Spare Parts (Clamp Set)
CPS-5F	P16	Spare Parts (Clamp Set)
CPS-5%	P16	Spare Parts (Clamp Set)
CPS-5S	P16	Spare Parts (Clamp Set)
CPS-5V	P16	Spare Parts (Clamp Set)
CPS-6F	P16	Spare Parts (Clamp Set)
CPS-6M	P16	Spare Parts (Clamp Set)
CPS-6S	P16	Spare Parts (Clamp Set)
CPS-6V	P16	Spare Parts (Clamp Set)
CPS-8V	P16	Spare Parts (Clamp Set)
CP-ST-R1/8	H15	Coolant Coupler
CRDCN ○○-○	D31	Toolholder (Turning)
CRDNN ○○-○□	D31	Toolholder (Turning)
CRDNN ○○○○□-○○	D31	Toolholder (Turning)
CRDNN ○○○○□-○OA	D33	Toolholder (Turning)
CRSN% ○○○○□-○○	D31	Toolholder (Turning)
CRSN% ○○○○□-○OA	D33	Toolholder (Turning)
CS ○○-○○○	K117	Toolholder (Drilling) Countersink (CS)
CS-3D-TR	P2	Spare Parts (Screw)
CSDNN ○○○○□-○○	D29	Toolholder (Turning)
CSDNN ○○○○□-○OA	D35	Toolholder (Turning)

Part Number	Page	Description
CSKN% ○○○○□-○○	D29	Toolholder (Turning)
CSKNR ○○○○□-○OA	D34	Toolholder (Turning)
CS-N% ○○○○□-○○	D29	Toolholder (Turning)
CSRN% ○○-○□	D29	Toolholder (Turning)
CSRN% ○○○○□-○○	D29	Toolholder (Turning)
CSRN% ○○○○□-○OA	D34	Toolholder (Turning)
CSSN% ○○-○□	D29	Toolholder (Turning)
CSSN% ○○○○□-○○	D29	Toolholder (Turning)
CSSN% ○○○○□-○OA	D35	Toolholder (Turning)
CSYN% ○○○○□-○○	D29	Toolholder (Turning)
CSYN% ○○○○□-○OA	D34	Toolholder (Turning)
CT○○○TO -45A	K31	Chamfer Insert (Drilling) DRC MAGIC DRILL
CT○○○TO -45DA	K20	Chamfer Insert (Drilling) DRA MAGIC DRILL
CTDPR ○○○CA○○	N25	Toolholder (Cartridge)
CTEPR ○○○CA○○	N25	Toolholder (Cartridge)
CTFPR ○○○CA○○	N25	Toolholder (Cartridge)
CTJN% ○○-○□	D30	Toolholder (Turning)
CTJN% ○○○○□-○○	D30	Toolholder (Turning)
CTJN% ○○○○□-○OA	D36	Toolholder (Turning)
CTUN% ○○○○□-○○	D30	Toolholder (Turning)
CTUN% ○○○○□-○OA	D36	Toolholder (Turning)
D		
DA ○○○○M-FTP	K8	Insert (Drilling)
DA ○○○○M-GM	K6	Insert (Drilling)
DA ○○○○M-KM	K7	Insert (Drilling)
DB ○○○RO○	G55	Insert (Grooving)
DB ○○○□(□□)T00420	G55	Insert (Grooving)
DC ○○○○M-SC	K24-K26	Insert (Drilling) DRC MAGIC DRILL
DC-42	P9	Spare Parts (Shim)
DC-44	P9	Spare Parts (Shim)
DC-44-C	P9	Spare Parts (Shim)
DCET ○○○○○F%-JSF	B70	Insert (Turning)
DCET ○○○○○F%-USF	B68	Insert (Turning)
DCET ○○○○(○)MF%-J	B70	Insert (Turning)
DCET ○○○○○MF%-JSF	B70	Insert (Turning)
DCET ○○○○(○)MF%-U	B68	Insert (Turning)
DCET ○○○○○(○)MF%-USF	B68	Insert (Turning)
DCET ○○○○(○)M%-F	B66	Insert (Turning)
DCET ○○○○(○)M%-FSF	B66	Insert (Turning)
DCET ○○○○(○)%-FSF	B66	Insert (Turning)
DCGT ○○○○(○)	B64	Insert (Turning)
DCGT ○○○○AH	B71	Insert (Turning)
DCGT ○○○○(○)AP	B71	Insert (Turning)
DCGT ○○○○○CF	B62	Insert (Turning)
DCGT ○○○○○CK	B62	Insert (Turning)
DCGT ○○○○(○)E%-J	B71	Insert (Turning)
DCGT ○○○○(○)E%-U	B69	Insert (Turning)

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Part Number	Page	Description
DCGT ○○○○(○)F%-J	B70	Insert (Turning)
DCGT ○○○○OF%-U	B68	Insert (Turning)
DCGT ○○○○(○)FN-Z	B64	Insert (Turning)
DCGT ○○○○(○)M	B64	Insert (Turning)
DCGT ○○○○OM-CF	B62	Insert (Turning)
DCGT ○○○○OM-CK	B62	Insert (Turning)
DCGT ○○○○(○)ME%-J	B71	Insert (Turning)
DCGT ○○○○(○)ME%-U	B69	Insert (Turning)
DCGT ○○○○(○)(○)MF	B64	Insert (Turning)
DCGT ○○○○(○)MF-GF	B62	Insert (Turning)
DCGT ○○○○(○)MF-GQ	B63	Insert (Turning)
DCGT ○○○○(○)MFP-GF	B62	Insert (Turning)
DCGT ○○○○(○)MFP-GQ	B63	Insert (Turning)
DCGT ○○○○(○)MFP-SK	B62	Insert (Turning)
DCGT ○○○○(○)(○)MFP-SKS	B62	Insert (Turning)
DCGT ○○○○(○)(○)MF%-J	B70	Insert (Turning)
DCGT ○○○○(○)(○)MF%-U	B69	Insert (Turning)
DCGT ○○○○OMP-CF	B62	Insert (Turning)
DCGT ○○○○OMP-CK	B63	Insert (Turning)
DCGT ○○○○(○)(○)M%-F	B67	Insert (Turning)
DCGT ○○○○(○)%-A3	B71	Insert (Turning)
DCGT ○○○○(○)%-F	B67	Insert (Turning)
DCGT ○○○○(○)%-FS	B67	Insert (Turning)
DCGW ○○○○(○)	B71	Insert (Turning)
DCLN% ○○-○□	D8	Toolholder (Turning)
DCLN% ○○-○□JCT	D8	Toolholder (Turning)
DCLN% ○○○○□-○○	D8	Toolholder (Turning)
DCLN% ○○○○□-○○JCT	D8	Toolholder (Turning)
DCMT ○○○○(○)	C25	Insert (Turning)
DCMT ○○○○(○)APD	C25	Insert (Turning)
DCMT ○○○○CQ	M29, M246	Insert (Milling) / API Insert (Ring Grooving)
DCMT ○○○○(○)GK	B64	Insert (Turning)
DCMT ○○○○(○)GP	B63	Insert (Turning)
DCMT ○○○○(○)HQ	B64, M29, M246	Insert (Turning/Milling) / API Insert (Ring Grooving)
DCMT ○○○○(○)MQ	B65	Insert (Turning)
DCMT ○○○○(○)NE	C25	Insert (Turning)
DCMT ○○○○(○)PP	B63	Insert (Turning)
DCMT ○○○○(○)%-NE	C25	Insert (Turning)
DCMT ○○○○(○)SE	C25	Insert (Turning)
DCMT ○○○○(○)XP	B65	Insert (Turning)
DCMT ○○○○XQ	B65	Insert (Turning)
DCMW ○○○○MEF	C15	Insert (Turning)
DCMW ○○○○(○)S○○○○OMES	C15	Insert (Turning)
DCMW ○○○○(○)S○○○○OMET	C15	Insert (Turning)
DCMW ○○○○S○○○○OSET	C15	Insert (Turning)
DCMW ○○○○(○)T○○○○OME	C15	Insert (Turning)
DCMW ○○○○(○)T○○○○OSE	C15	Insert (Turning)
DCMX ○○○○(○)WP	B63	Insert (Turning)

Part Number	Page	Description
DCMX ○○○○%-WP	B63	Insert (Turning)
DD-42	P9	Spare Parts (Shim)
DD-42-16	P9	Spare Parts (Shim)
DD-43	P9	Spare Parts (Shim)
DD-44	P9	Spare Parts (Shim)
DDJN% ○○-○□	D12	Toolholder (Turning)
DDJN% ○○-○□JCT	D12	Toolholder (Turning)
DDJN% ○○○○□-○○○○	D12	Toolholder (Turning)
DDJN% ○○○○M-○○JCT	D12	Toolholder (Turning)
DDHN% ○○○○□-○○○○	D12	Toolholder (Turning)
DMC ○○○	M138	End Mill (DMC)
DMC ○○○H	M140	End Mill (DMC-H)
DMC ○○○SX	M139	End Mill (DMC-SX)
DMC ○○○SXT	M139	End Mill (DMC-SX)
DMC ○○○SX-○○○	M139	End Mill
DMC ○○○-S○○	M138	End Mill (DMC)
DN10	P21	Spare Parts (Nozzle)
DN20	P21	Spare Parts (Nozzle)
DNG ○○○S○○○○○	B107	Insert (Turning)
DNG ○○○T○○○○○	B107	Insert (Turning)
DNG ○○○T○○○○○AA	B107	Insert (Turning)
DNGA ○○○MEF	C8	Insert (Turning)
DNGA ○○○ME4	C8	Insert (Turning)
DNGA ○○○S○○○○○	B107	Insert (Turning)
DNGA ○○○(○)S○○○○○OME	C8	Insert (Turning)
DNGA ○○○S○○○○○OMEH	C8	Insert (Turning)
DNGA ○○○S○○○○○MEP	C8	Insert (Turning)
DNGA ○○○S○○○○○OMET	C8	Insert (Turning)
DNGA ○○○(○)S○○○○○OSE	C9	Insert (Turning)
DNGA ○○○T○○○○○	B107	Insert (Turning)
DNGA ○○○T○○○○○AA	B107	Insert (Turning)
DNGA ○○○T○○○○○OME	C8	Insert (Turning)
DNGG ○○○AH	B30	Insert (Turning)
DNGG ○○○FP-TK	B27	Insert (Turning)
DNGG ○○○(○)MFP-SK	B27	Insert (Turning)
DNGG ○○○%-	B30	Insert (Turning)
DNGG ○○○%-A3	B30	Insert (Turning)
DNGG ○○○(○)%-S	B30	Insert (Turning)
DNGG ○○○TK	B27	Insert (Turning)
DNGM ○○○ME-HD	C9	Insert (Turning)
DNGM ○○○ME-HH	C9	Insert (Turning)
DNGM ○○○ME-HL	C9	Insert (Turning)
DNGM ○○○S○○○○○BBO	C9	Insert (Turning)
DNGU ○○○○(○)MER-U	B51	Insert (Turning)
DNGU ○○○○(○)MFP-SK	B51	Insert (Turning)
DNGU ○○○○(○)(○)MFR-F	B51	Insert (Turning)
DNGU ○○○○(○)(○)MFR-U	B51	Insert (Turning)
DNGU ○○○○(○)MF-SK	B51	Insert (Turning)
DNGX ○○○T○○○○○	B107	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
DNMA ○○○	B30	Insert (Turning)
DNMG ○○○	B26	Insert (Turning)
DNMG ○○○AH	B30	Insert (Turning)
DNMG ○○○C	B29	Insert (Turning)
DNMG ○○○CJ	B24	Insert (Turning)
DNMG ○○○CQ	B24	Insert (Turning)
DNMG ○○○GC	B29	Insert (Turning)
DNMG ○○○(○)GP	B23	Insert (Turning)
DNMG ○○○GS	B24	Insert (Turning)
DNMG ○○○GT	B25	Insert (Turning)
DNMG ○○○(○)HQ	B24	Insert (Turning)
DNMG ○○○HS	B25	Insert (Turning)
DNMG ○○○KG	B29	Insert (Turning)
DNMG ○○○KH	B29	Insert (Turning)
DNMG ○○○KQ	B29	Insert (Turning)
DNMG ○○○MQ	B27	Insert (Turning)
DNMG ○○○MS	B28	Insert (Turning)
DNMG ○○○MU	B28	Insert (Turning)
DNMG ○○○PG	B25	Insert (Turning)
DNMG ○○○PH	B26	Insert (Turning)
DNMG ○○○(○)PP	B23	Insert (Turning)
DNMG ○○○PQ	B23	Insert (Turning)
DNMG ○○○PS	B25	Insert (Turning)
DNMG ○○○PT	B25	Insert (Turning)
DNMG ○○○(○)R-LD	B27	Insert (Turning)
DNMG ○○○SG	B28	Insert (Turning)
DNMG ○○○SQ	B28	Insert (Turning)
DNMG ○○○TK	B27	Insert (Turning)
DNMG ○○○TN-V	B24	Insert (Turning)
DNMG ○○○XF	B26	Insert (Turning)
DNMG ○○○XP	B26	Insert (Turning)
DNMG ○○○XQ	B26	Insert (Turning)
DNMG ○○○XS	B26	Insert (Turning)
DNMG ○○○ZS	B29	Insert (Turning)
DNMM ○○○(○)M	C23	Insert (Turning)
DNMM ○○○(○)M-NE	C23	Insert (Turning)
DNMM ○○○(○)M-SE	C23	Insert (Turning)
DNMM ○○○PX	B26	Insert (Turning)
DNMP ○○○TK	B24	Insert (Turning)
DNMU ○○○○(○)E-GK	B51	Insert (Turning)
DNMX ○○○WF	B23	Insert (Turning)
DPET ○○○○○F% -USF	B72	Insert (Turning)
DPET ○○○○○MF% -USF	B72	Insert (Turning)
DPET ○○○○○M% -FSF	B72	Insert (Turning)
DPET ○○○○○% -FSF	B72	Insert (Turning)
DR ○○-○○(□)	M201	Spare Parts (Drive-Ring)
DR ○○○○-○○○○(□)	M200	Spare Parts (Drive-Ring)
DR -○○○○	K103-K107	Toolholder (Drilling) HOLESHOT Drill (DR)

Part Number	Page	Description
DR -○○○○-X1	K106-K107	Toolholder (Drilling) HOLESHOT Drill (DR)
DR -○○○○-X3N	K103-K107	Toolholder (Drilling) HOLESHOT Drill (DR)
DS ○○○	K66	Insert (Drilling) DRS MAGIC DRILL
DRV CH○○	K60	Chamfering Attachment DRV MAGIC DRILL
DS-42	P9	Spare Parts (Shim)
DS-44	P9	Spare Parts (Shim)
DSBN%L ○○○○□-○○	D14	Toolholder (Turning)
DT-7	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-8	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-10	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-15	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-20	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-25	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DT-32	P9	Spare Parts (Shim)
DT-42	P9	Spare Parts (Shim)
DTGN%L ○○○○□-○○	D16	Toolholder (Turning)
DTM-6	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-7	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-8	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-10	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DTM-15	P19	Spare Parts (Torx Wrench / Screwdriver Type)
DTP-6	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-7	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-9	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-15	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTP-20	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-8	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-10	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DTPM-15	P19	Spare Parts (Torx Plus Wrench / Screwdriver Type)
DV-33	P9	Spare Parts (Shim)
DVJN%L ○○-○□	D20	Toolholder (Turning)
DVLN%L ○○○○□-○○	D20	Toolholder (Turning)
DVPN%L ○○-○□	D20	Toolholder (Turning)
DVPM%L ○○○○□-○○	D20	Toolholder (Turning)
DW-42	P9	Spare Parts (Shim)
DW-44	P9	Spare Parts (Shim)
DWLN%L ○○-○□	D24	Toolholder (Turning)
DWLN%L ○○○○□-○○	D24	Toolholder (Turning)
DWLN%L ○○-○□JCT	D24	Toolholder (Turning)
DWLN%L ○○○○□-○○JCT	D24	Toolholder (Turning)

Part Numbers in Alphanumeric Order

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Part Number	Page	Description
DVNN ○○-○□	D20	Toolholder (Turning)
DVNN ○○○○□-○○	D20	Toolholder (Turning)
E		
EO○□- SCLC%○OA	F45	Boring Bars (Dynamic Bar)
EO○□- SCLC%○OA-○/○	F45	Boring Bars (Dynamic Bar)
EO○□- SCLC%○○-○OA	F45	Boring Bars (Dynamic Bar)
EO○□- SCLC%○○-○OA-○/○	F45	Boring Bars (Dynamic Bar)
EO○□- SCLC%○○-○○AN	F45	Boring Bars (Dynamic Bar)
EO○□- SCLC%○○-○○AN-○/○	F45	Boring Bars (Dynamic Bar)
EO○□- SCLP%○○-○OA	F49	Boring Bars (Dynamic Bar)
EO○□- SCLP%○○-○OA-○/○	F49	Boring Bars (Dynamic Bar)
EO○□- SCLP%○○-○○AN	F49	Boring Bars (Dynamic Bar)
EO○□- SCLP%○○-○○AN-○/○	F49	Boring Bars (Dynamic Bar)
EO○□- SDQC%○OA	F54	Boring Bars (Dynamic Bar)
EO○□- SDQC%○OA-○/○	F54	Boring Bars (Dynamic Bar)
EO○□- SDQC%○○-○OA	F54	Boring Bars (Dynamic Bar)
EO○□- SDQC%○○-○OA-○/○	F54	Boring Bars (Dynamic Bar)
EO○□- SDUC%○OA	F53	Boring Bars (Dynamic Bar)
EO○□- SDUC%○OA-○/○	F53	Boring Bars (Dynamic Bar)
EO○□- SDUC%○○-○OA	F53	Boring Bars (Dynamic Bar)
EO○□- SDUC%○○-○OA-○/○	F53	Boring Bars (Dynamic Bar)
EO○□- SDZC%○○-○OA	F55	Boring Bars (Dynamic Bar)
EO○□- STLP%○○-○OA	F61	Boring Bars (Dynamic Bar)
EO○□- STLP%○○-○OA-○/○	F61	Boring Bars (Dynamic Bar)
EO○□- STLP%○○-○○AN	F61	Boring Bars (Dynamic Bar)
EO○□- STLP%○○-○○AN-○/○	F61	Boring Bars (Dynamic Bar)
EO○□- SVPB%○○-○OA	F68	Boring Bars (Dynamic Bar)
EO○□- SVPC%○○-○OA	F68	Boring Bars (Dynamic Bar)
EO○□- SVUB%○○-○OA	F71	Boring Bars (Dynamic Bar)
EO○□- SVUC%○○-○OA	F71	Boring Bars (Dynamic Bar)
EO○□- SWUB%○○-○○AN	F75	Boring Bars (Dynamic Bar)
EO○□- SWUB%○○-○○AN-○/○	F75	Boring Bars (Dynamic Bar)
EO○□- SWUP%○○-○OA	F75	Boring Bars (Dynamic Bar)
EO○□- SWUP%○○-○OA-○/○	F75	Boring Bars (Dynamic Bar)
EGT 16-1	G54	Toolholder (External Grooving)
EM ○○○○	M156	End Mill
EM ○○○○-○○	M156	End Mill
EM ○○○○-○○-3F	M156	End Mill
EM ○○○○-○○○S	M156	End Mill
EM ○○○○-○.○	M156	End Mill (Extended Length)
EM ○○○○-AL	M159	End Mill (for Aluminum Machining)
EM ○○○○-○.○○(○)-AL	M159	End Mill (for Aluminum Machining)
EM ○○○○-3F	M156	End Mill
EM ○○○○-○○○○-LE	M157	End Mill (Long Edge)
ENG ○○○○○○○○	B107	Insert (Turning)
ENG ○○○○○○○○AA	B107	Insert (Turning)
ENET ○○○○PAER-□	M146	Insert (Milling) MFAH
EZBFR ○○○○○○-○○○	F23	EZ Bars (Boring)
EZBR ○○○○○○-○○○NB	C21, C33, F21	EZ Bars (Boring)

Part Number	Page	Description
EZB% ○○○○○○HP-○○○F	F18	EZ Bars (Boring)
EZB% ○○○○○○HP-○○○H	F18	EZ Bars (Boring)
EZBR ○○○○○○HP-○○○H-LT	F19	EZ Bars (Boring)
EZBR ○○○○○○ST-○○○F	F20	EZ Bars (Boring)
EZBR ○○○○○○ST-○○○H	F20	EZ Bars (Boring)
EZBTR ○○○○○○-○○○	F26	EZ Bars (Back Boring)
EZFG% ○○○○○○-○○○	G90	EZ Bars (Internal Face Grooving)
EZG% ○○○○○○-○○○	G59	EZ Bars (Internal Grooving)
EZG% ○○○○○○-○○○S	G59	EZ Bars (Internal Grooving)
EZTR ○○○○○○-○○-○○○	J32	EZ Bars (Internal Threading)
EZH ○○○○○○(○)CT-○○○	F30, F31, F100, G60, G91, J33	Sleeve
EZH ○○○○○○(○)HP-○○○	F32, F33, F100, G60, G91, J33	Sleeve
EZH ○○○○○○(○)ST-○○○	F34, F100, G60, G91, J33	Sleeve
EZVBR ○○○○○○-○○○	F24	EZ Bars (Boring / Internal Facing / Internal Profiling)
F		
FGG% ○○○○-○○	G45	Insert (Grooving)
FH-2	P19	Spare Parts (Hexagon Wrench / Flag Type)
FH-2.5	P19	Spare Parts (Hexagon Wrench / Flag Type)
FM ○○○○-90RH	M158	Face Mill (Fixed Pocket)
FM ○○○○-90AL-(125)	M159	Face Mill (Fixed Pocket)
FM AL-○○○○-90-○	M159	Face Mill (Fixed Pocket)
FMM ○○-○○	G135	Insert (Grooving)
FMN ○	G135	Insert (Grooving)
FT-6	P19	Spare Parts (Torx Wrench / Flag Type)
FT-7	P19	Spare Parts (Torx Wrench / Flag Type)
FT-8	P19	Spare Parts (Torx Wrench / Flag Type)
FT-10	P19	Spare Parts (Torx Wrench / Flag Type)
FT-15	P19	Spare Parts (Torx Wrench / Flag Type)
FTK ○	G137	Insert (Face Grooving)
FTP-5	P19	Spare Parts (Torx Plus Wrench / Flag Type)
FTP-6	P19	Spare Parts (Torx Plus Wrench / Flag Type)
FTP-7	P19	Spare Parts (Torx Wrench / Flag Type)
G		
GA ○○	G53	Insert (Grooving)
GBA ○○%○○○MY(N)	G7	Insert (Grooving)
GBA ○○%○○○N	G6	Insert (Grooving)
GBA ○○%○○○OR	G7	Insert (Grooving)
GBA ○○%○○○-(○○○)	C20, C30, G8, G11	Insert (Grooving)
GBA ○○%○○○-○○○F	G9	Insert (Grooving)
GBA ○○%○○○-○○○GM	G9	Insert (Grooving)
GBA ○○%○○○-○○○MY	G9	Insert (Grooving)
GBA ○○%○○○-○○○OR	G10	Insert (Grooving)
GBA ○○%○○○-○○○RF	G10	Insert (Grooving)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Part Numbers in Alphanumeric Order

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Part Number	Page	Description
GBF ○○%○○○-○○○	G16	Insert (Grooving)
GBF ○○%○○○-○○○GL	G16	Insert (Grooving)
GC ○○%○○○-○○○	G64	Insert (Grooving)
GDFM ○○○○N-○○○DM	G97	Insert (Face)
GDFM ○○○○N-○○○GH	G97	Insert (Face Grooving)
GDFM ○○○○N-○○○GM	G97	Insert (Face Grooving)
GDFM ○○○○N-○○○R-CM	G97	Insert (Face Grooving)
GDFMS ○○○○N-○○○DM	G97	Insert (Face Grooving)
GDG ○○○○N-○○○GS	G26	Insert (Grooving)
GDG ○○○○N-○○○PG	H20	Insert (Cut-Off)
GDG ○○○○% -○○○PG-○○○D	H20	Insert (Cut-Off)
GDGS ○○○○N-○○○NB	C20, C31, G27	Insert (Grooving)
GDM ○○○○N-○○○GL	G26	Insert (Grooving)
GDM ○○○○N-○○○GM	G26	Insert (Grooving)
GDM ○○○○N-○○○GMI	G79	Insert (Grooving)
GDM ○○○○N-○○○PF	H20	Insert (Cut-Off)
GDM ○○○○N-○○○PH	G26, H21	Insert (Grooving / Cut-Off)
GDM ○○○○N-○○○PM	H21	Insert (Cut-Off)
GDM ○○○○N-○○○PQ	H20	Insert (Cut-Off)
GDM ○○○○N-○○○R-CM	G26, G79	Insert (Grooving)
GDM ○○○○% -○○○PF-○○○D	H20	Insert (Cut-Off)
GDM ○○○○% -○○○PM-○○○D	H21	Insert (Cut-Off)
GDM ○○○○% -○○○PQ-○○○D	H20	Insert (Cut-Off)
GDMS ○○○○N-○○○GM	G26	Insert (Grooving)
GDMS ○○○○N-○○○PH	G26, H21	Insert (Grooving / Cut-Off)
GDMS ○○○○N-○○○PM	H21	Insert (Cut-Off)
GDMS ○○○○% -○○○PM-○○○D	H21	Insert (Cut-Off)
GE% ○○○-○○○□	G66, G68	Insert (Grooving)
GER ○○○-○○○□□	G66, G67	Insert (Grooving)
GFV% ○○○○□-○○○(○)□	G126	Toolholder (Face Grooving)
GFVS% ○○-H□	G128	Toolholder (Face Grooving)
GFVS% ○○○○□-H□	G130	Toolholder (Face Grooving)
GFVS% ○○○○□-○○AA	G124	Toolholder (Face Grooving)
GFVS% ○○-○○○(○)□	G129	Toolholder (Face Grooving)
GFVS% ○○○○□-○○○(○)□	G130	Toolholder (Face Grooving)
GFVT% ○○-H□	G128	Toolholder (Face Grooving)
GFVT% ○○○○□-H□	G130	Toolholder (Face Grooving)
GFVT% ○○○○□-○○AA	G124	Toolholder (Face Grooving)
GFVT% ○○-○○○(○)□	G129	Toolholder (Face Grooving)
GFVT% ○○○○□-○○○(○)□	G130	Toolholder (Face Grooving)
GG ○○○-○○○T00320	G54	Insert (Grooving)
GH ○○○○(○)-○○	B115, G53, G80	Insert (Grooving)
GHU ○○-○○	G53, G80	Insert (Grooving)
GIA ○○	G82	Insert (Grooving)
GIFV% ○○○○B-○○○□	G138	Toolholder (Face Grooving)
GIV% ○○○○-○□(□)	G75	Toolholder (Grooving)
GMG ○○○○-○○MG	G81	Insert (Grooving / Previous Description)
GMG ○○○○-○○(○)MG	G44, G81, G135	Insert (Grooving)
GMG ○○○○-○○OMS	G44	Insert (Grooving)

Part Number	Page	Description
GMG ○○○○-○○OR	G44, G81	Insert (Grooving)
GMG ○○○○-○○ORU	G44	Insert (Grooving)
GMGA ○○○○-○○R	G81	Insert (Grooving / Previous Description)
GMGA ○○○○-○○OR	G45, G81, G135	Insert (Grooving)
GMGW ○○○○-○○R	C31, G56	Insert (Grooving)
GMGW ○○○○-○○R-HR	C31, G56	Insert (Grooving)
GMM 3014-04	G45	Insert (Grooving)
GMM 3014-15R	G45	Insert (Grooving)
GMM 3014-15RU	G45	Insert (Grooving)
GMM ○○○○-MT	G46, H34	Insert (Grooving)
GMM ○○○○-NB	G46, H34	Insert (Grooving)
GMM ○○○○% -MT-15D	G46, H34	Insert (Grooving)
GMM ○○○○% -TK-8D	G46, H34	Insert (Grooving)
GMM ○○○○% -TMR-6D	H34	Insert (Grooving)
GMM ○○○○-TK	G46, H34	Insert (Grooving)
GMM ○○○○-TMR	H34	Insert (Grooving)
GMM ○○○○-○○	G81	Insert (Grooving / Previous Description)
GMM ○○○○-○○V	G83	Insert (Grooving / Previous Description)
GMM ○○○○-○○VR	G83	Insert (Grooving / Previous Description)
GMM ○○○○-○○OMS	G44	Insert (Grooving)
GMM ○○○○-○○MW	G44, G81, G135	Insert (Grooving)
GMM ○○○○-○○OR	G44	Insert (Grooving)
GMM ○○○○-○○OV	G83	Insert (Grooving)
GMM ○○○○-○○VR	G83	Insert (Grooving)
GMN ○(.○)	C20, C30, G46, G47, H34	Insert (Grooving)
GMN ○-TK	G46, H34	Insert (Grooving)
GM% ○-TK-8D	G46, H34	Insert (Grooving)
GM% ○(.○)-○(○)D	G46, H34	Insert (Grooving)
GOMT ○○(□)○○○(○)ER-D	M23, M195	Insert (Milling) MEY
GP-1(N)	P21	Spare Parts (Plug)
GP-2(N)	P21	Spare Parts (Plug)
GS-50	P2	Spare Parts (Screw)
GV% ○○-○○○	G73	Insert (Grooving / Previous Description)
GV% ○○○□R	G73	Insert (Grooving / Previous Description)
GV% ○○○□(□)	C30	Insert (Grooving / Previous Description)
GV% ○○○-○○○□(□)	C30, G73, M255	Insert (Grooving)
GVF% ○○○□	C30, G73	Insert (Grooving / Previous Description)
GVF% ○○○AA	G125	Insert (Grooving / Previous Description)
GVF% ○○○-○○○AA	G125	Insert (Grooving)
GVF% ○○○-○○○□	C30, G132, M256	Insert (Grooving)
GVF% ○○○-○○○□R	G132	Insert (Grooving)
H		
HA○○ PCLN% 12-○○	F81	Boring Bar (AD Bar Interchangeable Head)
HA○○ PDUN% 15-○○	F82	Boring Bar (AD Bar Interchangeable Head)

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Part Number	Page	Description
HA○○ PTFN%16-○○	F82	Boring Bar (AD Bar Interchangeable Head)
HA○○ SCLC%09-○○	F83	Boring Bar (AD Bar Interchangeable Head)
HA○○ SDUC%11-○○	F83	Boring Bar (AD Bar Interchangeable Head)
HCLN% ○○-○□	D26	Toolholder (Turning)
HF16X40HA	P2	Spare Parts (Screw with Coolant Hole)
HF16X40S	P2	Spare Parts (Screw)
HF16X44HC	P21	Spare Parts (Screw with Coolant Hole)
HF16X48HC	P21	Spare Parts (Screw with Coolant Hole)
HF20X53H	P2	Spare Parts (Screw)
HF20X53HA	P2	Spare Parts (Screw with Coolant Hole)
HF24X60H	P2	Spare Parts (Screw)
HF24X60HA	P2	Spare Parts (Screw with Coolant Hole)
HH1/2-1.25	P2	Spare Parts (Arbor / Mounting Bolt)
HH1/2-1.25H	P2	Spare Parts (Arbor / Mounting Bolt)
HH1/4-0.75	P2	Spare Parts (Arbor / Mounting Bolt)
HH3/4-2.3	P2	Spare Parts (Arbor / Mounting Bolt)
HH3/4-2.3H	P2	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25	P2	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.25H	P2	Spare Parts (Arbor / Mounting Bolt)
HH3/8-1.5	P2	Spare Parts (Arbor / Mounting Bolt)
HH3X6	P3	Spare Parts (Screw)
HH3X12	P3	Spare Parts (Screw)
HH4X12	P4	Spare Parts (Screw)
HH4X16	P3	Spare Parts (Screw)
HH5X15	P3	Spare Parts (Screw)
HH5X16	P3	Spare Parts (Screw)
HH5X20	P3	Spare Parts (Screw)
HH5X25	P3	Spare Parts (Screw)
HH5X30	P3	Spare Parts (Screw)
HH6X12	P3	Spare Parts (Screw)
HH6X16	P3	Spare Parts (Screw)
HH6X16A	P3	Spare Parts (Screw)
HH6X18	P3	Spare Parts (Clamp Screw)
HH6X18A	P3	Spare Parts (Screw)
HH6X20	P3	Spare Parts (Screw)
HH6X25	P3	Spare Parts (Screw)
HH6X30	P3	Spare Parts (Screw)
HH8X20	P3	Spare Parts (Clamp Screw)
HH8X25	P3	Spare Parts (Screw)
HH8X25H	P4	Spare Parts (Screw)
HH10X25	P3	Spare Parts (Screw)
HH10X30	P3	Spare Parts (Screw)
HH10X30H	P4	Spare Parts (Screw)

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HH10X30M	P3	Spare Parts (Screw)
HH10X30S	P3	Spare Parts (Screw)
HH10X35	P3	Spare Parts (Screw)
HH10X35HK	P4	Spare Parts (Screw)
HH10X40	P3	Spare Parts (Screw)
HH12X25	P3	Spare Parts (Screw)
HH12X35	P3	Spare Parts (Screw)
HH12X35H	P4	Spare Parts (Screw)
HH12x35HC	P21	Spare Parts (Screw with Coolant Hole)
HH12X35HK	P4	Spare Parts (Screw)
HH12X35M	P3	Spare Parts (Screw)
HH12X40	P3	Spare Parts (Screw)
HH12X55	P3	Spare Parts (Screw)
HH12X65	P3	Spare Parts (Screw)
HH12X80	P3	Spare Parts (Screw)
HH12X85	P3	Spare Parts (Screw)
HH12X100	P3	Spare Parts (Screw)
HH12X110	P3	Spare Parts (Screw)
HH12X120	P3	Spare Parts (Screw)
HH12X130	P3	Spare Parts (Screw)
HH12X140	P3	Spare Parts (Screw)
HH12X150	P3	Spare Parts (Screw)
HH16X35	P3	Spare Parts (Screw)
HH16X40	P3	Spare Parts (Screw)
HH16X45	P3	Spare Parts (Screw)
HH16X52H	P4	Spare Parts (Screw)
HH16X65	P3	Spare Parts (Screw)
HH16X90	P3	Spare Parts (Screw)
HH16X110	P3	Spare Parts (Screw)
HH16X130	P3	Spare Parts (Screw)
HH20X40	P3	Spare Parts (Screw)
HH20X53	P3	Spare Parts (Screw)
HH20X55	P3	Spare Parts (Screw)
HH20X75	P3	Spare Parts (Screw)
HH20X90	P3	Spare Parts (Screw)
HH20X110	P3	Spare Parts (Screw)
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HH24X40	P3	Spare Parts (Screw)
HH24X60	P3	Spare Parts (Screw)
HH24X75	P3	Spare Parts (Screw)
HH24X90	P3	Spare Parts (Screw)
HH24X110	P3	Spare Parts (Screw)
HH24X120	P3	Spare Parts (Screw)
HH24X140	P3	Spare Parts (Screw)
HH24X150	P3	Spare Parts (Screw)
HH24X170	P3	Spare Parts (Screw)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
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THREADING	J
DRILLING	K
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HRSN% ○○-○□	D31	Toolholder (Turning)
HS3X4	P4	Spare Parts (Screw)
HS3X4P	P4	Spare Parts (Screw)
HS3X8	P4	Spare Parts (Screw)
HS3X12	P4	Spare Parts (Screw)
HS3X16	P4	Spare Parts (Screw)
HS4X4	P4	Spare Parts (Screw)
HS4X4P	P4	Spare Parts (Screw)
HS5X5	P4	Spare Parts (Screw)
HS6X4		Spare Parts (Balance Screw)
HS6X4P	P4	Spare Parts (Screw)
HS6X6	P4	Spare Parts (Screw)
HS6X8T	P4	Spare Parts (Screw)
HS6X14	P4	Spare Parts (Screw)
HS6X22	P4	Spare Parts (Screw)
HS8X10	P4	Spare Parts (Screw)
HS8X12	P4	Spare Parts (Screw)
HS10X10	P4	Spare Parts (Screw)
HS10X16	P4	Spare Parts (Screw)
HS12X12	P4	Spare Parts (Screw)
HS12X16	P4	Spare Parts (Screw)
HS12X18	P4	Spare Parts (Screw)
HS12X20	P4	Spare Parts (Screw)
HS12X25	P4	Spare Parts (Screw)
HS12X30	P4	Spare Parts (Screw)
HS12X35	P4	Spare Parts (Screw)
HS16X12	P4	Spare Parts (Screw)
HS16X18	P4	Spare Parts (Screw)
HS16X20	P4	Spare Parts (Screw)
HS-2524TRP	P4	Spare Parts (Clamp Screw)
HS-2534TRP	P4	Spare Parts (Clamp Screw)
HS-3048TRP	P4	Spare Parts (Clamp Screw)
HS-4067TRP	P4	Spare Parts (Clamp Screw)
HS-AN-AN- ○○○	D11, G33, H47	Spare Parts (Hose)
HSB4X8%□	P4	Spare Parts (Screw)
HS-G1/8-G1/8- ○○○	H15	Coolant Hose
HSDNN ○○-○□	D29	Toolholder (Turning)
HSRN% ○○-○□	D29	Toolholder (Turning)
HS-ST-AN- ○○○	D11, G33, H47	Spare Parts (Hose)
HS-ST-ST- ○○○	D11, G33, H47	Spare Parts (Hose)
I		
J		
J-10X1.5-UNF3/8	D11, G33	Spare Parts (Joint)
JCET ○○○○○(○)M%-F	B73	Insert (Turning)
JCET ○○○○○(○)M%-FSF	B73	Insert (Turning)
JCET ○○○○○(○)%-FSF	B73	Insert (Turning)
JCGT ○○○○○(○)M%-F	B73	Insert (Turning)
JCGT ○○○○○(○)%-F	B73	Insert (Turning)
J-G1/8-UNF3/8	D11, G33, H47	Piping Joint

Part Number	Page	Description
J-M10X1.5-UNF3/8	H47	Piping Joint
JOMT ○○(□)○○○(○)ER-D	M23, M195	Insert (Milling) MEY
J-ST-NPT1/8-G1/8	H15	Coolant Joint
J-ST-NPT1/8-RC1/8	H15	Coolant Joint
J-ST-R1/4-G1/8	H15	Coolant Joint
J-ST-R1/4-RC1/8	H15	Coolant Joint
J-ST-R1/8-G1/8	H15	Coolant Joint
J-ST-R1/8-RC1/8	H15	Coolant Joint
K		
KDB%□ 16-1	G55	Toolholder (External Grooving)
KCFP ○○○○%□	G133	Insert (Cera-Notch Grooving / Threading)
KCG ○○○○%□	G42, G84	Insert (Cera-Notch Grooving / Threading)
KCGDP ○○○○%□	G42, G84	Insert (Cera-Notch Grooving / Threading)
KCGP ○○○○%□	G42, G84	Insert (Cera-Notch Grooving / Threading)
KCGT ○○○○○○FR-AL	M15, M153	Insert (Milling) MEAS
KCRP ○○○○%□	G42, G84	Insert (Cera-Notch Grooving / Threading)
KCT ○%□	J24	Insert (Cera-Notch Grooving / Threading)
KCTP ○%□	J24	Insert (Cera-Notch Grooving / Threading)
KCTK ○%□	J24	Insert (Cera-Notch Grooving / Threading)
KFMS%□ ○○-○-○○○○(○)(○)	G134, G135	Toolholder (Face Grooving)
KFMS%□ ○○○○□○○(○)○○(○)-8	G136	Toolholder (Face Grooving)
KFMS%□ ○○○○□○○(○)○○(○)-○	G134, G135	Toolholder (Face Grooving)
KFTB%□ ○○○○○(○)-OS	G137	Blade (Face Grooving)
KGA%□ ○○○○□-○	G53	Toolholder (Grooving)
KGBA%□ ○○-○	G12	Toolholder (Grooving)
KGBA%□ ○○-○-○○	G12	Toolholder (Grooving)
KGBA%□ ○○○○□-○○	G12	Toolholder (Grooving)
KGBA%□ ○○○○□-○○JCT	G13	Toolholder (Grooving)
KGBA%□ ○○○○□22-○○	G12	Toolholder (Grooving)
KGBA%□ ○○○○□22-○○JCT	G13	Toolholder (Grooving)
KGBA%□ ○○○○□22-○○T5	G12	Toolholder (Grooving)
KGBAS%□ ○○-○	G12	Toolholder (Grooving)
KGBAS%□ ○○-○-○○	G12	Toolholder (Grooving)
KGBAS%□ ○○○○□-○○	G12	Toolholder (Grooving)
KGBAS%□ ○○○○□22-○○	G12	Toolholder (Grooving)
KGBAS%□ ○○○○□22-○○T5	G12	Toolholder (Grooving)
KGBF%□ ○○○○JX-○○F	G17	Toolholder (Grooving)
KGBFR ○○○○□-○○FJCT	G19	Toolholder (Grooving)
KGBFS%□ ○○○○JX-○○F	G18	Toolholder (Grooving)
KGD%□ ○○-C	G34, G37, G100-G104, H30	Toolholder Body (Grooving / Cut-Off)
KGD%□ ○T○○-C	G34, G35, G36, G37, H30, H31	Blade (Grooving / Cut-Off)
KGD%□ ○○○○-C	G35, G37, G105-G109, H31	Toolholder Body (Grooving / Cut-Off)
KGD%□ ○(○)-○(○)□□	G28, H22	Toolholder (Grooving / Cut-Off)
KGD%□ ○○-○D○○□□	G28, H22	Toolholder (Grooving / Cut-Off)
KGD%□ ○○○○□(□)-○(○)	G28, H22	Toolholder (Grooving / Cut-Off)

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KGD%	○○-OT○○	G30, H26 Toolholder (Grooving / Cut-Off)
KGD%	○○-OT○○(○)JCT	G32, H29 Toolholder (Grooving / Cut-Off)
KGD%	○○○○□-○(○)JCT	G29, H25 Toolholder (Grooving / Cut-Off)
KGD%	○○○○□-OT○○JCT	G32, H29 Toolholder (Grooving / Cut-Off)
KGD%	○○○○□(□)-○(○)T○○	G31, H27 Toolholder (Grooving / Cut-Off)
KGD%	○○X-OT○○S	G34, H30 Toolholder (Grooving / Cut-Off)
KGD%	○○○○X-OT○○S	G35, H31 Toolholder (Grooving / Cut-Off)
KGDF%	-○○(○)-○□-C	G100-G109, G111-G120, G121 Blade (Face Grooving)
KGDF%	○○○○X○○(○)-○□S	G105-G108 Toolholder (Face Grooving)
KGDF%	○○○○○○(○)-○B-Z	G110 Toolholder (Face Grooving)
KGDIR	○○B-○	G79 Toolholder (Internal Grooving)
KGDI%	○○○○B-○	G79 Toolholder (Internal Grooving)
KGDS%	○○-C	G36, G37, G111-G115 Toolholder (Grooving)
KGDS%	○○○○-C	G36, G37, G116-G120 Toolholder (Grooving)
KGDS%	○○○○JX-○(○)B	H23 Toolholder (Cut-Off)
KGDS%	○○○○X-OT○○S	G36 Toolholder (Grooving)
KGH%	○○○○□-○(○)	G52 Toolholder (Grooving)
KGHS%	○○○○□-○	G52 Toolholder (Grooving)
KGIAR	○○H	G82 Toolholder (Grooving / Toolholder Body)
KGIAR	○○○○B-○	G82 Toolholder (Grooving)
KGM%	○-○-○	G48, H36 Toolholder (Grooving / Cut-Off)
KGM%	○○-○	G48, H36 Toolholder (Grooving / Cut-Off)
KGM%	○○○○□(□)-○(○)	G48, H36 Toolholder (Grooving / Cut-Off)
KGM%	○○○○□-○(○)-○○(○)	G48 Toolholder (Grooving / Cut-Off)
KGM%	○○-OT	G49, H37 Toolholder (Grooving / Cut-Off)
KGM%	○○○○□-OT○○	G49, H37 Toolholder (Grooving / Cut-Off)
KGMM%	○○○○□-○	G50 Toolholder (Grooving)
KGMS%	○○○○□-○	G50 Toolholder (Grooving)
KGMU%	○○○○□	G51 Toolholder (Grooving)
KGMW%	○○○○□-○	G56 Toolholder (Grooving)
KIGBA%	○○-○	G76 Toolholder (Grooving)
KIGBA%	○○○○-○○	G76 Toolholder (Grooving)
KIGHR	○○○○B-○	G80 Toolholder (Grooving)
KIGM%	○○○○B-○	G81 Toolholder (Grooving)
KIGM%	○○B-○V	G83 Toolholder (Grooving)
KIGMUR	○○○○B-○	G81 Toolholder (Grooving)
KITG%	○○○○T-○○	J31 Toolholder (Grooving / Threading)
KKC%	○(○)-○□(□)	G43, J24 Toolholder (Cera-Notch Grooving / Threading)
KKC%	○○○○□-○-○○OF	G43, J24 Toolholder (Cera-Notch Grooving / Threading)
KKCE%	○○-○□	G133 Toolholder (Cera-Notch Face Grooving)
KNMX	○○○○○○%(-□)	B31 Insert (Turning)
KPCO-DCLN	%○○○○○-○○□	N3 Polygon Shank Holder (Turning)
KPCO-DDHN	%○○○○○-○○□	N4 Polygon Shank Holder (Turning)
KPCO-DDJN	%○○○○○-○○□	N4 Polygon Shank Holder (Turning)
KPCO-DTGN	%○○○○○-○○□	N5 Polygon Shank Holder (Turning)
KPCO-DVLN	%○○○○○-○○□	N5 Polygon Shank Holder (Turning)

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KPCO-DVPN	%○○○○○-○○□	N6 Polygon Shank Holder (Turning)
KPCO-DWN	○○○○○-○○□	N6 Polygon Shank Holder (Turning)
KPCO-DWLN	%○○○○○-○○□	N7 Polygon Shank Holder (Turning)
KPCO-KGBA	%○○○○○-○○(○○)	N10 Polygon Shank Holder (Shallow Grooving)
KPCO-KGD	%○○○○○-○○T○	N9 Polygon Shank Holder (Grooving / Cut-Off)
KPCO-KTN	%○○○○○-○○□	N11 Polygon Shank Holder (Threading)
KPCO-SVJB	%○○○○○-○○□	N8 Polygon Shank Holder (Turning)
KPCO-SVWB	○○○○○-○○□	N7 Polygon Shank Holder (Turning)
KPKB	○○-○	H43 Blade (Cut-Off)
KPKB	○○-○JCT	H43 Blade (Cut-Off)
KPKTB	○○-○(○)JCT	H44 Block (Cut-Off)
KPS-42		P9 Spare Parts (Shim)
KPT-32		P9 Spare Parts (Shim)
KPT-42		P9 Spare Parts (Shim)
KQC	○○	N22 Toolholder (KQC Quick Change Adapter)
KSTB	S○○/○○ CCET○○○	E48 Sub-Spindle Tools
KSTB	S○○□ CCET○○○	E48 Sub-Spindle Tools
KSTB	S○○/○○ DCET○○○	E48 Sub-Spindle Tools
KSTB	S○○□ DCET○○○	E48 Sub-Spindle Tools
KSTB	S○○/○○ VBET○○○	E48 Sub-Spindle Tools
KSTB	S○○□ VBET○○○	E48 Sub-Spindle Tools
KSTB	S○○/○○ TGFO○	E49 Sub-Spindle Tools
KSTB	S○○□ TGFO○	E49 Sub-Spindle Tools
KSTB	S○○/○○ TTO○	E49 Sub-Spindle Tools
KSTB	S○○□ TTO○	E49 Sub-Spindle Tools
KTGF%	○○○○□-○○	G20 Toolholder (Grooving)
KTGF%	○○○○□(□)-○○F	G20 Toolholder (Grooving)
KTGF%	○(○)-○JXF	G20 Toolholder (Grooving)
KTKB	○○-OS	H49 Blade (Cut-Off)
KTKB	○○-OSS	H49 Blade (Cut-Off)
KTKB%	○○-OS	H49 Blade (Cut-Off)
KTKFL	○○(○)-○○□□	H8, J26 Toolholder (Back Turning / Cut-Off / Threading)
KTKFL	○○○○□□-○○	H8, J26 Toolholder (Back Turning / Cut-Off / Threading)
KTKF%	○(○)(○)-○○□□	E12, H8, J26 Toolholder (Back Turning / Cut-Off / Threading)
KTKF%	○○(○)-○○□□JCT	H13 Toolholder (Cut-Off)
KTKF%	○○○○□(□)-○○	E12, H8, J26 Toolholder (Back Turning / Cut-Off / Threading)
KTKF%	○○○○□(□)-○○S□	H10 Toolholder (Cut-Off)
KTKF%	○○○○□□-○○-Y	E14, H16 Toolholder (Back Turning / Cut-Off / Threading)
KTKF%	○○○○□-○○JCT	H13 Toolholder (Cut-Off)
KTKFS%	○-○○□□	H18 Toolholder (Cut-Off)
KTKFS%	○○○○□-○○A/B	H18 Toolholder (Cut-Off)
KTKH%	○○-OS	H51 Toolholder (Cut-Off)
KTKH%	○-○(○)-OS	H50 Toolholder (Cut-Off)
KTKH%	○○○○□-OS	H51 Toolholder (Cut-Off)
KTKH%	○○○○□-OT○○S	H51 Toolholder (Cut-Off)
KTKTB	○○(○)-○○	H44 Block (Cut-Off)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
KTKTBF ○○-○○	H44	Block (Cut-Off)
KTN% ○○-○	J20	Toolholder (Threading)
KTN% ○○○○□-○○	J20	Toolholder (Threading)
KTN% ○○○○□□-○○F	J20	Toolholder (Threading)
KTNR ○○-○○JCT	J21	Toolholder (Threading)
KTNR ○○○○□-○○JCT	J21	Toolholder (Threading)
KTNSR ○○○○□-○○	J20	Toolholder (Threading)
KTT% ○○○○□-○○	J30	Toolholder (Threading)
KTTXR ○(○)-○○□F	J28	Toolholder (Threading)
KTTXR ○○○○□(□)-○○F	J28	Toolholder (Threading)
KVN-32	P10	Spare Parts (Shim)
L		
LC-4K		Spare Parts (Shim)
LC-32	P10	Spare Parts (Shim)
LC-32N	P10	Spare Parts (Shim)
LC-42	P10	Spare Parts (Shim)
LC-42%L	P10	Spare Parts (Shim)
LC-42N	P10	Spare Parts (Shim)
LC-42N-C	P10	Spare Parts (Shim)
LC-42N%L	P10	Spare Parts (Shim)
LC-42N-20	P10	Spare Parts (Shim)
LC-42N%L-20	P10	Spare Parts (Shim)
LC-4K	P10	Spare Parts (Shim)
LC-53	P10	Spare Parts (Shim)
LC-53N	P10	Spare Parts (Shim)
LC-53N-C	P10	Spare Parts (Shim)
LC-63	P10	Spare Parts (Shim)
LC-63-C	P10	Spare Parts (Shim)
LCMT ○○○○○○-GH-E	K42	Insert (Drilling) DRV MAGIC DRILL
LCMT ○○○○○○-GH-I	K43	Insert (Drilling) DRV MAGIC DRILL
LCMT ○○○○○○-GM-E	K42	Insert (Drilling) DRV MAGIC DRILL
LCMT ○○○○○○-GM-I	K43	Insert (Drilling) DRV MAGIC DRILL
LCMT ○○○○○○-SM-E	K42	Insert (Drilling) DRV MAGIC DRILL
LCMT ○○○○○○-SM-I	K43	Insert (Drilling) DRV MAGIC DRILL
LD-4K	P10	Spare Parts (Shim)
LD-4K43	P10	Spare Parts (Shim)
LD-32	P10	Spare Parts (Shim)
LD-32N	P10	Spare Parts (Shim)
LD-42	P10	Spare Parts (Shim)
LD-42-20	P10	Spare Parts (Shim)
LD-43	P10	Spare Parts (Shim)
LD-43-20	P10	Spare Parts (Shim)
LGBA-16%L S	P16	Spare Parts (Clamp Set)
LGBA-22%L S	P16	Spare Parts (Clamp Set)
LL-03	P8	Spare Parts (Lock Pin)
LL-03N	P8	Spare Parts (Lock Pin)
LL-03S	P8	Spare Parts (Lock Pin)
LL-03SN	P8	Spare Parts (Lock Pin)
LL-03T	P8	Spare Parts (Lock Pin)

Part Number	Page	Description
LL-03TN	P8	Spare Parts (Lock Pin)
LL-05C	P8	Spare Parts (Lock Pin)
LL-1	P8	Spare Parts (Lock Pin)
LL-1C	P8	Spare Parts (Lock Pin)
LL-1CN	P8	Spare Parts (Lock Pin)
LL-1D	P8	Spare Parts (Lock Pin)
LL-1DN	P8	Spare Parts (Lock Pin)
LL-1K	P8	Spare Parts (Lock Pin)
LL-1N	P8	Spare Parts (Lock Pin)
LL-2	P8	Spare Parts (Lock Pin)
LL-2C	P8	Spare Parts (Lock Pin)
LL-2K	P8	Spare Parts (Lock Pin)
LL-2N	P8	Spare Parts (Lock Pin)
LL-3	P8	Spare Parts (Lock Pin)
LL-3K	P8	Spare Parts (Lock Pin)
LL-3N	P8	Spare Parts (Lock Pin)
LL-4	P8	Spare Parts (Lock Pin)
LL-5	P8	Spare Parts (Lock Pin)
LL-5N	P8	Spare Parts (Lock Pin)
LL-6	P8	Spare Parts (Lock Pin)
LNEU ○○○○-○○(-○)	M206	Insert (Milling) MSTB
LNEU ○○○○-○○S(-○)	M206	Insert (Milling) MSTB
LNGX ○○○○○○	M15, M193	Insert (Milling) MFF
LNGX ○○○○○○OR-TT	M15, M193	Insert (Milling) MFF
LNU ○○○○T○○○○○○○○○A	B114	Insert (Turning)
LOGU ○○○○○○ER-GH	M15, M179	Insert (Milling) MFH
LOGU ○○○○○○ER-GM	M15, M44, M123, M179	Insert (Milling) MFLN / MFH
LOGU ○○○○PAER-GM	M15, M123	Insert (Milling) MFLN
LOGT ○○○○○○FR-AM	M16, M64	Insert (Milling) MEW
LOMU ○○○○○○ER-GH	M16, M64, M94	Insert (Milling) MEW / MEWH
LOMU ○○○○○○ER-GM	M16, M64, M94	Insert (Milling) MEW / MEWH
LOMU ○○○○○○ER-SM	M16, M64, M94	Insert (Milling) MEW / MEWH
LP-2S	P8	Spare Parts (Lock Pin)
LP-6S	P8	Spare Parts (Lock Pin)
LPA-11	P8	Spare Parts (Anchor Pin)
LPA-13	P8	Spare Parts (Anchor Pin)
LPA-17	P8	Spare Parts (Anchor Pin)
LPF-11	P8	Spare Parts (Anchor Pin)
LPF-13	P8	Spare Parts (Anchor Pin)
LPF-17	P8	Spare Parts (Anchor Pin)
LPF-1113	P8	Spare Parts (Anchor Pin)
LPF-1117	P8	Spare Parts (Anchor Pin)
LPGT ○○○○○○ER-GM	M16, M185	Insert (Milling) MFH
LR-10C	P10	Spare Parts (Shim)
LR-12C	P10	Spare Parts (Shim)
LR-16C	P10	Spare Parts (Shim)
LR-80	P10	Spare Parts (Shim)
LR-81	P10	Spare Parts (Shim)
LS-03	P4	Spare Parts (Lock Screw)

Part Numbers in Alphanumeric Order

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Part Number	Page	Description
LS-03S	P4	Spare Parts (Lock Screw)
LS-03N	P4	Spare Parts (Lock Screw)
LS-03SN	P4	Spare Parts (Lock Screw)
LS-05	P4	Spare Parts (Lock Screw)
LS-1	P5	Spare Parts (Lock Screw)
LS-1N	P5	Spare Parts (Lock Screw)
LS-1P	P5	Spare Parts (Lock Screw)
LS-1S	P5	Spare Parts (Lock Screw)
LS-1SN	P5	Spare Parts (Lock Screw)
LS-1T	P5	Spare Parts (Lock Screw)
LS-2	P5	Spare Parts (Lock Screw)
LS-2N	P5	Spare Parts (Lock Screw)
LS-2P	P5	Spare Parts (Lock Screw)
LS-3	P5	Spare Parts (Lock Screw)
LS-3P	P5	Spare Parts (Lock Screw)
LS-4	P5	Spare Parts (Lock Screw)
LS-4N	P5	Spare Parts (Lock Screw)
LS-5	P5	Spare Parts (Lock Screw)
LS-11	P5	Spare Parts (Lock Screw)
LS-15	P5	Spare Parts (Lock Screw)
LS-32	P10	Spare Parts (Shim)
LS-42	P10	Spare Parts (Shim)
LSD-445R	P14	Spare Parts (Cartridge)
LSE-445R	P14	Spare Parts (Cartridge)
LSO-445R	P14	Spare Parts (Cartridge)
LSP-1	P8	Spare Parts (Shim Pin)
LSP-2	P8	Spare Parts (Shim Pin)
LSP-2K	P8	Spare Parts (Shim Pin)
LSP-3	P8	Spare Parts (Shim Pin)
LSP-3K	P8	Spare Parts (Shim Pin)
LSP-4	P8	Spare Parts (Shim Pin)
LSP-415R	P14	Spare Parts (Cartridge)
LT-3K	P11	Spare Parts (Shim)
LT-32	P11	Spare Parts (Shim)
LT-32N	P11	Spare Parts (Shim)
LT-32N-20	P11	Spare Parts (Shim)
LT-42	P11	Spare Parts (Shim)
LT-42N	P11	Spare Parts (Shim)
LT-42N-20	P11	Spare Parts (Shim)
LTE-490R	P14	Spare Parts (Cartridge)
LTK-5	P20	Spare Parts (Wrench)
LTP-10	P19	Spare Parts (Torx Plus Wrench / L-shaped Type)
LTP-15	P19	Spare Parts (Torx Plus Wrench / L-shaped Type)
LTW-8SS	P19	Spare Parts (Torx Wrench / L-shaped Type)
LTW-10S	P19	Spare Parts (Torx Wrench / L-shaped Type)
LTW-10SS	P19	Spare Parts (Torx Wrench / L-shaped Type)
LTW-15S	P19	Spare Parts (Torx Wrench / L-shaped Type)

Part Number	Page	Description
LTW-20	P19	Spare Parts (Torx Wrench / L-shaped Type)
LTW-25	P19	Spare Parts (Torx Wrench / L-shaped Type)
LW-1.5	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-2	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-2.5	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-3	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-4	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-4.5	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-5	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-6	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-8	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-10	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-14	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-17	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-19	P19	Spare Parts (Hexagon Wrench / L-shaped Type)
LW-32	P11	Spare Parts (Shim)
LW-32N	P11	Spare Parts (Shim)
LW-42	P11	Spare Parts (Shim)
LW-42N	P11	Spare Parts (Shim)
M		
M○(○)- SHCS-CB	K116	Toolholder (Drilling) Counterbore (SHCS-CB)
M3X8	P5	Spare Parts (Screw)
M3X12	P5	Spare Parts (Screw)
M4X10	P5	Spare Parts (Screw)
MAP-2216	P14	Spare Parts (Cartridge)
MAP-2506	P14	Spare Parts (Cartridge)
MAP 100R○○-S100	M160	End Mill (MAP)
MBE -○○○○.○○○(○)	F15	Extended Reach Internal Diameter Profile Boring Bar
MBE -○○○○L○○○(○)	F15	Extended Reach Internal Profile Micro Boring Bar
MBS -○○○○.○○○(○)	F14	Standard Length Internal Profile Micro Boring Bar
MBS -○○○○L○○○(○)	F14	Standard Length Internal Diameter Profile Boring Bar
MCLN% ○○-○□	D8	Toolholder (Turning)
MCSE ○○○	M248	End Mill (Chamfering)
MCSE ○○○-○○	M248	End Mill (Chamfering)
MDJN% ○○-○□	D13	Toolholder (Turning)
MEAS ○○○○-S○○○○-○○-OT	M152	End Mill (for Aluminum Machining)
MEAS ○○○○S○○○○○○○○T○○○	M152	End Mill (for Aluminum Machining)
MEAS ○○-S○○-○○-OT	M152	End Mill (for Aluminum Machining)
MEAS ○○-S○○-○○-OT-○○○	M152	End Mill (for Aluminum Machining)
MEAS ○○○○R-○○-OT	M152	Face Mill (for Aluminum Machining)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
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Part Numbers in Alphanumeric Order

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Part Number	Page	Description
MEAS ○○○○-○○-○T-M	M152	Face Mill (for Aluminum Machining)
MEC ○○○○-S○○○-○○	M68	End Mill (MEC)
MEC ○○○○-S○○○-○○T	M68	End Mill (MEC)
MEC ○○○○-S○○○-○.○-○○	M68	End Mill (MEC)
MEC ○○○○-S○○○-○.○-○○T	M68	End Mill (MEC)
MEC ○○-M○○-○○(T)-○T	M73	Modular Head End Mill (MEC)
MEC ○○-S○○-○○	M69, M70	End Mill (MEC)
MEC ○○-S○○-○○T	M69, M70	End Mill (MEC)
MEC ○○-S○○-○○○○-○○	M70	End Mill (MEC)
MEC ○○-S○○-○○○○-○○○	M70	End Mill (MEC)
MEC ○○-S○○-○○○○-○○T	M69, M70	End Mill (MEC)
MEC ○○-S○○-○○○○-○○T-○	M69, M70	End Mill (MEC)
MEC ○○○○R-○○(T)-○T(N)	M71	Face Mill (MEC)
MEC ○○○○R-○○-○(○)T(N)	M72	Face Mill (MEC)
MEC ○○○○R-○○-○(○)T-M(N)	M72	Face Mill (MEC)
MEC ○○○○R-○○-○(○)(□)	M72	Face Mill (MEC)
MECH ○○○○-W○○○(○)-○○○-○T	M96	End Mill (MECH)
MECH ○○○○-S○○-○○-○-○T	M96	End Mill (MECH)
MECH ○○○○R-○○-○-○T	M97	Shell Mill (MECH)
MECH ○○○○R-○○-○-○T	M97	Shell Mill (MECH)
MECH ○○○○R-○○-○-○T-M	M97	Shell Mill (MECH)
MECH ○○○○○○-○-○T-BT○○	M97	End Mill (MECH)
MECH ○○○○○○-○T-BT○○○-A	M98	End Mill (MECH)
MECH ○○○○○○-○T-BT○○○SA	M98	End Mill (MECH)
MECH ○○○○○○-○T-F	M99	Front Mill Attachment (MECH)
MECHT ○○R-○○-○○(○○)-○-○T-M	M105	Shell Mill (MECHT)
MECHT ○○-S○○-○○-○-○T	M105	End Mill (MECHT)
MECX(L) ○○○○-S○○○-○○-○T	M80	End Mill (MECX)
MECX ○○-S○○-○○-○T	M80	End Mill (MECX)
MECX ○○-S○○-○○○○-○○-○T	M80	End Mill (MECX)
MECX ○○○○R-○○-○(○)T	M81	Face Mill (MECX)
MECX ○○○○R-○○-○(○)T-M	M81	Face Mill (MECX)
MEF ○○-S○○	M250	End Mill (Countersinking)
METS ○○-S○○	M252	End Mill (T-Slotting)
METS ○○-S○○-H	M252	End Mill (T-Slotting)
MEV ○○○○-W○○○-○○-○T	M86	End Mill (MEV)
MEV ○○○○-S○○○-○-○○-○T	M86	End Mill (MEV)
MEV ○○-M○○-○○-○T	M88	Modular Head End Mill (MEV)
MEV ○○-S○○-○○-○T	M86	End Mill (MEV)
MEV ○○-S○○-○○-○○○-○T	M86	End Mill (MEV)
MEV ○○○○R-○○-○T	M87	Face Mill (MEV)
MEV ○○○○R-○○-○T-M	M87	Face Mill (MEV)
MEW ○○-M○○-○○-○T	M64	Modular Head End Mill (MEW)
MEW ○○-S○○-○○-○T	M61	End Mill (MEW)
MEW ○○-S○○-○○-○○○-○T	M61	End Mill (MEW)
MEW ○○-W○○-○○-○T	M61	End Mill (MEW)
MEW ○○○○R-○○-○T	M62	Face Mill (MEW)
MEW ○○○○R-○○-○T-M	M63	Face Mill (MEW)
MEW ○○○○-S○○○-○-○○-○T	M60	End Mill (MEW)

Part Number	Page	Description
MEW ○○○○-W○○○-○○-○T	M60	End Mill (MEW)
MEW ○○○○-W○○○-○(○○)-○○-○T	M60	End Mill (MEW)
MEWH ○○○○R-○○-○-○T-M	M94	Shell Mill (MEWH)
MEWH ○○○○-S○○-○○-○-○T	M93	End Mill (MEWH)
MEWH ○○○○R-○○-○-○T	M94	Shell Mill (MEWH)
MEWH ○○○○-W○○○-○○-○-○T	M93	End Mill (MEWH)
MEY ○○○○-S○○○-HG	M194	End Mill (Multi-functional)
MEY ○○-S○○	M194	End Mill (Multi-functional)
MEY ○○-S○○-○○○	M194	End Mill (Multi-functional)
MEY ○○-S○○-○○○H	M194	End Mill (Multi-functional)
MEZ ○○-S○○○G	M196	End Mill (Multi-functional)
MEZ ○○-S○○-○○○G	M196	End Mill (Multi-functional)
MEZ ○○-S○○-○○○HG	M196	End Mill (Multi-functional)
MFAH ○○○○R-○(○)T-M(○○)-SF	M144	Face Mill (MFAH)
MFAH ○○○○R-○(○)T-(○○○)-SF	M144	Face Mill (MFAH)
MFAH ○○○○R-○(○)T-M-SF	M145	Face Mill (MFAH)
MFAH ○○○○R-○(○)T-SF	M145	Face Mill (MFAH)
MFF ○○○○R-SF	M192	Face Mill (MFF)
MFF ○○○○R-M-SF	M192	Face Mill (MFF)
MFH ○○○○-M○○-○○-○T	M179, M185	Modular Head End Mill (MFH)
MFH ○○○○-W○○-○○-○T(○○)	M167, M176	End Mill (MFH)
MFH ○○○○-W○○○-○○-○T-○	M176	End Mill (MFH)
MFH ○○○○R-○○-○T-(○○○)	M164, M178	Face Mill (MFH)
MFH ○○○○R-○○-○T-(M)	M165, M178	Face Mill (MFH)
MFH ○○○○R-○○-○T-○○M	M165	Face Mill (MFH)
MFH ○○○○-S○○○-○○-○T(○○)	M167, M176, M184	End Mill (MFH)
MFH ○○○○-S○○○-○○-○T-○(○)	M167, M176, M184	End Mill (MFH)
MFH ○○-M○○-○○-○T	M170, M179, M185	Modular Head End Mill (MFH)
MFH ○○-S○○-○○-○T	M168, M169, M177, M184	End Mill (MFH)
MFH ○○-S○○-○○-○T-○○○	M168, M177	End Mill (MFH)
MFH ○○-W○○-○○-○T	M168, M177, M184	End Mill (MFH)
MFK ○○○(○)R-○○-○(○)T	M48, M49	Face Mill (MFK)
MFK ○○○○R-○○-○(○)T-M	M49	Face Mill (MFK)
MFK ○○○○R-○○-○(○)T-M-SF	M50	Face Mill (MFK)
MFK ○○○(○)R-○○-○(○)T-SF	M50	Face Mill (MFK)
MFLN 45○○○○○R-○(○)T	M42	Face Mill (MFLN45)
MFLN 45○○○○○R-○(○)T-M	M42	Face Mill (MFLN45)
MFLN 70○○○○○R-○(○)T	M43	Face Mill (MFLN70)
MFLN 70○○○○○R-○(○)T-M	M43	Face Mill (MFLN70)
MFLN 90○○○○○R-○(○)T	M122	Face Mill (MFLN90)
MFLN 90○○○○○R-○(○)T-M	M122	Face Mill (MFLN90)
MFPN-45	P11	Spare Parts (Shim)
MFPN 45○○○○(○)R-○(○)T	M31	Face Mill (MFPN45)
MFPN 45○○○%L-○(○)T	M32	Face Mill (MFPN45)
MFPN 45○○○R-○(○)T-M	M32	Face Mill (MFPN45)
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MFSN 88○○○R-○(○)T-M-G	M119	Face Mill (MFSN)
MFSN 88○○○R-S32-OT-G	M120	End Mill (MFSN)
MFWN-90	P11	Spare Parts (Shim)
MFWN 90○○○○(○)R-○(○)T	M108	Face Mill (MFWN)
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MFWN 90○○○R-05-○(○)T(-M)	M114	Face Mill (MFWN)
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MFWN 90○○○R-S○○-05-OT	M115	End Mill (MFWN)
MGI ○○○○-1□(□)	M254	End Mill (Grooving for M/C)
MOF 45○○○R-○○-○(○)T	M52	Face Mill (MOF45)
MOF 45○○○R-○○-○(○)T-M	M52	Face Mill (MOF45)
MRF ○○-S○○	M224	End Mill (Ball-Nose)
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MVNN ○○○○□-○○	D21	Toolholder (Turning)
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N		
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NDCW ○○○○FRX	M30, M140	Insert (Milling) DMC-H
NDCW ○○○○FRX-NE	M30, M140	Insert (Milling) DMC-H
NDCW ○○○(□)RX	M24, M139, M140, M161	Insert (Milling) DMC-SX / DMC-H / CEM
NDCW ○○○(○)TR	M24, M139, M161	Insert (Milling) DMC-SX / CEM
NDMM ○○(□)○○○ER-NO	M24	Insert (Milling)
NDMM ○○(□)○○○ER-T	M24	Insert (Milling)
NDMM ○○○ER-SP	M24, M138, M139, M140, M161	Insert (Milling) DMC / DMC-SX / DMC-H / CEM
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NDMT ○○(□)○○○(○)ER-DH	M24	Insert (Milling)
NEMT ○○(□)○○○(○)ER-D	M24	Insert (Milling)
NEMT ○○(□)○○○(○)ER-DH	M24	Insert (Milling)
O		
OFMR ○○○○○○EN-GT	M25	Insert (Milling)
OFMR ○○○○○○EN-SH	M25, M52	Insert (Milling)
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P		
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PDJN% ○○-○□	D13	Toolholder (Turning)
PDJN% ○○○○□-○○	D13	Toolholder (Turning)
PDJN% ○○○○-○○U	D13	Toolholder (Turning)
PH ○○-○MM	F102	Sleeve (for Micro-Bars)
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PKM ○○N-○○○PM	H42	Insert (Cut-Off)
PKM ○○%.-○○○PM-6D	H42	Insert (Cut-Off)
PNEA ○○○○XNTN-T01020	M17, M50	Insert (Milling) MFK
PNEG ○○○○XNEN-GL	M17, M50	Insert (Milling) MFK
PNEG ○○○○XNER-W	M17, M50	Insert (Milling) MFK
PNEG ○○○○XNTR-T00515(W)	M17, M50	Insert (Milling) MFK
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PNMG ○○○○XNEN-GM	M17, M50	Insert (Milling) MFK
PNMU ○○○○ANER-GH	M18, M38	Insert (Milling) MFPN45
PNMU ○○○○ANEL-GM	M18, M38	Insert (Milling) MFPN45
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PRGN% ○○○○□-○○	D23	Toolholder (Turning)
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PSKN% ○○○○□-○○	D15	Toolholder (Turning)
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PTGNR ○○CA○○	N24	Toolholder (Cartridge)

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PVPN% ○○○○□-○○Q	D22	Toolholder (Turning)
PVNN ○○○○□-○○Q	D22	Toolholder (Turning)
PWLN% ○○-○□	D25	Toolholder (Turning)
PWLN% ○○○○□-○○	D25	Toolholder (Turning)
Q		
R		
R ○○(R)(-SET)	M245	Cartridge Set (API Ring Groover)
R ○○-SET	M245	Cartridge Set (API Ring Groover)
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RCGX ○○○○M0-AQ	B74	Insert (Turning)
RCGX ○○E○○○	B114	Insert (Turning)
RCGX ○○○H○○○T○○○○○○	B114	Insert (Turning)
RCGX ○○(○)S○○○○○	B114	Insert (Turning)
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RCGX ○○○T○○○○○○○○○AA	B114	Insert (Turning)
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ROMU ○○○○M0ER-SM	M19, M228-M231	Insert (Milling) MRW
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RPG ○○○T○○○○○	B113	Insert (Turning)
RPGT ○○(□)○(○)M0ER-GM	M19, M235-M239	Insert (Milling) MRX
RPGT ○○(□)○(○)M0ER-SM	M19, M235-M239	Insert (Milling) MRX
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SCLC%	○○○○□-○○	E25	Toolholder (Turning)
SCLC%	○○-○□□FF	E24	Toolholder (Turning)
SCLC%	○○○○□(□)-○○FF	E24	Toolholder (Turning)
SCLCR	○○(○)-OFFJCT	E25	Toolholder (Turning)
SCLCR	○○○○□-○○FFJCT	E25	Toolholder (Turning)
SCLNR	○(○)-○.○□F	E44	Toolholder (for Small Double-Sided Tools)
SCLNR	○○○○□-○○FF	E44	Toolholder (for Small Double-Sided Tools)
SCMT	○○○○HQ	B75	Insert (Turning)
SCMT	○○○○○○-GH-E	K42	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-GH-I	K43	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-GM-E	K42	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-GM-I	K43	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-SM-E	K42	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-SM-I	K43	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-XM-E	K42	Insert (Drilling) DRV MAGIC DRILL
SCMT	○○○○○○-XM-I	K43	Insert (Drilling) DRV MAGIC DRILL
SCR-01	P6	Spare Parts (Screw)	

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
SCR-03	P6	Spare Parts (Screw)
SCR-04	P6	Spare Parts (Screw)
SCR-05	P6	Spare Parts (Screw)
SCR-16	P6	Spare Parts (Screw)
SCR-30	P6	Spare Parts (Screw)
SDCT	○○○○○○□□-□□	M219 Insert (Milling) MSTC
SDCT	○○○○○○□% -□□	M219 Insert (Milling) MSTC
SDET	○○○○○○□□-□□	M219 Insert (Milling) MSTC
SDET	○○○○○○□%□-□□	M219 Insert (Milling) MSTC
SDJC%	○(○)-○□(□)	E27 Toolholder (Turning)
SDJC%	○○○○□-○○	E27 Toolholder (Turning)
SDJCR	○○(○)-○○□-FO	E22 Toolholder (Goose-neck Holder)
SDJCR	○○○○□□-○○-FOO	E22 Toolholder (Goose-neck Holder)
SDJC%	○(○)-○□□FF	E26 Toolholder (Turning)
SDJC%	○○○○□(□)-○○FF	E26 Toolholder (Turning)
SDJCR	○○(○)-○□□FFJCT	E27 Toolholder (Turning)
SDJCR	○○○○□-○○FFJCT	E27 Toolholder (Turning)
SDJCR	○○○○□-○○-FOOJCT	E27 Toolholder (Turning)
SDJCR	○○○○□□-○○FF-Y	E28 Toolholder (Turning)
SDKN	○○AUFN	M12, M30 Insert (Milling)
SDKN	○○○○AUTN	M12 Insert (Milling)
SDKR	○○AUEN-S	M12 Insert (Milling)
SDKW	○○○○AESN	M26 Insert (Milling)
SDKW	○○○○AETN	M26 Insert (Milling)
SDKW	○○(□)○○○○FN	M26, M248 Insert (Milling) MCSE
SDKW	○○(□)○○○○TN	M26, M248 Insert (Milling) MCSE
SDLC%	○(○)-○□□FF	E30 Toolholder (Turning)
SDLC%	○○○○□(□)-○○FF	E30 Toolholder (Turning)
SDLNR	○(○)-○-○□F	E44 Toolholder (for Small Double-Sided Tools)
SDLNR	○○○○□-○○FF	E44 Toolholder (for Small Double-Sided Tools)
SDLP%	○(○)-○□□FF	E32 Toolholder (Turning)
SDLP%	○○○○□(□)-○○FF	E32 Toolholder (Turning)
SDMR	○○AUER-H	M12 Insert (Milling)
SDMT	○○.○○○	M26, M248 Insert (Milling) MCSE
SDMT	○○○○AESR-H	M26 Insert (Milling)
SDMT	○○○(○)(○)(○)E-K	M26, M252 Insert (Milling) METS
SDMT	○○○E-K	M26, M252 Insert (Milling) METS
SDNCN	○(○)-○□(□)	E31 Toolholder (Turning)
SDNCN	○○○○□(□)-○○	E31 Toolholder (Turning)
SDNC%	○-○□□F	E31 Toolholder (Turning)
SDNC%	○○○○□(□)-○○F	E31 Toolholder (Turning)
SDR	-○○○○	K114 Toolholder (Drilling) Stinger Drill (SDR)
SDXC%	○○○○□□-○○	E30 Toolholder (Turning)
SE-3070TRP	P6	Spare Parts (Screw)
SE-40050TRN	P6	Spare Parts (Screw)
SE-40055TR	P6	Spare Parts (Screw)
SE-40068TR	P6	Spare Parts (Screw)
SE-40080TR	P6	Spare Parts (Screw)

Part Number	Page	Description
SE-40090TR	P6	Spare Parts (Screw)
SE-40100TR	P6	Spare Parts (Screw)
SE-40120TR	P7	Spare Parts (Screw)
SE-50125TR	P7	Spare Parts (Screw)
SEC	○○○	M12 Insert (Milling)
SEEN	○○AFFN	M30 Insert (Milling)
SEEN	○○AFFR-W	M12, M30 Insert (Milling)
SEEN	○○AFTN	M12 Insert (Milling)
SEEN	○○AFTR-W	M12 Insert (Milling)
SEKN	○○AFFN	M12 Insert (Milling)
SEKN	○○AFTN	M12 Insert (Milling)
SEKN	○○EFTR	M12 Insert (Milling)
SEKR	○○AFEN-S	M12 Insert (Milling)
SEKT	○○AFEN-S	M26 Insert (Milling)
SEKW	○○AFTN	M26 Insert (Milling)
SEKW	○○OFN	M26, M248 Insert (Milling) MCSE
SEKW	○○OTN	M26, M248 Insert (Milling) MCSE
SEMT	○○○○	M26, M248 Insert (Milling) MCSE
SFOO(○○)-DRA○○○○M-○(○)	K9, K10, K13, K14, K15	Toolholder (Drilling) DRA MAGIC DRILL
SFOO-	DR○○○○M-○	K32-K34 Toolholder (Drilling) DRC MAGIC DRILL
SF%□-	○○○(○)□	G128, G130, G131 Blade (Face Grooving)
SF22F-	KTGFL16-40P	E50 Sub-Spindle Tools
SF22F-	KTTXL16-40P	E50 Sub-Spindle Tools
SF22F-	SCLCL09-40P	E50 Sub-Spindle Tools
SF22F-	SDUCL11-40P	E50 Sub-Spindle Tools
SF22F-	SVUBL11-40P	E50 Sub-Spindle Tools
SH	○○○○-○○○	F103 Sleeve (for Boring Bar)
SHA	○○○○(○)-○○○	F102, G71 Sleeve (for Small Tools SIGE)
SHC	○○○○-○○	F103 Coolant Sleeve (for Boring Bar)
SHE	○○○○-○○	K96 Adjustable Sleeve (Drilling) for MAGIC DRILL (DRV / DRZ / DRX)
SHEM	○○○○-○○	K97 Adjustable Sleeve (Drilling) for MAGIC DRILL (DRS Mini)
SIGC%	○○○○-EH	G65 Toolholder (Grooving)
SIGC%	○○○○-WH	G65 Toolholder (Grooving)
SIGC%	○○○○-WH-LOO(○)	G65 Toolholder (Grooving)
SIGE%	○○EH	G69 Toolholder (Grooving)
SIGE%	○○○○□-EH	G69 Toolholder (Grooving)
SIGE%	○○○○□-WH	G70 Toolholder (Grooving)
SIGER	○○○○□-WH-90	G71 Toolholder (Grooving / for Small Tools)
SI-GIV%	○○-○○	G75 Toolholder (Grooving)
SIN%	○○○○S-○○	J22 Toolholder (Threading)
SIN%	○○○○S-○○E	J22 Toolholder (Threading)
SJS-	○	F104 Coolant Joint
SL-	○(○-○○)	F103 Sleeve (for Boring Bar)
SLT	○○-○○□□□	M202 Insert (Slot Mill MSTA)
SNCN	○○XNTN	M13 Insert (Milling)
SNG	○○○S○○○○○	B109 Insert (Turning)
SNG	○○○T○○○○○	B109, B110 Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
SNG	○○○	Insert (Turning)
SNGA	○○○	Insert (Turning)
SNGA	○○○MEF	Insert (Turning)
SNGA	○○○S○○○○○	Insert (Turning)
SNGA	○○○S○○○○○ME	Insert (Turning)
SNGA	○○○S○○○○○MEH	Insert (Turning)
SNGA	○○○S○○○○○MEP	Insert (Turning)
SNGA	○○○S○○○○○MET	Insert (Turning)
SNGA	○○○T○○○○○	Insert (Turning)
SNGA	○○○T○○○○○AA	Insert (Turning)
SNGA	○○○T○○○○○OME	Insert (Turning)
SNGG	○○○%L-25R	Insert (Turning)
SNGG	○○○%L-B/C	Insert (Turning)
SNGX	○○○T○○○○○	Insert (Turning)
SNKN	○○XNTN	Insert (Milling)
SNM	○○○	Insert (Turning / Milling)
SNM	○○○T○○○○○	Insert (Turning)
SNMA	○○○	Insert (Turning)
SNMA	○○○T○○○○○AA	Insert (Turning)
SNMF	○○○○○-21	Insert (Turning)
SNMF	○○XNTN	Insert (Milling)
SNMG	○○○	Insert (Turning)
SNMG	○○○C	Insert (Turning)
SNMG	○○○(○)GC	Insert (Turning)
SNMG	○○○HQ	Insert (Turning)
SNMG	○○○HS	Insert (Turning)
SNMG	○○○KG	Insert (Turning)
SNMG	○○○KH	Insert (Turning)
SNMG	○○○MQ	Insert (Turning)
SNMG	○○○MS	Insert (Turning)
SNMG	○○○MU	Insert (Turning)
SNMG	○○○PG	Insert (Turning)
SNMG	○○○PH	Insert (Turning)
SNMG	○○○PQ	Insert (Turning)
SNMG	○○○PS	Insert (Turning)
SNMG	○○○PT	Insert (Turning)
SNMG	○○○%L-C	Insert (Turning)
SNMG	○○○SG	Insert (Turning)
SNMG	○○○XP	Insert (Turning)
SNMG	○○○XQ	Insert (Turning)
SNMG	○○○XS	Insert (Turning)
SNMG	○○○ZS	Insert (Turning)
SNMM	○○○PX	Insert (Turning)
SNMU	○○○○○EN-GH	Insert (Milling) MFSN
SNMU	○○○○○EN-GM	Insert (Milling) MFSN
SNMU	○○○○○EN-SM	Insert (Milling) MFSN
SOKN	13T3AXFN	Insert (Milling)
SOKN	13T3AXFN-NE	Insert (Milling)
SOKN	13T3AXTN	Insert (Milling)

Part Number	Page	Description
SOKR	13T3AXEN-J	Insert (Milling)
SOMT	○○○○AXEN-J	Insert (Milling)
SOMT	○○○○○○ER-FL	Insert (Milling) MFH
SOMT	○○○○○○ER-GH	Insert (Milling) MFH
SOMT	○○○○○○ER-GM	Insert (Milling) MFH
SOMT	○○○○○○ER-LD	Insert (Milling) MFH
SOMW	○○○○AXFN	Insert (Milling)
SOMW	○○○○AXTN	Insert (Milling)
SP-2D		Spare Parts (Spring)
SP-3D		Spare Parts (Spring)
SP-5		Spare Parts (Spring)
SP-5D		Spare Parts (Spring)
SP-6		Spare Parts (Spring)
SP-8		Spare Parts (Spring)
SP3X4		Spare Parts (Screw)
SP3X6		Spare Parts (Screw)
SP3X8		Spare Parts (Screw)
SP3X10		Spare Parts (Screw)
SP4X9		Spare Parts (Screw)
SP8X35		Spare Parts (Screw)
SP-129		Spare Parts (Shim)
SP-130A		Spare Parts (Shim)
SP-141		Spare Parts (Shim)
SP-141P		Spare Parts (Shim)
SP-143		Spare Parts (Shim)
SP-143P		Spare Parts (Shim)
SP-148		Spare Parts (Shim)
SP-162		Spare Parts (Shim)
SP-210A		Spare Parts (Shim)
SP-219		Spare Parts (Shim)
SP-221		Spare Parts (Shim)
SP-223		Spare Parts (Shim)
SP-230P		Spare Parts (Shim)
SP-341P		Spare Parts (Shim)
SP-342		Spare Parts (Shim)
SP-420A		Spare Parts (Shim)
SP-429		Spare Parts (Shim)
SP-441		Spare Parts (Shim)
SP-441P		Spare Parts (Shim)
SP-443		Spare Parts (Shim)
SP-443P		Spare Parts (Shim)
SP-454		Spare Parts (Shim)
SP-521		Spare Parts (Shim)
SP-521P		Spare Parts (Shim)
SP-523		Spare Parts (Shim)
SP-523P		Spare Parts (Shim)
SP-541		Spare Parts (Shim)
SP-543		Spare Parts (Shim)
SP-826		Spare Parts (Shim)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
SP-829	P12	Spare Parts (Shim)
SP-841	P12	Spare Parts (Shim)
SP-843	P12	Spare Parts (Shim)
SP-849	P12	Spare Parts (Shim)
SP-861	P12	Spare Parts (Shim)
SPCN ○○EDTR	M13	Insert (Milling)
SPCN ○○EETR1	M13	Insert (Milling)
SPCN ○○XPTR	M13	Insert (Milling)
SPCT ○○T○○○□□-□□	M218	Insert (Milling) MSTC
SPCT ○○T○○○□□%-□□	M218	Insert (Milling) MSTC
SPEN ○○EEER	M13	Insert (Milling)
SPEN ○○EESR	M13	Insert (Milling)
SPET ○○T○○○□□%-□□	M218	Insert (Milling) MSTC
SPG ○○○	B75, C29, M13	Insert (Turning / Milling)
SPG ○○○ONE	C29	Insert (Turning / Milling)
SPG ○○○T○○○○○AA	B113	Insert (Turning)
SPG ○○○T○○○○○	B113	Insert (Turning)
SPGH ○○○%	B75	Insert (Turning)
SPGR ○○○%	B75	Insert (Turning)
SPKN ○○EDER	M13	Insert (Milling)
SPKN ○○EDFR	M13	Insert (Milling)
SPKN ○○EDT%	M13	Insert (Milling)
SPKN ○○XETR	M13	Insert (Milling)
SPKN ○○XPFR	M13	Insert (Milling)
SPKN ○○XPTR	M13	Insert (Milling)
SPKR ○○EDER-S	M13	Insert (Milling)
SPM ○○○	B75, M13	Insert (Turning / Milling)
SPMR ○○○	B75	Insert (Turning / Milling)
SPMR ○○○G	B75	Insert (Turning / Milling)
SPMR ○○EDER-H	M13	Insert (Milling)
SPMT ○○○○EDER-NBO	M27, M56	Insert (Milling) MSRS15
SPMT ○○○○EDER-NBOP	M27, M56	Insert (Milling) MSRS15
SPMT ○○○○EDER-V	M27, M56	Insert (Milling) MSRS15
SPMT ○○○○EDS%-NBOT	M27, M56	Insert (Milling) MSRS15
SPMT ○○○○○EN-NBO	M28, M126-M127	Insert (Milling) MSRS90
SPMT ○○○○○EN-NBOP	M28, M126-M127	Insert (Milling) MSRS90
SPMT ○○○○○EN-V	M28, M126-M127	Insert (Milling) MSRS90
SPMT ○○○○○E-Z	M28, M250	Insert (Milling) MEF
SP-RC	P14	Spare Parts (Shim)
SPW-6045	P7	Spare Parts (Screw)
SPW-7050	P7	Spare Parts (Screw)
SRCP% ○○○○B-○○-A○○	F80	Boring Bar (for Bearing Machining)
SS-4N	P7	Spare Parts (Shim Screw)
SS○○(○○)- DRA○○○M-○(,○)	K11, K12, K16, K17	Toolholder (Drilling) DRA MAGIC DRILL
SS○○- DRC○○○M-○	K27-K29	Toolholder (Drilling) DRC MAGIC DRILL
STDER ○○CA○○	N26	Toolholder (Cartridge)
STDPR ○○CA○○	N26	Toolholder (Cartridge)
STEER ○○CA○○	N26	Toolholder (Cartridge)

Part Number	Page	Description
STEPR ○○○A○○	N26	Toolholder (Cartridge)
STFER ○○○A○○	N26	Toolholder (Cartridge)
STFPR ○○○A○○	N26	Toolholder (Cartridge)
STGC% ○-○(,○)□	E33	Toolholder (Turning)
STGC% ○○○○□-○○	E33	Toolholder (Turning)
STGP% ○○○○□-○○	E33	Toolholder (Turning)
STLNR ○(○)-○.○○□F	E45	Toolholder (for Small Double-Sided Tools)
STLNR ○○○○□-○○FF	E45	Toolholder (for Small Double-Sided Tools)
STVP% ○○-○	J23	Toolholder (Threading)
STWL ○○○○□-15	G94	Toolholder (for Twin Bars)
STWR ○○○○□-15	F42	Toolholder (for Twin Bars)
STWSR ○○○○□(□)-15T	F43, G95	Toolholder (for Twin Bars)
SV-60136R	P7	Spare Parts (Screw)
SV-60136TR	P7	Spare Parts (Screw)
SVJB% ○(○)-○○(□)	E34, E35	Toolholder (Turning)
SVJB% ○○○○□-○○	E35	Toolholder (Turning)
SVJB% ○(○)-○○□FF	E34	Toolholder (Turning)
SVJB% ○○○○□□-○○FF	E34	Toolholder (Turning)
SVJB% ○○○○□-○○(N)	E35	Toolholder (Turning)
SVJBR ○○(,○)-OFFJCT	E34	Toolholder (Turning)
SVJBR ○○○○□-○○FFJCT	E34	Toolholder (Turning)
SVJC% ○○○○□(□)-○○FF	E37	Toolholder (Turning)
SVJP% ○(○)-○○□FF	E39	Toolholder (Turning)
SVJP% ○○○○□(□)-○○FF	E39	Toolholder (Turning)
SVJPR ○○○○□-○○FFJCT	E39	Toolholder (Turning)
SVLC% ○○○○□(□)-○○FF	E37	Toolholder (Turning)
SVLP% ○(○)-○(○)□□FF	E39	Toolholder (Turning)
SVLP% ○○○○□(□)-○○FF	E39	Toolholder (Turning)
SVLPR ○○(,○)-○○□-FO	E23	Toolholder (Goose-neck Holder)
SVLPR ○○○○□□-○○-FOO	E23	Toolholder (Goose-neck Holder)
SVNR ○○○○□-12	F38	Toolholder (for Swiss IQ Bars / Discontinued Description)
SVNR ○○○○□-12N	F38	Toolholder (for Swiss IQ Bars)
SVN-32	P14	Spare Parts (Shim)
SVN-32N	P14	Spare Parts (Shim)
SVN-32S	P14	Spare Parts (Shim)
SVNSR ○(○)-12-○○	F38	Toolholder (for Swiss IQ Bars)
SVNSR ○○○○□-12-○○	F38	Toolholder (for Swiss IQ Bars / Discontinued Description)
SVNSR ○○○○□-12-○○N	F38	Toolholder (for Swiss IQ Bars)
SVNSR ○○○○□-12-○○XN	F41	Toolholder (for Swiss IQ Bars)
SVPB% ○○○○□(□)-○○	E35	Toolholder (Turning)
SVPB% ○○○○□-○○N	E35	Toolholder (Turning)
SVPCR ○○○○□(□)-○○FF	E38	Toolholder (Turning)
SVPPR ○(○)-○(○)□□FF	E40	Toolholder (Turning)
SVPPR ○○○○□(□)-○○FF	E40	Toolholder (Turning)
SWBN ○(○)-○○□	E36	Toolholder (Turning)
SWBN ○○○○□(□)-○○	E36	Toolholder (Turning)
SWBN ○○○○□-○○N	E36	Toolholder (Turning)
SWCN ○○○○□□-○○	E38	Toolholder (Turning)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
T		
T63H-○○-○○(○)	N20	Toolholder (HSK Tooling)
T63H-KGBA%□-16	N19	Grooving (HSK Tooling)
T63H-KGBA%□-22-○○	N19	Grooving (HSK Tooling)
T63H-KTNR-○○	N19	Threading (HSK Tooling)
T63H-N○○-○○(○)	N20	Toolholder (HSK Tooling)
T63H-PCLN%□-DX12	N15	Toolholder (HSK Tooling)
T63H-PCMNN-□12	N15	Toolholder (HSK Tooling)
T63H-PDJN%□-DX15	N15	Toolholder (HSK Tooling)
T63H-PDNNN-□15	N16	Toolholder (HSK Tooling)
T63H-PTGN%□-DX16	N16	Toolholder (HSK Tooling)
T63H-PWLN%□-DX08	N17	Toolholder (HSK Tooling)
T63H-S2020R-105T	N14	Toolholder (HSK Tooling)
T63H-S2525-○○(○)F	N14	Toolholder (HSK Tooling)
T63H-S2525%□-○○○	N13	Toolholder (HSK Tooling)
T63H-SVLB%□-DX16N	N18	Toolholder (HSK Tooling)
T63H-SVBN-□16N	N18	Toolholder (HSK Tooling)
T63H-WTENN-□16	N16	Toolholder (HSK Tooling)
T63H-WWMNN-□08	N17	Toolholder (HSK Tooling)
T100H-○○-○○(○)	N20	Toolholder (HSK Tooling)
T100H-N○○-○○(○)	N20	Toolholder (HSK Tooling)
T100H-S2525-○○○F	N14	Toolholder (HSK Tooling)
T100H-S2525R-○○○T	N14	Toolholder (HSK Tooling)
T100H-S2525%□-○○○	N14	Toolholder (HSK Tooling)
TBET-○○○○(○)(○)M%□	B76	Insert (Turning)
TBG-○○○○F	C18	Insert (Turning)
TBG-○○○○(○)T○○○○○AA	B113	Insert (Turning)
TBG-○○○○(○)T○○○○○	C18	Insert (Turning)
TBGT-○○○○○CF	B76	Insert (Turning)
TBGT-○○○○(○)(○)M%□	B76	Insert (Turning)
TBGT-○○○○○M-CF	B76	Insert (Turning)
TBGT-○○○○(○)MFP-PF	B76	Insert (Turning)
TBGT-○○○○○MP-CF	B76	Insert (Turning)
TBGT-○○○○(○)%□	B76	Insert (Turning)
TBGW-○○○○(○)	B76, C26	Insert (Turning)
TBGW-○○○○(○)NE	C26	Insert (Turning)
TBMT-○○○○(○)	C26	Insert (Turning)
TBMT-○○○○(○)DP	B76	Insert (Turning)
TBMT-○○○○(○)NE	C26	Insert (Turning)
TCET-○○○○(○)(○)F%□-USF	B77	Insert (Turning)
TCET-○○○○MF%□-USF	B77	Insert (Turning)
TCG-○○○○(○)	B79	Insert (Turning)
TCG-○○(○)(○)T○○○○○	B113	Insert (Turning)
TCGR-○○○○(○)%□-F	B79	Insert (Turning)
TCGT-○○(○)(○)(○)E%□-U	B78	Insert (Turning)
TCGT-○○○○(○)(○)F%□-U	B78	Insert (Turning)
TCGT-○○(○)(○)(○)ME%□-U	B78	Insert (Turning)
TCGT-○○(○)(○)(○)(○)MF%□-U	B78	Insert (Turning)
TCGT-○○○○(○)%□	B79	Insert (Turning)

Part Number	Page	Description
TCGT-○○○(○)%□-A3	B79	Insert (Turning)
TCGW-○○○(○)(○)(○)	B79, C26	Insert (Turning)
TCGW-○○○(○)NE	C26	Insert (Turning)
TCGW-○○○(○)SE	C26	Insert (Turning)
TCMT-○○○○(○)(○)	C26	Insert (Turning)
TCMT-○○○○○HP	K113, K116	Insert (Drilling) Counterbore
TCMT-○○○○(○)(○)HQ	B77, K116, K117	Insert (Turning/Drilling) Counterbore/Countersink
TCMT-○○○(○)(○)(○)NE	C26	Insert (Turning)
TCMT-○○○(○)SE	C26	Insert (Turning)
TCMX-○○○○(○)WP	B77	Insert (Turning)
TEEN-○○PTFR	M30	Insert (Milling)
TEEN-○○PTFR-NE	M30	Insert (Milling)
TEEN-○○PTTR	M14	Insert (Milling)
TEKN-○○PTFR	M14, M30	Insert (Milling)
TEKN-○○PTFR-NE	M30	Insert (Milling)
TEKN-○○PTTR	M14	Insert (Milling)
TEKR-○○PTFR-S	M14	Insert (Milling)
TEMR-○○PTFR-H	M14	Insert (Milling)
TEMT-○○○○○○-AQ	M28	Insert (Milling)
TGF-○○%○○○-○○○	C30, G21	Insert (Grooving)
TGF-○○%○○○N	G21	Insert (Grooving)
TH-4	P20	Spare Parts (Hexagon Wrench / T-shaped Type)
TH8X15	P7	Spare Parts (Screw)
TKN-○(○)	H48	Insert (Cut-Off)
TKN-○(○)-P	H48	Insert (Cut-Off)
TK%□-○(○)	H48	Insert (Cut-Off)
TK%□-○(○)-P	H48	Insert (Cut-Off)
TKF-○○○○○-AGT	C32, E18	Insert (Grooving / Turning)
TKF-○○%○○○-AS	C32, E18	Insert (Grooving / Turning)
TKF-○○%○○○-GTP	B101, E13	Insert (Grooving / Turning)
TKF-○○%○○○-NB(○)	C32, E18, H6, H7	Insert (Grooving / Turning)
TKF-○○%○○○-NB-○○DR	H6, H7	Insert (Cut-Off)
TKF-○○%○○○-S	H6, H7	Insert (Cut-Off)
TKF-○○%○○○-S-○○DR	H6, H7	Insert (Cut-Off)
TKF-○○%○○○-T	H6, H7	Insert (Cut-Off)
TKF-○○%○○○-T-○○DR	H6, H7	Insert (Cut-Off)
TKFB-○○○○○○○MR	B100, E13	Insert (Back Turning)
TKFB-○○○○○○○-GQ	B100, E13	Insert (Back Turning)
TKFB-○○○○○○○P-GQ	B100, E13	Insert (Back Turning)
TKFB-○○○○○○○M	B100, E13	Insert (Back Turning)
TKFS-○○%○○○-S	H19	Insert (Cut-Off)
TKFT-12%○○○○(○)	J26	Insert (Threading)
TN-32	P14	Spare Parts (Shim)
TN-43	P14	Spare Parts (Shim)
TNEG-○○○(○)%□-SSF	B42	Insert (Turning)
TNG-○○○S○○○○○	B111	Insert (Turning)
TNG-○○○T○○○○○	B111	Insert (Turning)
TNG-○○○T○○○○○AA	B111	Insert (Turning)
TNGA-○○○	B40	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
TNGA ○○○MEF	C10	Insert (Turning)
TNGA ○○○ME6	C10	Insert (Turning)
TNGA ○○○S○○○○○	B111	Insert (Turning)
TNGA ○○○(○)S○○○○○ME	C11	Insert (Turning)
TNGA ○○○S○○○○○MEH	C11	Insert (Turning)
TNGA ○○○S○○○○○MEP	C10	Insert (Turning)
TNGA ○○○S○○○○○MET	C11	Insert (Turning)
TNGA ○○○(○)S○○○○○SE	C11	Insert (Turning)
TNGA ○○○S○○○○○SET	C11	Insert (Turning)
TNGA ○○○T○○○○○	B111	Insert (Turning)
TNGA ○○○T○○○○○AA	B111	Insert (Turning)
TNGA ○○○T○○○○○OME	C11	Insert (Turning)
TNGG ○○○AH	B41	Insert (Turning)
TNGG ○○○FP-TK	B39	Insert (Turning)
TNGG ○○○(○)MFP-SK	B38	Insert (Turning)
TNGG ○○○TK	B39	Insert (Turning)
TNGG ○○○(○)%	B43	Insert (Turning)
TNGG ○○○%-25R	B43	Insert (Turning)
TNGG ○○○%-A3	B41	Insert (Turning)
TNGG ○○○(○)%-B	B42	Insert (Turning)
TNGG ○○○(○)%-C	B43	Insert (Turning)
TNGG ○○○(○)%-S	B42	Insert (Turning)
TNGM ○○○S○○○○○BBO	C11	Insert (Turning)
TNGU ○○○(○)MER-U	B52	Insert (Turning)
TNGU ○○○(○)(○)MFR-F	B52	Insert (Turning)
TNGU ○○○(○)(○)MFR-U	B52	Insert (Turning)
TNM ○○○	C19	Insert (Turning)
TNMA ○○○	B40	Insert (Turning)
TNMC ○○NV○○○○○	J23	Insert (Threading)
TNMG ○○○	B37	Insert (Turning)
TNMG ○○○AH	B41	Insert (Turning)
TNMG ○○○C	B40	Insert (Turning)
TNMG ○○○CQ	B36	Insert (Turning)
TNMG ○○○GC	B40	Insert (Turning)
TNMG ○○○(○)GP	B36	Insert (Turning)
TNMG ○○○GS	B36	Insert (Turning)
TNMG ○○○GT	B37	Insert (Turning)
TNMG ○○○HQ	B36	Insert (Turning)
TNMG ○○○HS	B37	Insert (Turning)
TNMG ○○○KG	B40	Insert (Turning)
TNMG ○○○KH	B40	Insert (Turning)
TNMG ○○○KQ	B40	Insert (Turning)
TNMG ○○○MQ	B39	Insert (Turning)
TNMG ○○○MS	B39	Insert (Turning)
TNMG ○○○MU	B39	Insert (Turning)
TNMG ○○○PG	B36	Insert (Turning)
TNMG ○○○PH	B37	Insert (Turning)
TNMG ○○○(○)(○)PP	B36	Insert (Turning)
TNMG ○○○PQ	B36	Insert (Turning)

Part Number	Page	Description
TNMG ○○○PS	B37	Insert (Turning)
TNMG ○○○PT	B37	Insert (Turning)
TNMG ○○○%-C	B43	Insert (Turning)
TNMG ○○○(○)R-LD	B38	Insert (Turning)
TNMG ○○○SG	B39	Insert (Turning)
TNMG ○○○%-ST	B39	Insert (Turning)
TNMG ○○○TK	B39	Insert (Turning)
TNMG ○○○XF	B38	Insert (Turning)
TNMG ○○○XP	B38	Insert (Turning)
TNMG ○○○XQ	B38	Insert (Turning)
TNMG ○○○XS	B38	Insert (Turning)
TNMG ○○○ZS	B40	Insert (Turning)
TNMM ○○○(○)M	C23	Insert (Turning)
TNMM ○○○(○)M-NE	C23	Insert (Turning)
TNMM ○○○(○)M-SE	C23	Insert (Turning)
TNMM ○○○PX	B38	Insert (Turning)
TNMX ○○○WF	B36	Insert (Turning)
TNW-32	P14	Spare Parts (Shim)
TOMT ○○○○○ER-GM	M20, M87	Insert (Milling) MEV
TOMT ○○○○○ER-SM	M20, M87	Insert (Milling) MEV
TP ○○○	B85	Insert (Turning)
TPC 32P4R	M14	Insert (Milling)
TPEH ○○○(○)(○)(○)M%-P	B85	Insert (Turning)
TPET ○○○(○)(○)F%-USF	B86	Insert (Turning)
TPET ○○○(○)(○)MF%-USF	B86	Insert (Turning)
TPET ○○○(○)(○)M%-FSF	B85	Insert (Turning)
TPET ○○○(○)(○)%-FSF	B85	Insert (Turning)
TPG ○○○(○)(○)(○)	B88, C29, M14, M30, M137	Insert (Turning / Milling)
TPG ○○○ONE	C29	Insert (Turning / Milling)
TPG ○○○(○)SE	C29	Insert (Turning / Milling)
TPG ○○○S○○○○○SET	C18	Insert (Turning)
TPG ○○○(○)(○)T○○○○○	B113	Insert (Turning)
TPG ○○○(○)(○)T○○○○○AA	B113	Insert (Turning)
TPG ○○○(○)T○○○○○OME	C18	Insert (Turning)
TPG ○○○(○)T○○○○○OSE	C18	Insert (Turning)
TPGB ○○○(○)(○)(○)	B86, C27, J37	Insert (Turning / Threading)
TPGB ○○○MEF	C16	Insert (Turning)
TPGB ○○○(○)(○)(○)NE	C27	Insert (Turning)
TPGB ○○○(○)(○)(○)SE	C26	Insert (Turning)
TPGB ○○○S○○○○○MES	C16	Insert (Turning)
TPGB ○○○(○)S○○○○○MET	C16	Insert (Turning)
TPGB ○○○(○)(○)(○)S○○○○○SET	C16	Insert (Turning)
TPGB ○○○(○)T○○○○○OME	C16	Insert (Turning)
TPGB ○○○(○)(○)(○)T○○○○○OSE	C16	Insert (Turning)
TPGH ○○○(○)(○)(○)M%	B83	Insert (Turning)
TPGH ○○○(○)M%-H	B84	Insert (Turning)
TPGH ○○○(○)(○)(○)%	B82	Insert (Turning)
TPGH ○○○(○)(○)(○)%-H	B84	Insert (Turning)
TPGR ○○○(○)%-A/B/C	B88	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description	
TPGR	○○○○○(○)ℳ- F	B87	Insert (Turning)
TPGT	○○○(○)AP	B86	Insert (Turning)
TPGT	○○○○○○CF	B80	Insert (Turning)
TPGT	○○○○○○M-CF	B80	Insert (Turning)
TPGT	○○○○○(○)MFP-PF	B80	Insert (Turning)
TPGT	○○○○○○MP-CF	B80	Insert (Turning)
TPGW	○○○S○○○○MET	C16	Insert (Turning)
TPGW	○○○T○○○○OME	C16	Insert (Turning)
TPGW	○○○T○○○○OSE	C16	Insert (Turning)
TPK	○○PDR	M14, M137	Insert (Milling) MTP90
TPK	○○PDTR	M14, M137	Insert (Milling) MTP90
TPKR	○○PDR-S	M14, M137	Insert (Milling) MTP90
TPM	○○○	B88, M14, M137	Insert (Turning / Milling)
TPMH	○○○(○)(○)(○)	C27	Insert (Turning)
TPMH	○○○(○)(○)(○)NE	C27	Insert (Turning)
TPMH	○○○(○)(○)(○)SE	C27	Insert (Turning)
TPMR	○○○	B87	Insert (Turning)
TPMR	○○○DP	B87	Insert (Turning)
TPMR	○○○(○)(○)(○)G	B87	Insert (Turning)
TPMR	○○○GP	B87	Insert (Turning)
TPMR	○○○HQ	B87	Insert (Turning)
TPMR	○○PDR-H	M14, M137	Insert (Milling) MTP90
TPMT	○○○(○)APD	C27	Insert (Turning)
TPMT	○○○(○)(○)(○)GP	B81	Insert (Turning)
TPMT	○○○(○)(○)(○)HQ	B81	Insert (Turning)
TPMT	○○○(○)(○)(○)PP	B80	Insert (Turning)
TPMT	○○○(○)(○)XP	B81	Insert (Turning)
TPMT	○○○XQ	B81	Insert (Turning)
TPMX	○○○(○)(○)(○)WP	B80	Insert (Turning)
TPMX	○○○ℳ-WP	B80	Insert (Turning)
TS-3S		P8	Spare Parts (Lock Pin)
TT-15		P20	Spare Parts (Torx Wrench / T-shaped Type)
TT-25		P20	Spare Parts (Torx Wrench / T-shaped Type)
TT-25L		P20	Spare Parts (Torx Wrench / T-shaped Type)
TT-30		P20	Spare Parts (Torx Wrench / T-shaped Type)
TT	43ER○○○M	J30	Insert (Threading)
TT	○○ℳ○○○○	J30, J31	Insert (Threading)
TTC-20		P20	Spare Parts (Torx Wrench / T-shaped Type)
TTC-25		P20	Spare Parts (Torx Wrench / T-shaped Type)
TTP-20		P20	Spare Parts (Torx Plus Wrench / T-shaped Type)
TTW-15		P20	Spare Parts (Torx Wrench / T-shaped Type)
TTX	32R○○○○(○)	J29	Insert (Threading)
TTX	32R○○○○(○)S	J29	Insert (Threading)
TWBR	○○○○○-○○○	F42	Twin Bars (Boring)
TWBTR	○○○○○-○○○	F43	Twin Bars (Boring)
TWFL	○○○	G94	Twin Bars (Face Grooving)

Part Number	Page	Description	
TWFGTR	○○○	G95	Twin Bars (Face Grooving)
U			
V			
VBET	○○○○○(○)Mℳ- F	B90	Insert (Turning)
VBET	○○○○○(○)Mℳ- FSF	B89	Insert (Turning)
VBET	○○○(○)ℳ- FSF	B89	Insert (Turning)
VBET	○○○(○)(○)Mℳ- Y	B90	Insert (Turning)
VBGT	○○○(○)FN-Z	B90	Insert (Turning)
VBGT	○○○○○(○)Mℳ- F	B90	Insert (Turning)
VBGT	○○○(○)(○)Mℳ- Y	B91	Insert (Turning)
VBGT	○○○○ℳ- F	B90	Insert (Turning)
VBGT	○○○(○)ℳ- Y	B91	Insert (Turning)
VBGW	○○○MEF	C17	Insert (Turning)
VBGW	○○○S○○○○OMES	C17	Insert (Turning)
VBGW	○○○(○)S○○○○OMET	C17	Insert (Turning)
VBGW	○○○S○○○○○SET	C17	Insert (Turning)
VBGW	○○○(○)T○○○○○OME	C17	Insert (Turning)
VBGW	○○○(○)T○○○○○OSE	C17	Insert (Turning)
VBMT	○○○(○)(○)	C28	Insert (Turning)
VBMT	○○○GP	B89	Insert (Turning)
VBMT	○○○HQ	B89	Insert (Turning)
VBMT	○○○(○)NE	C28	Insert (Turning)
VBMT	○○○(○)PP	B89	Insert (Turning)
VBMT	○○○(○)SE	C28	Insert (Turning)
VBMT	○○○(○)VF	B89	Insert (Turning)
VCET	○○○(○)Mℳ- F	B93	Insert (Turning)
VCET	○○○(○)(○)Mℳ- Y	B93	Insert (Turning)
VCGT	○○○	B93	Insert (Turning)
VCGT	○○○AH	B93	Insert (Turning)
VCGT	○○○AP	B93	Insert (Turning)
VCGT	○○○ℳ- A3	B93	Insert (Turning)
VCGT	○○○(○)FN-Z	B93	Insert (Turning)
VCGT	○○○○MFP-GF	B92	Insert (Turning)
VCGT	○○○○MP-CF	B92	Insert (Turning)
VCGT	○○○(○)MFP-SKS	B92	Insert (Turning)
VCGW	○○○○○(○)S○○○○OMET	C17	Insert (Turning)
VCGW	○○○○○S○○○○○SET	C17	Insert (Turning)
VCGW	○○○○○(○)T○○○○○OME	C17	Insert (Turning)
VCGW	○○○○○(○)T○○○○○OSE	C17	Insert (Turning)
VCMT	○○○○○(○)	C28	Insert (Turning)
VCMT	○○○(○)(○)(○)HQ	B92, M29, M246	Insert (Turning/Milling) / API Insert (Ring Grooving)
VCMT	○○○○○(○)NE	C28	Insert (Turning)
VCMT	○○○(○)(○)(○)PP	B92	Insert (Turning)
VCMT	○○○○○(○)SE	C28	Insert (Turning)
VCMT	○○○○○(○)VF	B92	Insert (Turning)
VNBR	○○○○-○○(○)	F37	Swiss IQ Bars (Boring)
VNBR	○○○○-○○(○)NB	C34, F37	Swiss IQ Bars (Boring)
VNBR	○○○○(○○)-○○(○)S	F36	Swiss IQ Bars (Boring)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
VNBTR ○○○○-○○(○)	F37	Swiss IQ Bars (Boring)
VNBXR ○○○○(○)-○○(○)S	F40	Swiss IQ Bars (Boring)
VNFGR ○○○○-○○	G92	Swiss IQ Bars (Face Grooving)
VNFGR ○○○○-○○NB	C34, G92	Swiss IQ Bars (Face Grooving)
VNGA ○○○	B45	Insert (Turning)
VNGA ○○○MEF	C12	Insert (Turning)
VNGA ○○○ME4	C12	Insert (Turning)
VNGA ○○○S○○○○○	B112	Insert (Turning)
VNGA ○○○(○)S○○○○○ME	C12	Insert (Turning)
VNGA ○○○S○○○○○MEH	C12	Insert (Turning)
VNGA ○○○S○○○○○MEP	C12	Insert (Turning)
VNGA ○○○S○○○○○MET	C12	Insert (Turning)
VNGA ○○○(○)S○○○○○SE	C12	Insert (Turning)
VNGA ○○○S○○○○○SET	C12	Insert (Turning)
VNGA ○○○T○○○○○	B112	Insert (Turning)
VNGA ○○○T○○○○○AA	B112	Insert (Turning)
VNGA ○○○T○○○○○OME	C12	Insert (Turning)
VNGG ○○○MFP-SK	B44	Insert (Turning)
VNGG ○○○MU	B45	Insert (Turning)
VNGG ○○○(○)M-SK	B44	Insert (Turning)
VNGG ○○○(○)%	B45	Insert (Turning)
VNGR ○○○○-○○	G61	Swiss IQ Bars (Grooving)
VNGR ○○○○-○○NB	C34, G61	Swiss IQ Bars (Grooving)
VNMA ○○○T○○○○○AA	B112	Insert (Turning)
VNMG ○○○	B44	Insert (Turning)
VNMG ○○○(○)GP	B44	Insert (Turning)
VNMG ○○○HQ	B44	Insert (Turning)
VNMG ○○○KG	B45	Insert (Turning)
VNMG ○○○KH	B45	Insert (Turning)
VNMG ○○○MQ	B45	Insert (Turning)
VNMG ○○○MS	B45	Insert (Turning)
VNMG ○○○MU	B45	Insert (Turning)
VNMG ○○○(○)PP	B44	Insert (Turning)
VNMG ○○○PQ	B44	Insert (Turning)
VNMG ○○○%VC	B44	Insert (Turning)
VNMG ○○○SG	B45	Insert (Turning)
VNMG ○○○TN-V	B44	Insert (Turning)
VNMG ○○○VF	B44	Insert (Turning)
VNMM ○○○(○)M	C23	Insert (Turning)
VNMM ○○○(○)M-NE	C23	Insert (Turning)
VNMM ○○○(○)M-SE	C23	Insert (Turning)
VNTR ○○○-○○	J36	Swiss IQ Bars (Threading)
VPET ○○○○(○)(○)F%-USF	B96	Insert (Turning)
VPET ○○○○(○)(○)M%-F	B95	Insert (Turning)
VPET ○○○○(○)(○)M%-FSF	B95	Insert (Turning)
VPET ○○○○(○)MF%-J	B96	Insert (Turning)
VPET ○○○○(○)(○)MF%-J	B96	Insert (Turning)
VPET ○○○○(○)(○)MF%-USF	B96	Insert (Turning)
VPET ○○○○(○)(○)%-FSF	B95	Insert (Turning)

Part Number	Page	Description
VPGT ○○○○CF	B94	Insert (Turning)
VPGT ○○○○(○)(○)CK	B94	Insert (Turning)
VPGT ○○○○M-CF	B94	Insert (Turning)
VPGT ○○○○(○)(○)M-CK	B94	Insert (Turning)
VPGT ○○○○MF-GF	B94	Insert (Turning)
VPGT ○○○○MFP-GF	B94	Insert (Turning)
VPGT ○○○○MP-CF	B94	Insert (Turning)
VPGT ○○○○(○)(○)MP-CK	B94	Insert (Turning)
W		
W-6	P20	Spare Parts (Washer)
W6-14	P20	Spare Parts (Washer)
W6X17	P7	Spare Parts (Screw)
W6X18	P7	Spare Parts (Screw)
W6X18N	P7	Spare Parts (Screw)
W6X20	P7	Spare Parts (Screw)
W-8	P20	Spare Parts (Washer)
W8X16	P7	Spare Parts (Screw)
W8X18	P7	Spare Parts (Screw)
W8X21	P7	Spare Parts (Screw)
W10X31	P4, P7	Spare Parts (Screw)
WB-5	P20	Spare Parts (Washer)
WB-6	P20	Spare Parts (Washer)
WB-8	P20	Spare Parts (Washer)
WBET ○○○○(○)(○)M%-F	B97	Insert (Turning)
WBET ○○○○○(○)M%-P	B98	Insert (Turning)
WBG T ○○○○○(○)MFP%-PF	B97	Insert (Turning)
WBG T ○○○○○M%-CF	B97	Insert (Turning)
WBG T ○○○○○MP%-CF	B97	Insert (Turning)
WBG T ○○○○(○)(○)M%-F	B98	Insert (Turning)
WBG T ○○○○(○)(○)%-F	B98	Insert (Turning)
WBGW ○○○○(○)(○)%	B98	Insert (Turning)
WBGW ○○○○(○)(○)S○○○○%-SET	C18	Insert (Turning)
WBGW ○○○○(○)T○○○○%-SE	C18	Insert (Turning)
WBMT ○○○○(○)(○)L	C29	Insert (Turning)
WBMT ○○○○○(○)L-SE	C29	Insert (Turning)
WBMT ○○○○(○)(○)%-DP	B97	Insert (Turning)
WCMX (S)○○○○○(○)-M1(A)	K103	Insert (Drilling) HOLESOT Drill (DR) / Coremaster Coredrill
WCMX ○○(□)○○○-M1(A)	K103, K109	Insert (Drilling) HOLESOT Drill (DR) / Coremaster Coredrill
WCS-1N	P16	Spare Parts (Clamp Set)
WCS-8	P16	Spare Parts (Clamp Set)
WDRCO(○)	K35	Spare Parts (Wrench)
WN-1	P21	Spare Parts (Shim Nut)
WNEU ○○○○○○EN-GL	M21	Insert (Milling)
WNGA ○○○MEF	C13	Insert (Turning)
WNGA ○○○S○○○○○OME	C13	Insert (Turning)
WNGA ○○○S○○○○○OMET	C13	Insert (Turning)
WNGA ○○○T○○○○○OME	C13	Insert (Turning)
WNGA ○○○T○○○○○AA	B112	Insert (Turning)

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
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Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
WNGA ○○○○○○○○	B112	Insert (Turning)
WNGG ○○○AH	B49	Insert (Turning)
WNGG ○○○TK	B48	Insert (Turning)
WNGG ○○○%	B49	Insert (Turning)
WNGG ○○○(○)%-S	B49	Insert (Turning)
WNGT ○○○○○○FN-AM	M21, M111	Insert (Milling) MFWN
WNMA ○○○	B49	Insert (Turning)
WNMG ○○○	B47	Insert (Turning)
WNMG ○○○C	B49	Insert (Turning)
WNMG ○○○CJ	B47	Insert (Turning)
WNMG ○○○CQ	B47	Insert (Turning)
WNMG ○○○GC	B49	Insert (Turning)
WNMG ○○○GP	B46	Insert (Turning)
WNMG ○○○GS	B47	Insert (Turning)
WNMG ○○○GT	B47	Insert (Turning)
WNMG ○○○(○)HQ	B46	Insert (Turning)
WNMG ○○○HS	B47	Insert (Turning)
WNMG ○○○HT	B47	Insert (Turning)
WNMG ○○○KG	B49	Insert (Turning)
WNMG ○○○KH	B49	Insert (Turning)
WNMG ○○○KQ	B49	Insert (Turning)
WNMG ○○○MQ	B48	Insert (Turning)
WNMG ○○○MS	B48	Insert (Turning)
WNMG ○○○MU	B48	Insert (Turning)
WNMG ○○○PG	B47	Insert (Turning)
WNMG ○○○PH	B48	Insert (Turning)
WNMG ○○○(○)PP	B46	Insert (Turning)
WNMG ○○○PQ	B46	Insert (Turning)
WNMG ○○○PS	B47	Insert (Turning)
WNMG ○○○PT	B47	Insert (Turning)
WNMG ○○○SG	B48	Insert (Turning)
WNMG ○○○TK	B48	Insert (Turning)
WNMG ○○○WE	B46	Insert (Turning)
WNMG ○○○WF	B46	Insert (Turning)
WNMG ○○○WP	B46	Insert (Turning)
WNMG ○○○WQ	B46	Insert (Turning)
WNMG ○○○XP	B48	Insert (Turning)
WNMG ○○○XQ	B48	Insert (Turning)
WNMG ○○○XS	B48	Insert (Turning)
WNMG ○○○ZS	B49	Insert (Turning)
WNMM ○○○(○)JM	C23	Insert (Turning)
WNMM ○○○(○)JM-NE	C23	Insert (Turning)
WNMM ○○○(○)JM-SE	C23	Insert (Turning)
WNMU ○○○○○○EN-GH	M21, M111, M116	Insert (Milling) MFWN
WNMU ○○○○○○EN-GM	M21, M111, M116	Insert (Milling) MFWN
WNMU ○○○○○○EN-SM	M21, M111, M116	Insert (Milling) MFWN
WP-1S	P8	Spare Parts (Shim Pin)
WP5X11	P8	Spare Parts (Shim Pin)
WP5X15	P8	Spare Parts (Shim Pin)

Part Number	Page	Description
WPGT ○○○(○)M%-Y	B99	Insert (Turning)
WPGT ○○○(○)(○)%-Y	B99	Insert (Turning)
WPGW ○○○(○)(○)	B99	Insert (Turning)
WPMT ○○○○○○	C29	Insert (Turning)
WPMT ○○○(○)GP	B99	Insert (Turning)
WPMT ○○○(○)(○)HQ	B99	Insert (Turning)
WPMT ○○○○○○NE	C29	Insert (Turning)
WPMT ○○○○○○SE	C29	Insert (Turning)
WS-10	D11, G33, H47	Spare Parts (Washer)
WSP-1	P20	Spare Parts (Spacer)
WTENN ○○○○□-○○N	D18	Toolholder (Turning)
WTJN% ○○-○□	D18	Toolholder (Turning)
WTJN% ○○○○□-○○N	D18	Toolholder (Turning)
WTKN% ○○-○□	D18	Toolholder (Turning)
WTKN% ○○○○□-○○N	D18	Toolholder (Turning)
WTN-33	P14	Spare Parts (Shim)
WTN-33-20	P14	Spare Parts (Shim)
WWLN% ○○○○□-○○	D25	Toolholder (Turning)
WWN-42	P14	Spare Parts (Shim)
WWP-42	P14	Spare Parts (Shim)
WWP-42-16	P14	Spare Parts (Shim)
X		
XNS610	P7	Spare Parts (Mounting Screw)
XPMT ○○○○○○	M29, M156, M247	Insert (Milling) EM / CM
XPMT ○○○○○○	M29, M156-M158, M247	Insert (Milling) EM / FM90 / CM
Y		
Z		
ZCMT ○○○○○○	K66	Insert (Drilling) DRZ MAGIC DRILL
ZCMT ○○○○○○SP	K66	Insert (Drilling) DRZ MAGIC DRILL
ZCMT ○○○○○○SU	K66	Insert (Drilling) DRZ MAGIC DRILL
ZXMT ○○○○○○GH	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○GH-E	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○GM	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○GM-E	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○GM-I	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○SM	K83	Insert (Drilling) DRX MAGIC DRILL
ZXMT ○○○○○○SM-E	K83	Insert (Drilling) DRX MAGIC DRILL

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

INSERT GRADES	A
TURNING INSERTS	B
CEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
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SPARE PARTS	P
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