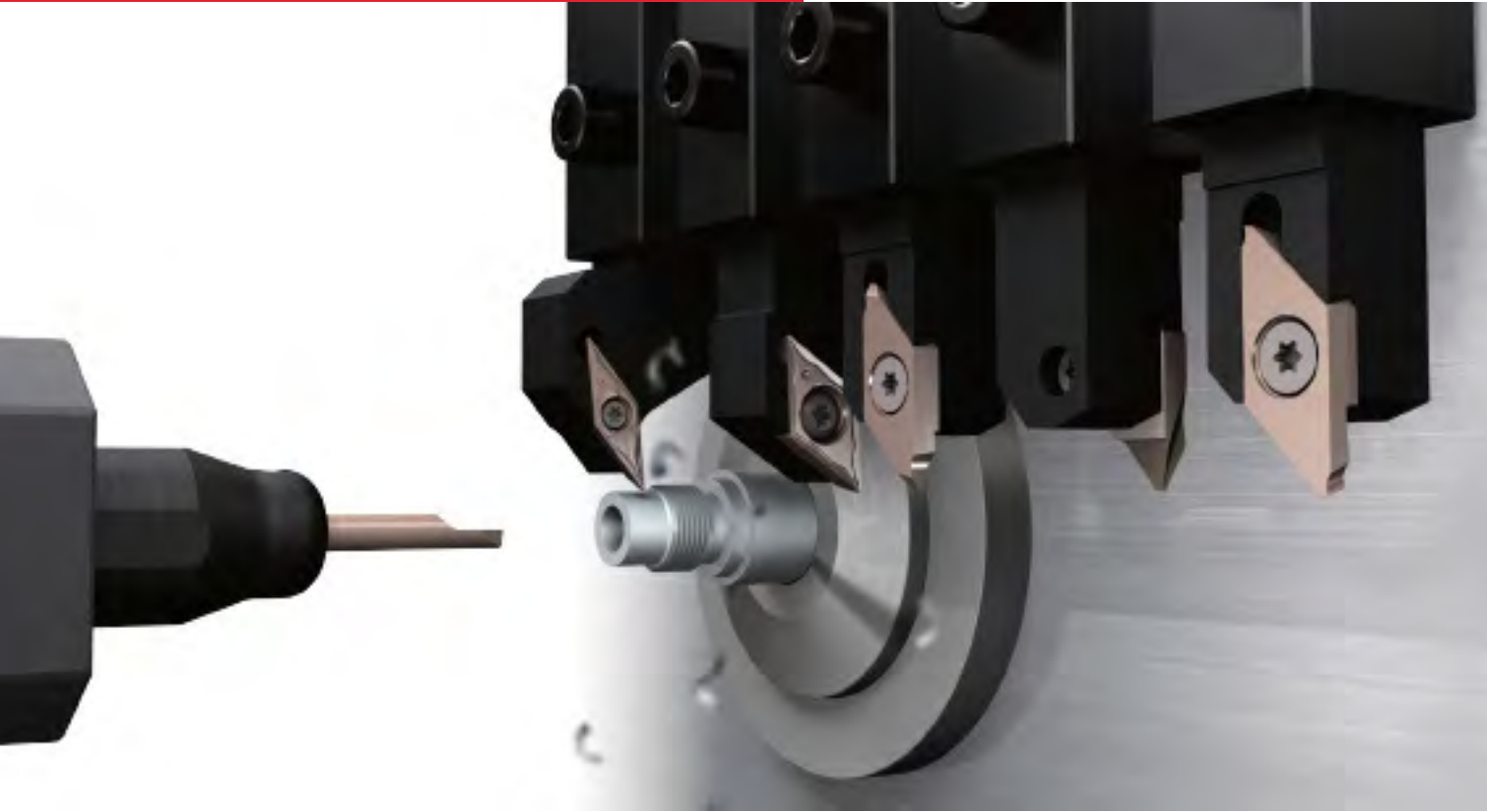


THE NEW VALUE FRONTIER



SMALL TOOLS CATALOG



INSERT GRADES	A
TURNING INSERTS	B
GEN & PCD TOOLS	C
TURNING	E
BORING	F
GROOVING	G
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THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
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WIDE RANGE OF HIGH PRECISION CUTTING TOOLS

FOR SMALL PARTS MACHINING

THE NEW VALUE FRONTIER



*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

C O N T E N T S

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KYOCERA CUTTING TOOLS

GLOBAL FACILITIES NETWORK

NORTH AMERICA

Manufacturing Facilities



North Carolina Facility (USA)



Ohio Facility (USA)



California Facility (USA)

GLOBAL

Manufacturing Facilities



Okaya Facility (JAPAN)



Yokaichi Facility (JAPAN)



Sendai Facility (JAPAN)



Silong Facility (CHINA)



Incheon Facility (KOREA)

KYOCERA CUTTING TOOLS

GLOBAL TECHNICAL CENTERS



North American Technical Center (NC)



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)

KPTI Company Overview

Established in April 2014, KPTI unifies two of the world's leading cutting tool manufacturers, Kyocera Tycom Corporation (KTC) and the Cutting Tool Division of Kyocera Industrial Ceramics Corporation (KICC-CT).

The new company creates a combined enterprise that optimizes the strengths of both organizations and facilitates expansion of Kyocera's overall cutting tool-related business in North America. The new combined entity will unify cutting tool resources to create greater efficiencies while positioning the new organization for continued success.

Customers will benefit from a unified sales and support team offering improved customer service and an expanded portfolio of cutting tool products and solutions for the automotive, aerospace, general machining, medical, power generation, printed circuit board and steel markets.

KPTI North American Operations



Costa Mesa, CA

Wapakoneta, OH

Hendersonville, NC



Administration & Manufacturing

- Administration & Accounting Center
- Micro Tools & Round Tools Manufacturing
- Printed Circuit Board Drill Manufacturing
- Micro Tools & PCB Sales & Customer Service Center

Steel Tool Holder Manufacturing

- Indexable Drills
- Milling End Mills & Face Mills
- Boring Bars
- Turning and Grooving Holders
- API Ring Groovers

KPTI North American HQ

- Indexable Insert Manufacturing
- North American Tech Center
- North American Sales, Marketing & Customer Service Center

KPTI Manufactured Products



Steel Toolholders for Milling, Turning, Grooving, Threading and Drilling Metal



Indexable metal cutting inserts made of carbide, ceramic, cermet, Cubic Boron Nitride, and Polycrystalline diamond



Solid carbide cutting tools for tight tolerance and micro-diameter metal cutting applications

KPTI Markets Served



Automotive



Aerospace



Medical




Printed Circuit Board



Power Generation

How to Order

Kyocera Precision Tools' products are sold exclusively through our North American line of authorized distributors.



Locate a Distributor

Use our *Locate a Distributor* map at:
www.KyoceraPrecisionTools.com/locate

OR

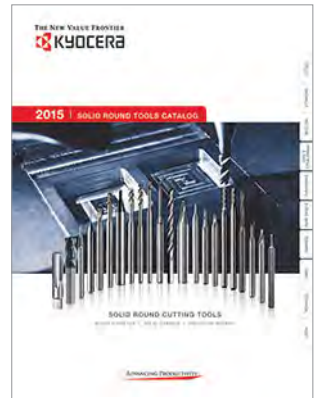
CUSTOMER SERVICE

1.800.823.7284
 (OPTION 1)

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

Using the Kyocera Product Catalogs

All standard Kyocera Precision Tools Products are located in one of these four General Catalogs.



Stock Status Symbols

- Indicates that an item is **Stock Standard** and available at our North American Headquarters in North Carolina. Stock Standard items will ship the same day if ordered by 4:30pm (EST).
- Indicates that an item is a World Express and available at our Worldwide Headquarters in Japan. Please allow 7-10 business days for World Express items to arrive.

*All Stock Standard and World Express items are subject to availability.

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, check pricing, view and download product and promotional literature, watch product training videos, and more.



CUSTOMER SERVICE

1.800.823.7284
 (OPTION 1)

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

TECHNICAL SUPPORT

1.800.823.7284
 (OPTION 2)

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

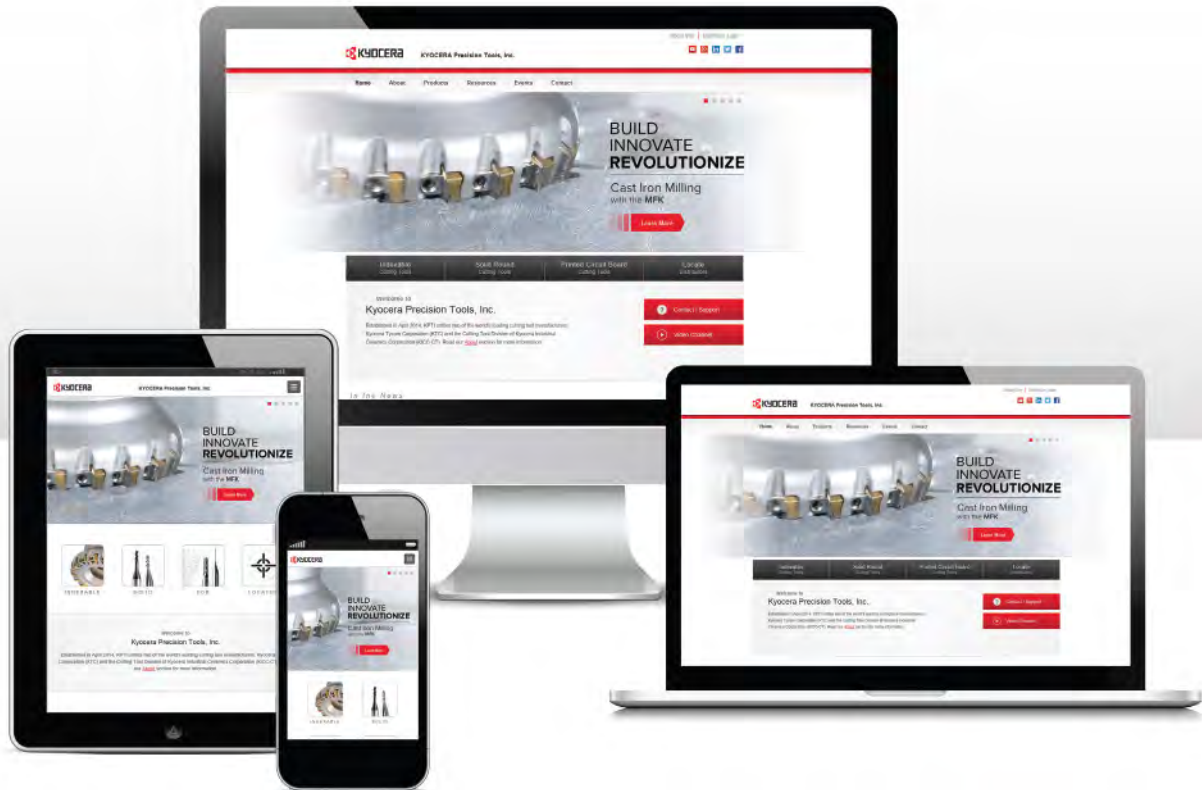


GENERAL INQUIRIES
cuttingtools@kyocera.com

CUSTOMER SERVICE
ctsales@kyocera.com

TECHNICAL CENTER
cttechs@kyocera.com

VISIT US ONLINE
WWW.KYOCERAPRECISIONTOOLS.COM



INTRODUCING
A NEW RESPONSIVE DESIGN **NEW**

- *Easy to navigate, sliding mobile menus*
- *Find the information you need faster than ever*
- *Easier to read articles transformed on mobile devices*
- *Faster load times allow you to browse products without waiting*
- *Easy to see icons allow fast access to hundreds of tooling solutions*
- *Locate distributors in your area on-the-go through an updated distributor map*

INSERT GRADES

A

A1 - A17

SUMMARY OF INSERT GRADES

A1 - A5

TURNING	A2
GROOVING / CUT-OFF / THREADING	A3
DRILLING / MILLING	A4
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INSERT GRADES

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PVD COATED CARBIDE (Turning)	A6
PVD COATED CARBIDE (Milling & Drilling)	A8
CVD COATED CARBIDE	A10
CERMET	A12
PVD COATED CERMET	A12
CARBIDE	A14
CBN	A15
PCD (Polycrystalline Diamond)	A16
GRADE PROPERTIES	A17

TURNING

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Workpiece Material		Steel (Carbon Steel / Alloy Steel)					Stainless Steel & Cast Steel					Cast Iron (Gray Cast Iron / Nodular Cast Iron)			
		Cutting Range Finishing ← → Roughing					Cutting Range Finishing ← → Roughing					Cutting Range Finishing ← → Roughing			
Classification		P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermet	TN Series	TN6010					TN6010					TN60			
		TN620					TN6020								
		TN60					TN60								
MEGACOAT (PV Series)	MEGACOAT NANO (PV Series)	PV7010					PV7010					PV7005			
		PV7025					PV7025								
Coated Carbide	CA Series	CA510					CA6515					CA4505			
		CA515					CA6525					CA4515			
		CA525													
		CA530													
		CA5505													
	PR Series	CA5515													
		CA5525													
		CA5535													
		PR930					PR930								
		PR1005					PR1025								
MEGACOAT (PR Series)	MEGACOAT NANO (PR Series)	PR1025					PR1125								
		PR1115					PR1225								
		PR1225					PR1425								
Carbide	CBN	PR1425					PR1425					KW10			
		PR1535					PR1535					KBN60M			

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Heat Resistant Alloys (Inconel / Titanium)				Hard Materials (Hardened Steel / Chilled Cast Iron)				Powdered Steel			
		Cutting Range Finishing ← → Roughing				Cutting Range Finishing ← → Roughing				Cutting Range Finishing ← → Roughing				Cutting Range Finishing ← → Roughing			
Classification		N01	N10	N20	N30	S01	S10	S20	S30	H01	H10	H20	H30	01	10	20	30
Coated Carbide	CA Series					CA6515											
	PR Series					CA6525								PR930			
	MEGACOAT (PR Series)					PR1125											
	MEGACOAT NANO (PR Series)					PR1305											
Cermet	CBN					PR1310								TN6010			
						PR1325								TN60			
Carbide	MEGACOAT					PR1535											
										KBN510							
										KBN525							
										KBN05M							
										KBN10M							
										KBN25M				KBN65M			
PCD										KBN30M				KBN70M			
										KBN35M							
						SW05											
						SW10											
						SW25											
		KW10				KW10											
		KPD001				KPD001											
		KPD010				KPD010											

GROOVING / CUT-OFF / THREADING

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	TN6020 TN90					TN6020 TN90								
	TC Series	TC40N TC60M					TC60M					TC40N			
Coated Carbide	CR Series	CR9025					CR9025								
	PR Series	PR660					PR660								
		PR915					PR915					PR905			
		PR930					PR930								
		PR1025					PR1025								
		PR1115					PR1115								
	MEGACOAT (PR Series)	PR1215					PR1215					PR1215			
PR1225					PR1225										
MEGACOAT NANO (PR Series)	PR1425					PR1425									
Carbide											KW10 GW15				

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Heat Resistant Alloys (Inconel / 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	PR Series													PR930			
	MEGACOAT (PR Series)								PR1535					PR1215 PR1225			
Carbide		KW10 GW15				KW10 GW15											
CBN										KBN510 KBN525				KBN570			
PCD		KPD001				KPD001											
		KPD010				KPD010											

GRADES A

INSERTS B

CBN & PCD C

TURNING E

BORING F

GROOVING G

CUT-OFF H

THREADING J

SOLID END MILLS L

MILLING M

SPARE PARTS P

TECHNICAL R

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DRILLING

Workpiece Material		Steel (Carbon Steel / Alloy Steel)					Stainless Steel & HRA 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
Cermet	PR Series			PR660					PR660			PR905			
	MEGACOAT (PV Series)		PR1225				PR1225					PR1210			
Carbide															

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Heat Resistant Alloys (Titanium / Titanium Alloys)				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	PR Series					PR905							
	MEGACOAT (PR Series)					PR1210				PR1230			
Carbide		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	TN100M					TN100M								
	CA Series						CA6535								
Carbide	PR Series	PR830					PR830				PR905				
	MEGACOAT (PR Series)	PR1225		PR1230			PR1225				PR1210				
	MEGACOAT NANO (PR Series)	PR1525					PR1525				PR1510				
Carbide															

Workpiece Material		Non-Ferrous (Aluminum / Non-Ferrous Metals / Non-Metals)				Heat Resistant Alloys (Ni-Base)				Heat Resistant Alloys (Titanium / Titanium Alloys)				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											
	PR Series									PR905							
	MEGACOAT (PR Series)									PR1210							
	MEGACOAT NANO (PR Series)					PR1535				PR1535							
Carbide		KW10								KW10							
		GW25								GW25							
PCD		KPD001								KPD001							
		KPD230								KPD230							

Applications	Cutting Range	P	M	K	N	S		H	Powdered Metal
		Steel	Stainless Steel	Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloys	Hard Materials	
Back Turning	Large ↑ Cutting Dia. ↓ Small	TC60M	PR1025		KPD001	PR1025	KPD001		PR1425 PR930
		PR1005	PR1025		KPD001	PR1025	KPD001		
		PR1025	PR1225	KW10	KW10	PR1225	KW10		
		PR1225	PR930						
		PR1425							
External and Internal Turning	Large ↑ Cutting Dia. ↓ Small	TN6010							TN6010 TN60 KBN65M KBN70M PR930
		TN6020	TN620						
		TN60	TN60						
		PV7010	PV720			CA6515			
		PV720	PV7025						
		PV7025	CA6515	KBN60M	KPD001	CA6525	KPD001	KBN05M	
		CA5515	CA6525	CA4505	KPD010	PR1125	KPD010	KBN10M	
		CA5525	PR1025	CA4515	KW10	PR1305	KW10	KBN25M	
		PR1005	PR1225	KW10		PR1310	SW05	KBN30M	
		PR1025	PR1125			PR1325	SW10	KBN35M	
		PR1425	PR930				SW25		
		PR1225							
		PR930							
Cut-Off	Depends on workpiece material	PR1025	PR1025	KW10	KW10	KW10	KW10		
		PR1225	PR1225			PR1025			
Grooving	Glossy Finish ↑ Stable Cutting ↓	TC40N	TC40N						TC40N PR930
		TN90	TN90						
		PR930	PR915	PR905	KPD001	PR915			
		CR9025	CR9025	PR1215	KW10	KW10	KPD001	KBN510	
		PR1115	PR1115	KW10	GW15	PR1115	KW10	KBN525	
		PR1025	PR1025	GW15		PR1225			
Threading	Glossy Finish ↑ Stable Cutting ↓	TC60M	TC60M						PR1425 PR930
		PR930	PR930			KW10			
		PR1115	PR1025	KW10	KW10	GW15	KW10		
		PR1425	PR1115	GW15	GW15	PR1115	GW15		
Drilling	Wear Resistance ↑ Toughness ↓	PR1025	PR1025			PR1025			
		PR1225	PR1225	PR905	KW10	PR1225	KW10		
		PR1230	PR660	PR1210	GW15	PR660	GW15		
		PR660							
Milling	Finishing ↑ Roughing ↓	TN100M	CA6535		KPD230	CA6535	KPD230		
		PR830	PR830	PR1210	KPD001	PR830	KPD001		
		PR1225	PR1225	PR1510	KPD010	PR660	KW10		
		PR1230	PR1525	KW10	KW10	PR1225	PR905		
		PR1525	PR1535		GW25	PR1525	PR1210		

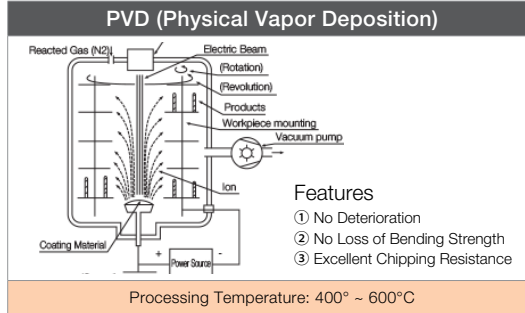
Highlighted items are recommended choice

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PVD COATED CARBIDE FOR TURNING

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.



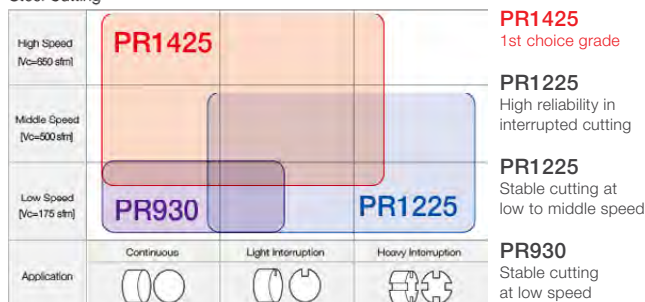
- Features**
- ① No Deterioration
 - ② No Loss of Bending Strength
 - ③ Excellent Chipping Resistance

FEATURES OF PVD COATED CARBIDE FOR TURNING

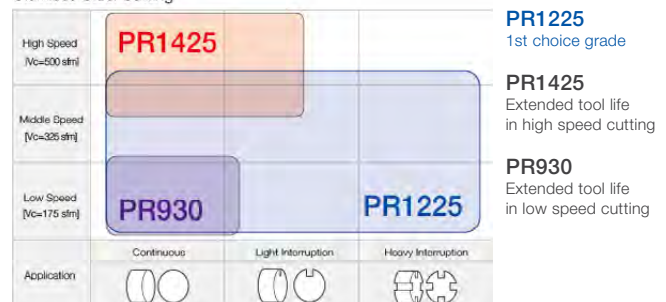
Material	Description	Color	Main Component (Coating Composition)	Advantages
P Steel	PR915 (Super Micro-Grain)	Bluish Violet	TiAlN	· TiAlN base PVD coated super micro-grain carbide, superior wear and oxidation resistance · Application: Stable and reliable high precision cutting of steel
	PR930 (Super Micro-Grain)	Reddish Gray	TiCN	· Hard TiCN base PVD coated super micro-grain carbide · Application: Low cutting speed, precise cutting with sharp edge
	PR1005	Reddish Gray	TiCN	· TiCN base PVD coated hard micro-grain carbide · Application: Turning of free-cutting steel, long tool life achieved through anti-adhesion performance
	PR1025	Reddish Gray	TiCN	· TiCN base PVD coated micro-grain carbide · Application: General purpose cutting of steel and stainless steel, stable and long tool life
	PR1115	Purple Red	TiAlN	· Hard TiAlN base PVD coated super micro-grain carbide · Application: Superior anti-oxidation performance with well balanced wear resistance and toughness
	PR1215	Blackish Red	MEGACOAT	· Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate · Application: Superior adhesion-resistant and long tool life for steel and stainless steel cutting
	PR1425	Blackish Red	MEGACOAT NANO	· Nano thin multi-layer coating performs with superior wear resistance and high oxidation resistance. · Application: various applications of steel cutting, High speed stainless steel cutting, extended tool life
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 cutting 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
K Cast Iron	PR905	Bluish Violet	TiAlN	· Smooth fine surface PVD coated hard carbide with plastic deformation resistance · Application: Suitable for milling of gray and nodular cast iron
S 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 cutting and finishing of heat-resistant alloys
	PR1325	Blackish Red	MEGACOAT	· MEGACOAT on tough carbide · Application: Light interrupted cutting and roughing of heat-resistant alloys
	PR1535	Blackish Red	MEGACOAT NANO	· Stabilized turning operations and long tool life with MEGACOAT NANO coating technology · Application: PVD for titanium alloy and precipitation hardened stainless steel

Application Maps

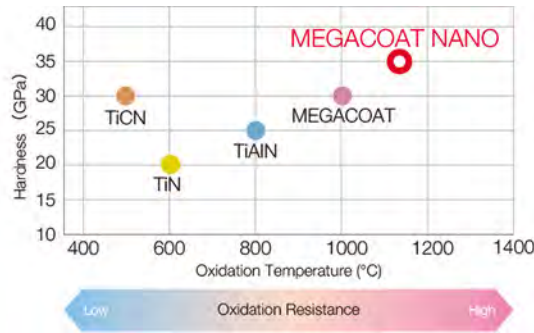
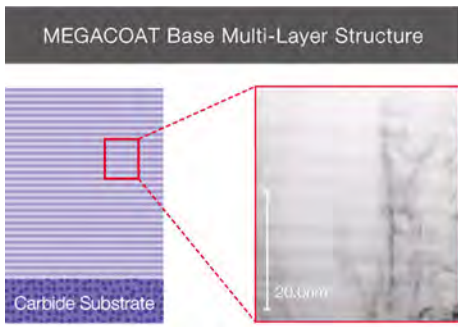
Steel Cutting



Stainless Steel Cutting



MEGACOAT NANO PR1425 (Grade Properties)

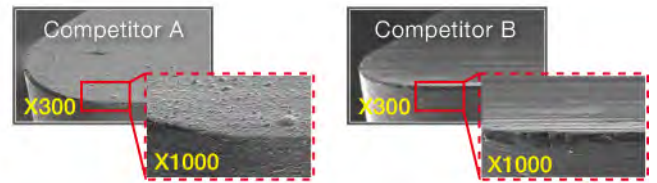


Prevents wear and fracture with high hardness (35GPa) and superior oxidation resistance (oxidation temperature: 1,150°C)

Cutting Edge Quality (Sharp Edge Insert)



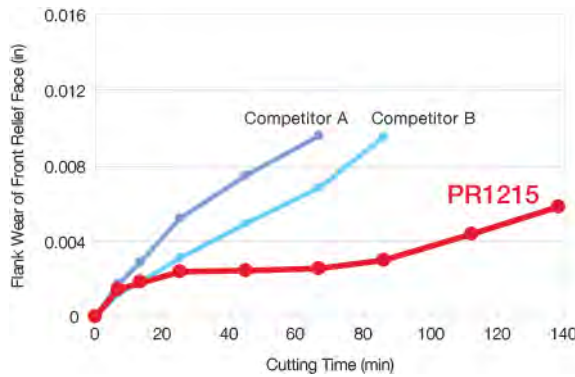
Superior edge-sharpening performance and smooth surface



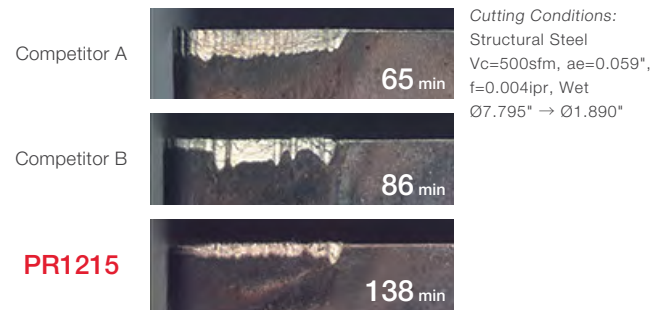
Delamination (coating peeling) and rough surface

MEGACOAT Series (PR1225/PR1425) - high edge sharpening performance and adhesion resistance.

PR1215 Wear Resistance Comparison (Off-Centered Grooving)



Flank Wear of Front Relief Face

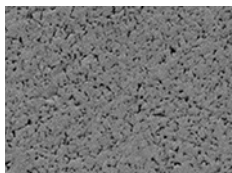


PR13-Series Advantages

Superior wear and fracture resistance attained with uniform grain size and MEGACOAT on superior thermal shock resistant carbide

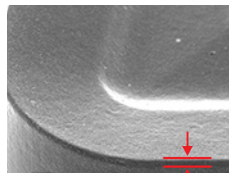
New edge preparation technology (FET: Fine Edge Treatment) controls and minimizes R homing and realizes large tip rake angle, and thus prevents burrs and notching. It provides good finished surface

Special Carbide Substrate



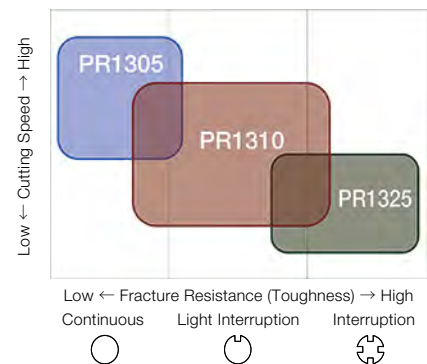
Uniform grain size enables superior thermal shock resistance and constant hardness

New Edge Preparation Technology



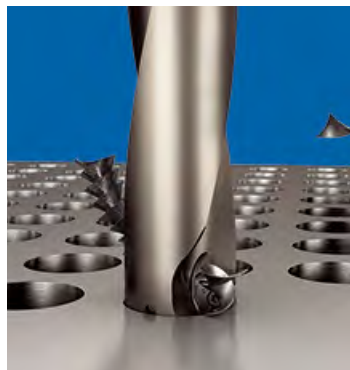
Edge control of FET technology (FET: Fine Edge Treatment)

Heat-Resistant Alloys (Ni-based)



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

PVD & CVD COATED CARBIDE FOR MILLING & DRILLING



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.

FEATURES OF PVD 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> Steel	PR830	Gold	TiAlN+TiN	<ul style="list-style-type: none"> Improved high temperature stability and wear resistance by TiAlN base PVD coating Application: Stable and long tool life for 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 rate milling and drilling of steel
	PR1525	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: Stable and long tool life milling of Steel and Stainless Steel
<div style="background-color: #FFD700; color: black; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">M</div> Stainless Steel	PR1025	Reddish Gray	TiCN	<ul style="list-style-type: none"> TiCN base PVD coated on micro-grain carbide Application: Stable and long tool life milling of stainless steel
	PR1225	Blackish Red	MEGACOAT	<ul style="list-style-type: none"> Superior wear and oxidation-resistant MEGACOAT on micro-grain carbide substrate Application: General and high feed drilling of steel and stainless steel
<div style="background-color: #FF0000; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">K</div> Cast Iron	PR1210	Blackish Red	MEGACOAT	<ul style="list-style-type: none"> Superior wear and oxidation resistant MEGACOAT on special carbide substrate for cast iron Application: Highly efficient stable milling and drilling of gray and nodular cast iron and titanium alloys
	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
	CA420M	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
<div style="background-color: #8B4513; color: white; padding: 5px; text-align: center; width: 30px; margin: 0 auto;">S</div> Heat-Resistant Alloys	PR1535	Blackish Red	MEGACOAT NANO	<ul style="list-style-type: none"> Stabilized milling operation and long tool life with MEGACOAT NANO coating technology Application: PVD for titanium alloy 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 with improved stability due to thin film coating Application: CVD for Ni-base heat resistant alloy and martensitic stainless steel

2 New Grades for Extending Tool Life

when machining heat resistant alloys and difficult-to-cut materials

CA6535 (CVD) **NEW**

for Ni-base heat resistant alloy and martensitic stainless steel

PR1535 (PVD) **NEW**

for titanium alloy and precipitation hardened stainless steel

New grades for difficult-to-cut material

- Stable cutting prevents insert fracturing
- Good for high efficiency machining



CA6535

Ni-base heat resistant alloy and martensitic stainless steel
 1 heat resistance and wear resistance with CVD coating
 roved stability due to thin film coating technology

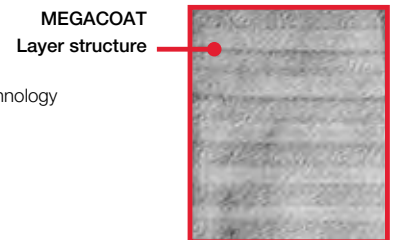
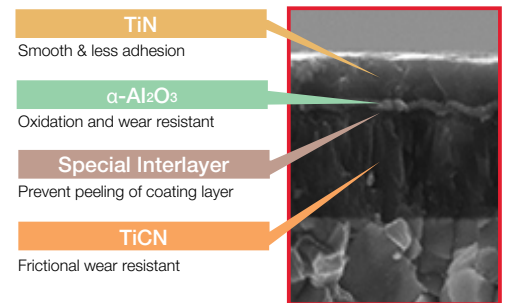


PR1535

titanium alloy and precipitation hardened stainless steel
 ilitized milling operation and long tool life with Kyocera's MEGACOAT NANO coating technology
 roved stability due to thin film coating technology

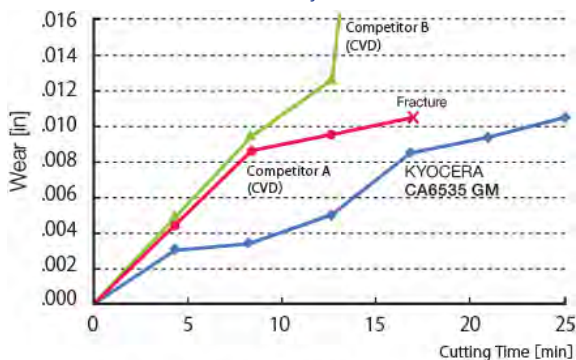


Newly Developed Tougher Substrate



MEGACOAT Layer structure

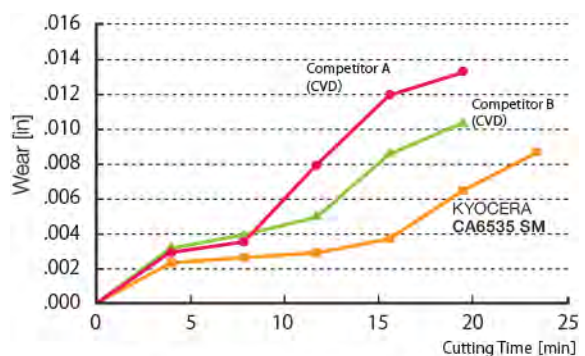
• Ni-base Heat Resistant Alloy



< Cutting Condition > Vc=175sfm, ap=0.039", fz=0.006ipt, WET

1st recommendation GM chipbreaker

• Martensitic Stainless Steel

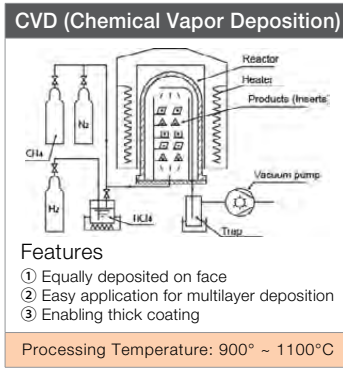


< Cutting Condition > Vc=975sfm, ap=0.079", fz=0.008ipt, WET

1st recommendation SM chipbreaker

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
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CVD COATED CARBIDE



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	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Special substrate with thermal deformation resistance along with a thick and tough film coating for wear resistance · Application: High speed and high efficiency steel machining
	CA515	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Special substrate and tough coating film provides thermal deformation and high wear resistance · Application: Continuous to light interrupted steel machining (general use)
	CA525	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Special substrate and tough coating film provides high wear and fracture resistance · Application: 1st choice for steel machining
	CA530	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Special tough substrate and tough coating film provides high stability and wear resistance · Application: General to heavy interrupted machining (stability oriented)
	CA5505	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved wear resistance due to hard carbide substrate and micro columnar structure of coated composition · Application: High speed continuous cutting of steel, continuous to light interrupted cutting of cast iron
	CA5515	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved wear resistance and longer tool life due to micro columnar structure of coated composition · Application: High speed cutting of steel, continuous to light interruption
	CA5525	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved toughness and wear resistance due to tougher carbide substrate and micro columnar structure of coated composition · Application: First choice for general cutting of steel, roughing to interruption
	CA5535	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved toughness due to tougher carbide substrate · Application: Roughing to heavy interrupted cutting of steel
	CR9025	Gold	Columnar TiCN+TiN	· Improved toughness and stability due to specialized carbide substrate with plastic deformation resistance · Application: Cut-off, grooving and multi-function cutting of steel
M Stainless Steel	CA6515	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Specialized carbide substrate for stainless steel cutting, excellent wear resistance · Application: Continuous to light interrupted cutting of stainless steel
	CA6525	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Specialized carbide substrate for stainless steel cutting, excellent notching resistance and toughness · Application: First choice for general cutting of stainless steel, from finishing to roughing, continuous to interruption
K Cast Iron	CA4010	Gold	Columnar TiCN+Al ₂ O ₃ +TiN	· Excellent high temperature stability due to plastic deformation and oxidation wear resistance · Application: Continuous to light interrupted high speed cutting of cast iron
	CA4115	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved wear resistance due to micro columnar structure of coated composition · Application: Nodular cast iron cutting, continuous to light interruption
	CA4120	Gold	Micro Columnar TiCN+Al ₂ O ₃ +TiN	· Improved toughness and wear resistance due to tougher carbide substrate and micro columnar structure of coated composition · Application: Roughing to heavy interrupted cutting of nodular cast iron
	CA4505	Blackish gray	Micro Columnar TiCN+Al ₂ O ₃	· Stable, long tool life due to improved bounding force of coated layers and special treatment on the surface of top coated layer · Application: For gray cast iron and nodular cast iron at high speed in continuous to light interrupted cutting
	CA4515	Blackish gray	Micro Columnar TiCN+Al ₂ O ₃	· Stable, long tool life due to improved bounding force of coated layers and special treatment on the surface of top coated layer · Application: First choice for gray cast iron and nodular cast iron in light to heavy interrupted cutting

Application Map



Stainless Steel

Classification	High	CA6515		
	Low	CA6525 (First Choice Grade)		PR1125
Application	Continuous	Light Interruption	Interruption	

CA5-Series NEW

CVD COATED CARBIDE GRADE FOR STEEL



New Innovations in Steel Machining

with **CA5** Series Grades &
P Series Chipbreakers

CA510

Special substrate with thermal deformation resistance along with a thick and tough film coating for wear resistance

Application: High speed and high efficiency steel machining

CA525

Special substrate and tough coating film provides high wear and fracture resistance

Application: **1st Choice** for steel machining

High Adhesion Strength Coating Layer with Ultra Fine Interface

Long tool life and stable machining with **40%** improved adhesion strength!

Smooth and Flat Surface Reduces Cutting Forces

Sharp cutting and stable machining with a smooth, flat surface preventing sudden breakage caused by material welding onto the cutting edge

CA515

Special substrate and tough coating film provides thermal deformation and high wear resistance

Application: Continuous to light interrupted steel machining (general use)

CA530

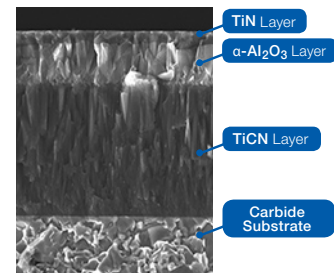
Special tough substrate and tough coating film provides high stability and wear resistance

Application: General to heavy interrupted machining (stability oriented)

Innovative Coating Layers Produce Superior Hardness and Toughness

Special crystal control technology

Long tool life with the high aspect ratio of α -Al₂O₃ layer



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
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CERMET



CERMET

KYOCERA is known as the leading manufacturer 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.

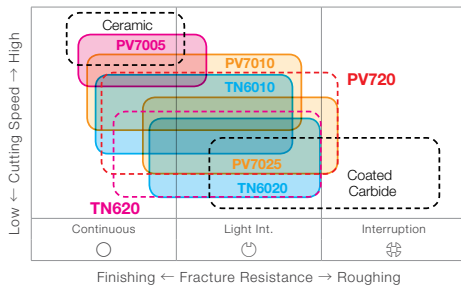
PVD COATED CERMET

PVD Coated Cermet is coated on cermet substrate with a thin layer of high wear resistance and high adhesion resistance by PVD (Physical Vapor Deposition) technology. Generally because of the low processing temperature of PVD compared with CVD, PVD Coated Cermet features less deterioration and more bending strength.

FEATURES OF CERMET & PVD COATED CERMET

Material	Description	Color	Main Component (Coating Composition)	Advantages		
P Steel	Cermet	TN620	Gray	TiCN	<ul style="list-style-type: none"> Inner structure has high toughness and chipping resistance along with thermal shock resistance. Application: Recommended cermet for stable steel machining and high quality surface finish 	
		TN6010 (Super Micro-Grain)	Gray	TiCN	<ul style="list-style-type: none"> Improved surface cermet with superior wear resistance and toughness Application: Economical uncoated cermet for steel 	
		TN60	Gray	TiCN+NbC	<ul style="list-style-type: none"> Typical choice cermet with superior wear resistance and toughness Application: Cutting of steel and stainless steel 	
		TN6020 (Super Micro-Grain)	Gray	TiCN	<ul style="list-style-type: none"> Super micro-grain cermet with superior wear resistance and toughness Application: First choice cermet for steel and stainless steel cutting 	
		TN100M	Gray	TiCN+NbC	<ul style="list-style-type: none"> Tough cermet with improved oxidation resistance and thermal shock resistance Application: Milling of steel at high speed 	
		TC40	Gray	TiC+TiN	<ul style="list-style-type: none"> Good balance of wear resistance and toughness Application: Grooving and threading of steel 	
	K Cast Iron	PVD	PV720	Blackish Red	TiCN (MEGACOAT NANO)	<ul style="list-style-type: none"> MEGACOAT NANO efficient machining with high quality surface finishes and superior wear and adhesion resistance. Application: Recommended cermet for stable steel machining and high quality surface finish
			PV7010 (Super Micro-Grain)	Blackish Red	TiCN (MEGACOAT)	<ul style="list-style-type: none"> Heat-resistant MEGACOAT on improved surface cermet with excellent wear resistance and toughness Application: Stable and improved tool life in steel cutting, excellent surface finish
			PV7025 (Super Micro-Grain)	Blackish Red	TiCN (MEGACOAT)	<ul style="list-style-type: none"> MEGACOAT on the super micro-grain cermet Application: High strength and long life given by MEGACOAT.
			PV7040	Blackish Red	TiC+TiN (MEGACOAT)	<ul style="list-style-type: none"> MEGACOAT on the super micro-grain cermet Application: High strength and long life given by MEGACOAT.
PV7005			Blackish Red	TiC+TiN (MEGACOAT)	<ul style="list-style-type: none"> Heat-resistant MEGACOAT on cermet with excellent wear resistance Application: High speed finishing of gray and nodular cast iron 	

Application Map



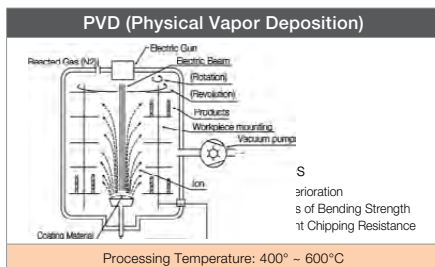
PV-Series (MEGACOAT / MEGACOAT NANO)

PV720: MEGACOAT NANO for Steel
PV7010: MEGACOAT for Steel

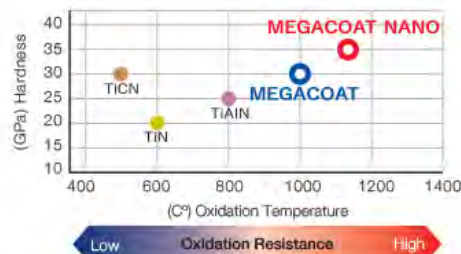
TN-Series (Uncoated Cermet)

TN620: Uncoated Cermet for Steel
TN6010: Uncoated Cermet for Steel

PVD (Coating)



PVD (Properties)

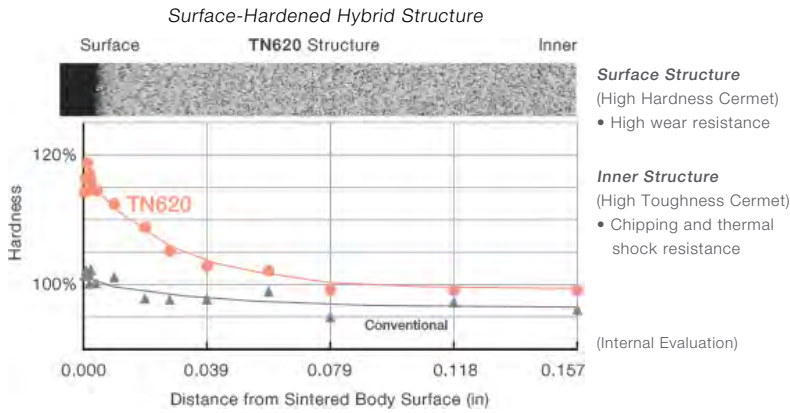


TN620 (CERMET) **NEW**
for steel machining

PV720 (MEGACOAT NANO CERMET) **NEW**
for steel machining



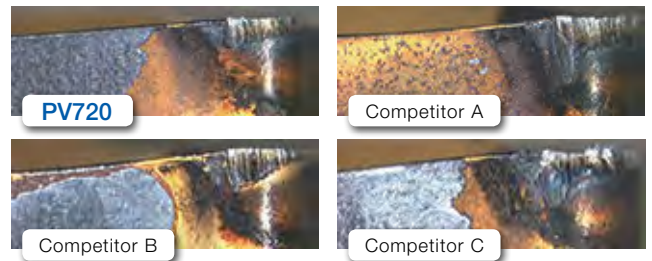
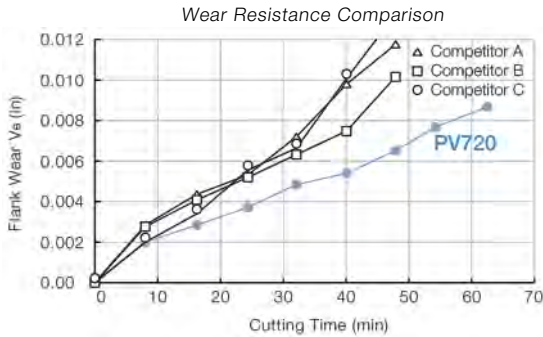
SURFACE HARDENED "HYBRID STRUCTURE"



TN620's inner structure has high toughness and chipping resistance along with thermal shock resistance. TN620 has a higher hardness and greater wear resistance than that of the conventional micro grain cermet.

EASY TO VIEW CUTTING EDGE WEAR

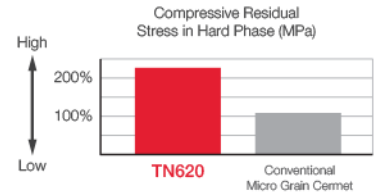
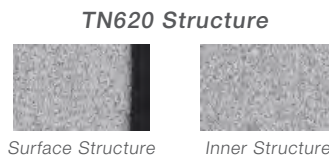
PV720 improves performance by adopting composite lamination of MEGACOAT NANO and special TiN to combine high adhesion resistance and great visibility of the used cutting edge even in dim light.



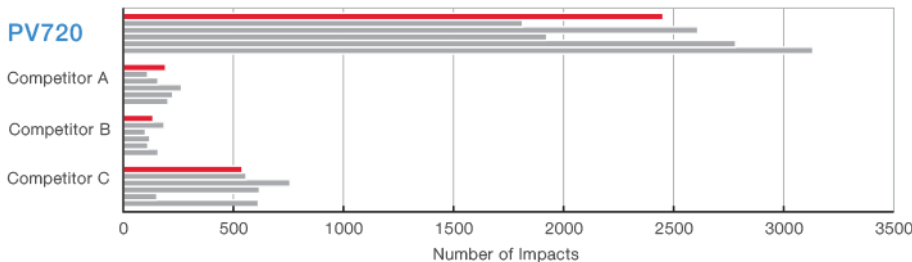
Flank wear condition after machining 48 minutes. (Internal Evaluation)

EASY TO VIEW CUTTING EDGE WEAR

Improved strength with uniform micro grain hard phase and superior compressive stress with high melting point bonded phase. This combination yields greater fracture resistance.

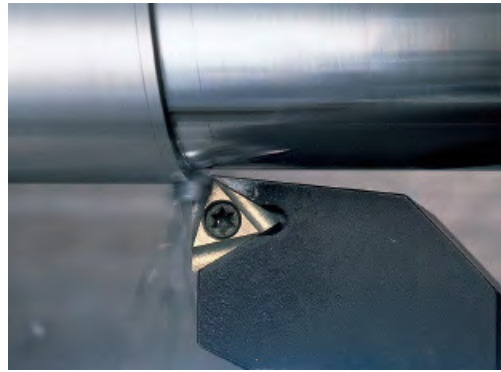


Fracture Resistance Comparison



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
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CARBIDE



CARBIDE

Due to its superior mechanical features carbide is used in a variety of applications. KYOCERA produces a variety of carbides, including KW10 for non-ferrous materials and micro-grain carbides for precision cutting.

FEATURES

- Tough and hard
- Good thermal conductivity
- Suitable for cutting non-ferrous metals and non-metals
- Stable cutting at low cutting speeds, including milling operations

FEATURES OF CARBIDE

Material	Description	Color	Main Component (Coating Composition)	Advantages
P Steel	PW30	Gray	WC+Co+TiC+TaC	<ul style="list-style-type: none"> • ISO identification symbol P carbide (K10 relevant) • Application: Milling of steel, stable wear resistance and toughness
N Non-Ferrous Materials	KW10	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (K10 relevant) • Application: Stable cutting of cast iron, non-ferrous materials, non-metals, and titanium alloys
	GW15	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (equivalent to K10), tough micro-grain carbide • Application: High wear resistance and toughness for non-ferrous materials, and non-metals, and titanium alloys
	GW25	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (K30 relevant) • Application: Stable wear resistance and anti-chipping performance for milling operations of aluminum
S Heat-Resistant Alloys	SW05	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (K05 relevant) • Application: Continuous cutting and finishing of titanium alloys maintaining superior wear resistance
	SW10 (Made to order)	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (K10 relevant) • Application: Continuous and light interrupted cutting of titanium alloys maintaining superior wear resistance and stable result
	SW25 (Made to order)	Gray	WC+Co	<ul style="list-style-type: none"> • ISO identification symbol K carbide (K25 relevant) • Application: Interrupted and light interrupted cutting of titanium alloys maintaining stable result

SW Series Cutting Performance Evaluation

High Wear Resistance

Improved Fracture Resistance

In-house Cutting Test (Ti-6Al-4V)

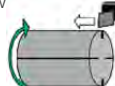
In-house Cutting Test (Ti-6Al-4V)

<Cutting Conditions>

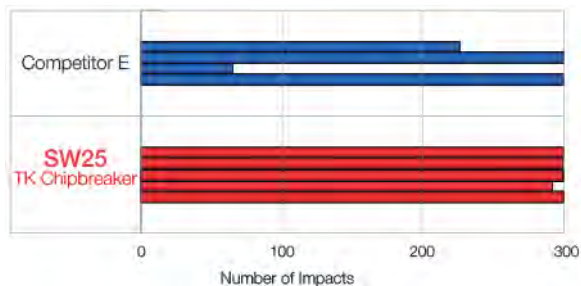
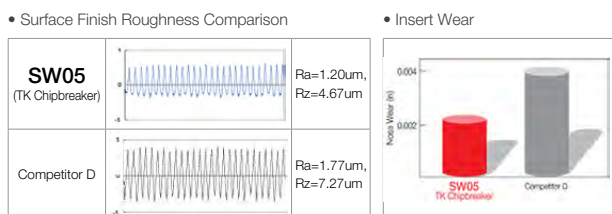
Vc=200sfm, D.O.C.=0.020", f=0.006ipr, wet
 Ti-6Al-4V
 Continuous (External)
 CNMG432

<Cutting Conditions>

Vc=200sfm, D.O.C.=0.020", f=0.012ipr, w
 Ti-6Al-4V(4 grooves)
 Interrupted (External),
 CNMG432



Workpiece Surface Roughness and Insert Wear after cutting for 153 minutes



Internal Evaluation

Internal Evaluation

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.

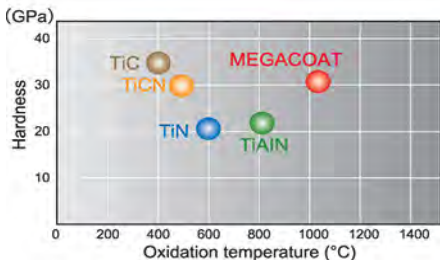
FEATURES

- 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)	CBN Content Rate (%)	Hardness of Substrate (GPa)	Transverse Strength (MPa)	Advantages
H Hardened Materials	KBN510	Black	2	50	28	1,000	· Excellent wear resistance and crack resistance, non-coated CBN · Application: Finishing and continuous cutting of hardened die steel
	KBN525	Black	1 and Under	45	25	1,250	· 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	55	27	1,000	· Heat-resistant MEGACOAT on highly heat-resistant CBN substrate · Application: High speed finishing of hardened steel
	KBN10M (MEGACOAT)	Blackish Red	2	50	28	1,000	· 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	45	25	1,250	· Heat-resistant MEGACOAT on micro-grain CBN with heat resistant binder phase · Application: Stable cutting of hardened steel at high speed
	KBN30M (MEGACOAT)	Blackish Red	1-4	65	30	1,350	· Heat-resistant MEGACOAT on tougher CBN · Application: Stable cutting of hardened steel for continuous to interrupted cutting
Sintered Steel	KBN65B	Black	2	85	32	1,150	· Excellent wear resistance due to CBN with heat-resistant binder phase, non-coated CBN · Application: Stable cutting of sintered steel (ferrous sintered alloy) at low speed
	KBN65M (MEGACOAT)	Blackish Red	2	85	32	1,150	· Heat-resistant MEGACOAT on CBN with heat-resistant binder phase · Application: Stable cutting of sintered steel (ferrous sintered alloy) at low speed
	KBN70M (MEGACOAT)	Blackish Red	2-4	90	34	1,350	· Heat-resistant MEGACOAT on CBN rich substrate · Application: General cutting of sintered steel (ferrous sintered alloy) at high speed
K Cast Iron	KBN60M (MEGACOAT)	Blackish Red	0.5-6	80	33	1,250	· Heat-resistant MEGACOAT on CBN rich substrate with hard binder phase · Application: High speed finishing of gray cast iron
	KBN900 (TiN COAT)	Gold	9	90	31	1,050	· 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

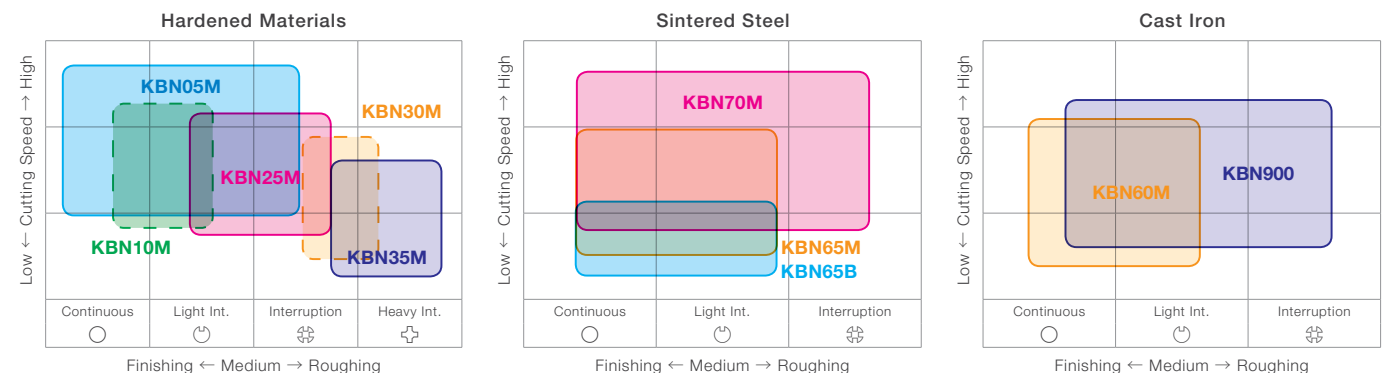


Advantages of MEGACOAT



- 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

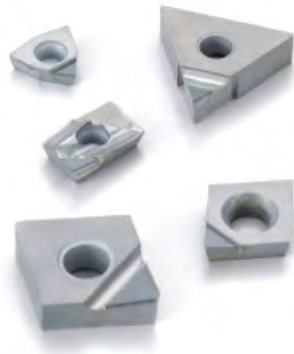
Application Map



GRADES A
 INSERTS B
 CBN & POD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

PCD

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX



PCD

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 when single crystal diamond is used.)

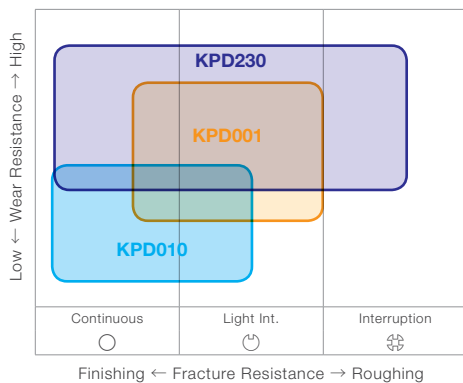
FEATURES OF PCD

Material	Description	Avg. Grain Size (µm)	Advantages
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> N Non-Ferrous Materials </div>	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

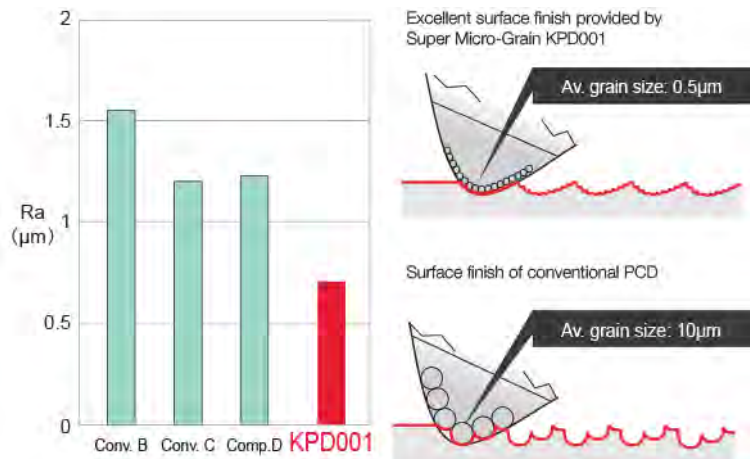
Applications

Workpiece Material		Non-ferrous materials (Aluminum / Non-ferrous metals / Non-metals)				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				KPD230			

Application Map



Surface Finish Roughness Comparison of Aluminum Cutting



(Grain size affects surface finish quality)

GRADE PROPERTIES

Cermets								
Grade Name	Color	Main Component	Coating Layer	Density	Hardness of Substrate		Fracture Toughness (MPa ^{m^{1/2}})	Flexural Toughness (MPa)
					(HV)	(GPa)		
TN620	Gray	TiCN	-	6.9	1,550	15.2	9.0	2,500
TN6010	Gray	TiCN	-	6.5	1,700	16.7	7.0	2,000
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
PVD Coated Cermets								
PV720	Gold	MEGACOAT NANO	Thin coating	6.9	1,550	15.2	9.0	2,500
PV7005	Blackish red	MEGACOAT	Thin coating	6.0	1,650	16.2	8.5	1,470
PV7010	Blackish red	MEGACOAT	Thin coating	6.5	1,700	16.7	7.0	2,000
PV7025	Blackish red	MEGACOAT	Thin coating	6.4	1,500	14.7	10.0	2,500
PV7040	Blackish red	MEGACOAT	Thin coating	6.0	1,650	16.2	9.0	1,570
PV60	Gold	TiN	Thin coating	6.6	1,600	15.7	9.0	1,760
PV90	Gold	TiN	Thin coating	6.4	1,450	14.2	10.0	1,960
CVD Coated Carbide								
CA420M	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick Coating	14.5	1,600	15.8	13.0	3,400
CA4010	Gold	Columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.8	1,670	16.4	10.0	3,000
CA4115	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4120	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4505	Blackish gray	Micro columnar TiCN+Al ₂ O ₃	Thick coating	14.9	1,780	17.4	9.5	2,350
CA4515	Blackish gray	Micro columnar TiCN+Al ₂ O ₃	Thick coating	14.9	1,570	15.4	12.0	2,780
CA510	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.5	1,470	14.4	11.5	2,500
CA515	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.4	1,440	14.1	12.5	2,650
CA525	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.2	1,360	13.3	13.5	2,750
CA530	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	13.9	1,340	13.1	14.5	2,850
CA5505	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,730	17.0	10.0	2,540
CA5515	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA5525	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.5	1,400	13.7	12.0	2,780
CA5535	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.1	1,340	13.1	16.5	2,970
CA6515	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thin coating	14.7	1,530	15.0	12.0	2,780
CA6525	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thin coating	14.7	1,370	13.4	16.0	3,100
CA6535	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thin coating	14.3	1,320	12.9	16.0	3,700
CR9025	Gold	Columnar TiCN+TiN	Thick coating	14.5	1,400	13.7	12.0	2,780
PVD Coated Carbide								
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	12.0	2,250
PR730	Gold	TiAlN+TiN	Thin coating	13.7	1,450	14.2	12.0	2,250
PR830	Gold	TiAlN+TiN	Thin coating	13.7	1,450	14.2	12.0	2,250
PR905	Bluish violet	TiAlN	Thin coating	14.8	1,670	16.4	10.0	3,000
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	1,670	16.4	10.0	3,000
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	12.0	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	1,670	16.4	10.0	3,000
PR1325	Blackish red	MEGACOAT	Thin coating	14.7	1,370	13.4	16.0	3,100
PR1425	Blackish red	MEGACOAT	Thin coating	14.5	1,600	15.8	13.0	3,400
PR1510	Blackish red	MEGACOAT	Thin coating	14.8	1,720	16.8	9.0	2,450
PR1525	Blackish red	MEGACOAT	Thin coating	14.5	1,600	15.8	13.0	3,400
Carbide								
PW30	Gray	WC+Co+TiC+TaC	-	12.5	1,500	14.7	12.0	2,160
KW10	Gray	WC+Co	-	15.0	1,650	16.2	10.0	1,470
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	1,670	16.4	10.0	3,000
SW25	Gray	WC+Co	-	14.7	1,370	13.4	16.0	3,100

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
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G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
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TURNING INSERTS

B

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INSERT IDENTIFICATION SYSTEM

A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
M MILLING
P SPARE PARTS
R TECHNICAL
T INDEX

Symbol	Insert
T	Triangle
C	80° Rhombic
D	55° Rhombic
J	70° Rhombic
V	35° Rhombic
W	80° Trigon

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

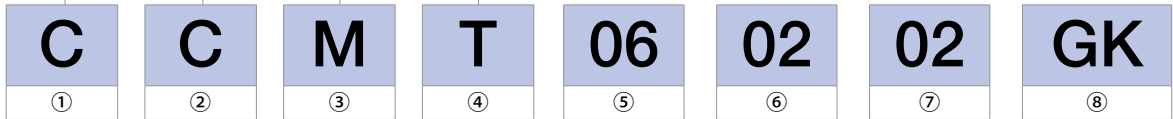
Symbol	Relief Angle
B	5°
C	7°
N	0°
P	11°

Symbol (Class)	Tolerance					
	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G			0.0005	0.130		
K※	0.0005	0.013	0.0010	0.025	0.002-0.006	0.05-0.15
M※	0.003-0.007	0.080-0.180	0.0005	0.130		

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

Symbol	Hole	Hole Shape	Chipbreaker	Insert
A		With Hole	No	
M			One Side	
G			Two Sides	
W	Yes	With Hole and One Countersink 40°-60° One Side	No	
T			One Side	
U		With Hole and One Countersink 70°-90° Two Sides	Two Sides	
B			No	
H			One Side	

ISO (metric)



ANSI (inch)



⑤ Edge Length Symbol (ISO)					I.C. Size (mm)	I.C. Size (ANSI)	
						I.C. Size (inch)	Symbol
03	04	06			3.97	5/32	12
04	05	08	08		4.76	3/16	15
05	06	09		03	5.56	7/32	18
06	07	11	11	04	6.35	1/4	2
08	09	13		05	7.94	5/16	25
09	11	16	16	06	9.525	3/8	3
12	15	22	22	08	12.7	1/2	4

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

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

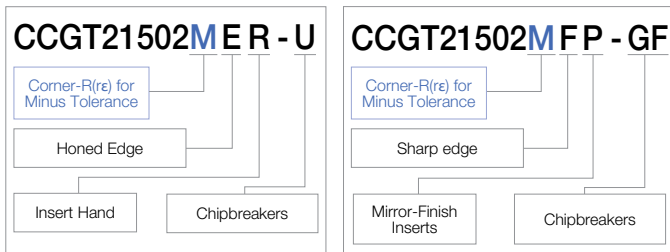
Thickness displayed as the distance between bottom surface and highest point on cutting edge.

⑦ Corner-R(re) Symbol			
ISO		ANSI	
Corner-R(re) (mm)	Symbol	Corner-R(re) (inch)	Symbol
Sharp Corner	00	0.000	00
0.03	003	0.001	0.1
0.05	005	0.002	0.13
0.1	01	0.004	0.2
0.2	02	0.008	0.5
0.4	04	1/64	1
0.8	08	1/32	2
1.2	12	3/64	3

⑧ Manufacturer's Option

Hand Symbol, Chipbreaker, Symbol, Etc

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.

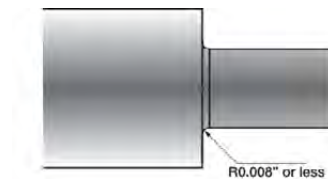
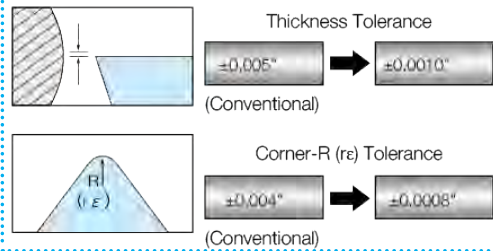


Fig.1 Example of a specified corner-R in the drawing

Features of Insert

with tolerance symbol "E" Class

- Same edge position and height after changing inserts



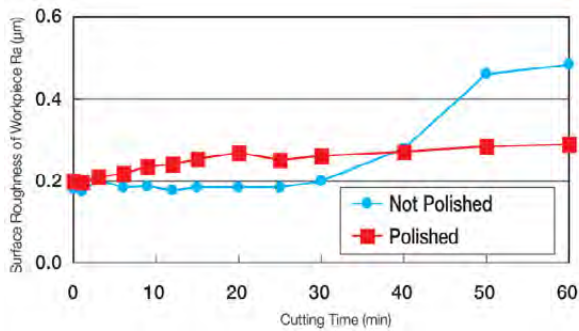
Polish (Insert Rake Face) Effects

1) Improved Smoothness

- Better adhesion resistance due to smooth chip flow.
- Polished inserts achieve high performance especially in stainless steel and aluminum cutting.

2) Polished inserts improve surface smoothness

Surface Finish Comparison of Workpiece



Cutting Condition
 Workpiece Material: 304 Steel (Ø6 Bar material)
 $V_c=175\text{sfm}$, $D.O.C.=0.012$, $f=0.0012\text{ipr}$, Wet

- DCGT32505MF-GF (Non-Polished)
- DCGT32505MFP-GF (Polished)

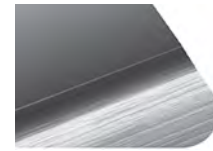
3) Chip Shape Comparison of Polished Vs. Non-Polished

	Non-Polished	Polished
Surface Roughness of Rake Face	$0.269\mu\text{mRa}$	$0.015\mu\text{mRa}$
Chip Control	Unstable Chip Control Chips jam on the uneven insert edge surface. Chips are not curled well and might become entangled.	Smooth insert edge face, stable chip control Smaller chips are curled well
Chip Images		

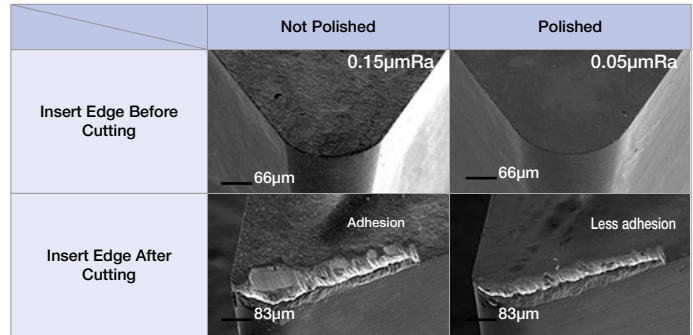
Advantages of "Super Fine"

High Quality Ground + "E" Class High Precision (Insert descriptions ending with "SF")

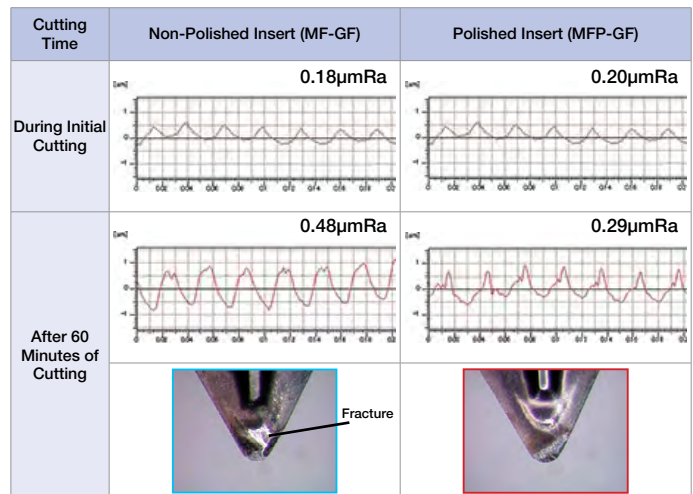
- Reduced micro chipping during edge grinding
- Less adhesion
- Long tool life



Surface Finish of Workpiece



Surface Finish of Workpiece



GRADES A
 INSERTS B
 CBN & POD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

CHIPBREAKER SELECTION (POSITIVE INSERTS)

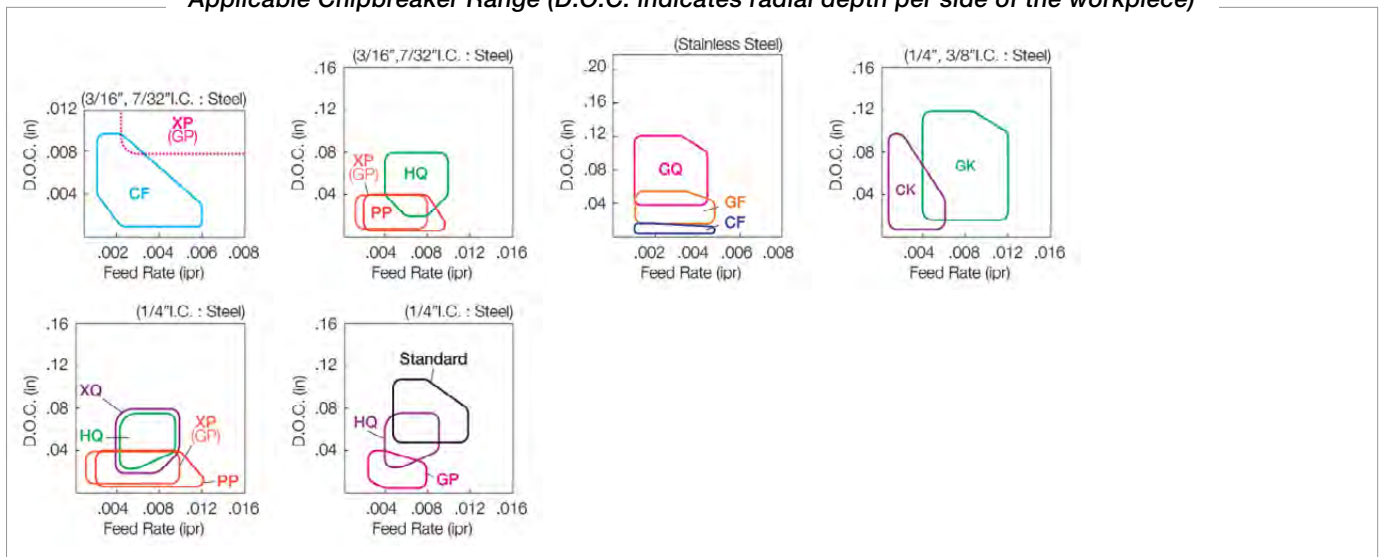
Steel

1 Molded Chipbreaker

Grade	Insert	Application	Chipbreaker Type	Angle	Description												
A	B	C	E	F	G	H	J	L	M	P	R	T	Minute D.O.C.	CF		20°	Available for minute D.O.C. (0.02 to 0.2mm) finishing.
													Finishing	GF		7.5°	Dot located close to ridge line of cutting edge on corner. Chips fragmented in small pieces in cutting of small D.O.C..
													Finishing-Medium	GQ		5°	Enables cutting over a wide range of conditions by using the optimum chipbreaker width according to the cutting depth.
													Finishing	CK		13° / 20°	Good cutting performance. Applicable without hand for two direction cutting on automatic lathe.
													Medium	Standard (without Symbol)		6° / 0.2	Strong edge chipbreaker for medium cutting range.
													Finishing	PP		10°	3-step Smart Dot structure is applicable to a wide range of feed rates in steel finishing. Smooth taper cutting edge reduces cutting forces.

Finishing	GP		20°	Good chip control at finishing. Applicable to sticky material like low carbon steel, pipe material.	
	Finishing-Medium	GK		17° / 0.1	Good chip evacuation at wide range by breaker dot and wide chip pocket.
		HQ		5° / 15° / 0.2	General purpose chipbreaker for medium cutting.
	Finishing	XP		20°	Wide chip control range and sharp cutting performance. Suitable for low carbon steel and sticky material.
		Finishing-Medium	XQ		20° / 0.05

Applicable Chipbreaker Range (D.O.C. indicates radial depth per side of the workpiece)



CHIPBREAKER SELECTION (POSITIVE INSERTS)

Steel

1 Ground Chipbreaker - Positive

Low Feed	J			Slant chipbreaker width and chip control at various D.O.C..
Low Feed	U			Good chip control at low feed rate and varied D.O.C. with low cutting force. Suitable for automatic lathes.
Finishing	F			Good chip control at finishing to light cutting with low cutting force.

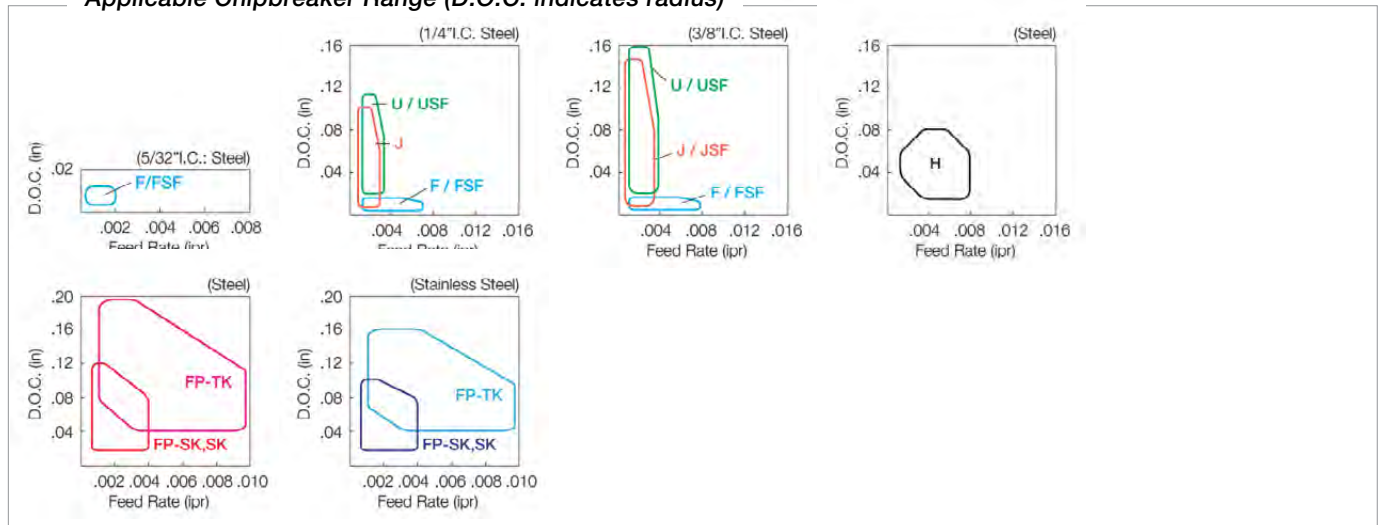
Finishing	Land (Without Indication)			Good chip control at finishing to light cutting with low cutting force.
Finishing-Medium	Y			Sharp cutting performance and good surface finish.
Finishing-Medium	H			Sharp cutting performance and small curled chips.

Steel / Stainless Steel (for Negative Small Parts Machining)

Finishing-Medium	SK			For finishing to medium machining with automatic lathes. Sharp Edge / Polished: Sharp Cutting. Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips. FP-SK: Mirror Finish -SK: Honing
------------------	----	--	--	--

Medium-Roughing	FP-TK			For medium to high feed with automatic lathes (when cutting medium to large diameter workpieces). Sharp Edge / Polished: Sharp Cutting. Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.
-----------------	-------	--	--	--

Applicable Chipbreaker Range (D.O.C. indicates radius)



How to Select Chipbreakers

Advantages	Application	Chipbreaker name
Chip control ("G" class / sharp edge)	Minute Depths of Cut	CF
	Small Depths of Cut	GF
	Medium to high feed	GQ
High precision (Ground Chipbreaker)	Small diameter parts with less rigidity	U (USF)
	Improved chip control in various Depths of Cut	J (JSF)
	Finishing	F (FSF), Lead (Without Symbol)
Sub Chipbreaker	Lower cutting resistance, improved adhesion resistance	CK

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CHIPBREAKER SELECTION (POSITIVE INSERTS)

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
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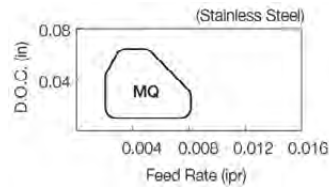
Stainless Steel

Finishing

MQ

Good chip evacuation at internal turning. Small curled chips. Prevents chip entanglement with toolholder and stabilizes surface roughness.

Applicable Chipbreaker Range (D.O.C. indicates radius)



Aluminum & Non-ferrous Metals

Finishing-Medium

AH

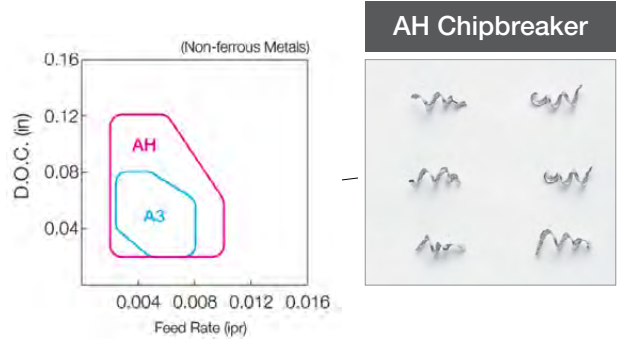
Positive chip groove and good chip control with low cutting forces. Polished surface reduces adhesion.

Finishing-Medium

A3

Large rake angle, smooth chip flow and less adhesion. Sharp edge and good surface finish.

Applicable Chipbreaker Range (D.O.C. indicates radius)



Insert Color

Cermet, MEGACOAT Cermet, and PVD Coated Cermet

Grades	Cermet	MEGACOAT NANO Cermet	MEGACOAT Cermet	PVD Cermet
	NEW TN620 TN6010 TN6020 TN60 TN100M TC40N TC60M	NEW PV720	PV7005 PV7010 PV7025 PV7040	PV7020 PV90
Insert Color				

MEGACOAT (PVD Coated Carbide)

Grades	MEGACOAT						
	PR1210	PR1215	PR1225	PR1230	PR1305	PR1310	PR1325
Insert Color							

CVD Coated Carbide and PVD Coated Carbide

Grades	CVD Coated Carbide	PVD Coated Carbide
	NEW CA510 CA515 CA525 CA530 CA55 Series CA65 Series	PR930 PR1005 PR1025 PR1115 PR1125
Insert Color		

MEGACOAT NANO (PVD Coated Carbide)

Grades	MEGACOAT NANO		
	PR1425	PR1510	PR1525
Insert Color			

CBN and PCD

Grades	CBN	PCD	MEGACOAT CBN
	KBN65B KBN510 KBN525 NEW KBN570	KPD001 KPD010 KPD230	KBN..M
Insert Color			

Carbide

Grades	Carbide			
	GW15	GW25	KW10	SW05
Insert Color				

How to Read "Turning Inserts" Pages

- Refer below on how to read the "Indexable Turning Inserts" tables
- Section C contains similar content.

Classification of usage

- ✳ Interruption / 1st Choice
 - ✳✳ Interruption / 2nd Choice
 - Light Interruption / 1st Choice
 - Light Interruption / 2nd Choice
 - Continuous / 1st Choice
 - Continuous / 2nd Choice
- (In case hardness is under 45HRC)

Recommended grades for each applications are shown here.

Inserts' ISO Classification of Usage
(Workpiece materials are written on the right side)

Insert Dimensions

Insert Grades
(Red Fonts Are New Grades)

TURNING INSERTS (POSITIVE)

80° Diamond Positive Insert with Hole

Cermet / Coated Carbide / Carbide

How to read this page → B7

Part Number	A	T	Dd	a	Part Number	A	T	Dd	a
CC_1109	0.138	0.055	0.075		CC_215	1/4	3/32	0.110	
CC_1411	0.169	0.071	0.091		CC_325	3/8	5/32	0.173	
					CG_43	1/2	3/16	0.217	

Usage Classification	Part Number	ISO Part Number	Corner Radius (In)	Material	Application	Chipbreaker Range
✳	CCGT 110902M-CF	030101M-CF	<-0.004	Cermet	Micro Finishing Sharp Edge	
✳✳	110905M-CF	030102M-CF	<-0.008	MEGA COAT Cermet	Micro Finishing Sharp Edge / Polished	
●	CCGT 141102M-CF	040101M-CF	<-0.004	PVD Coated Carbide	Finishing Sharp Edge	
○	141105M-CF	040102M-CF	<-0.008	MEGA COAT / MEGA COAT NANO	Finishing Sharp Edge / Polished	
●	CCGT 110902MP-CF	030101MP-CF	<-0.004	PVD Coated Carbide	Finishing Sharp Edge / Polished	
○	110905MP-CF	030102MP-CF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
●	CCGT 141102MP-CF	040101MP-CF	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	141105MP-CF	040102MP-CF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
●	CCGT 21502MF-GF	060201MF-GF	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	21505MF-GF	060202MF-GF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
●	CCGT 32502MF-GF	09T301MF-GF	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	32505MF-GF	09T302MF-GF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
●	CCGT 3251MF-GF	09T304MF-GF	<-1/64	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 21502MFP-GF	060201MFP-GF	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	21505MFP-GF	060202MFP-GF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	2151MFP-GF	060204MFP-GF	<-1/64	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 32502MFP-GF	09T301MFP-GF	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	32505MFP-GF	09T302MFP-GF	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	3251MFP-GF	09T304MFP-GF	<-1/64	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 21502MFP-SK	060201MFP-SK	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	21505MFP-SK	060202MFP-SK	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	2151MFP-SK	060204MFP-SK	<-1/64	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 32502MFP-SK	09T301MFP-SK	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	32505MFP-SK	09T302MFP-SK	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	3251MFP-SK	09T304MFP-SK	<-1/64	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 21502MP-CK	060201MP-CK	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	21505MP-CK	060202MP-CK	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 32502MP-CK	09T301MP-CK	<-0.004	Carbide	Finishing Sharp Edge / Polished	
○	32505MP-CK	09T302MP-CK	<-0.008	Carbide	Finishing Sharp Edge / Polished	
○	CCGT 21502MF-GQ	060201MF-GQ	<-0.004	Carbide	Finishing-Medium Sharp Edge	
○	21505MF-GQ	060202MF-GQ	<-0.008	Carbide	Finishing-Medium Sharp Edge	
○	2151MF-GQ	060204MF-GQ	<-1/64	Carbide	Finishing-Medium Sharp Edge	
○	CCGT 32502MF-GQ	09T301MF-GQ	<-0.004	Carbide	Finishing-Medium Sharp Edge	
○	32505MF-GQ	09T302MF-GQ	<-0.008	Carbide	Finishing-Medium Sharp Edge	
○	3251MF-GQ	09T304MF-GQ	<-1/64	Carbide	Finishing-Medium Sharp Edge	

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

Chipbreaker Range

Chipbreaker Range

Chipbreaker Range

Chipbreaker Range

Insert Corner-R(r)

Insert Shape

Insert Description

Application

Insert Appearance Image
Ref. Page B6 for Insert Color.

Applicable Chipbreaker
Range No.

Purchase Unit Amounts

Available Stock Status

Applicable Toolholder
and Cross Reference Page

Applicable Chipbreaker Map No.

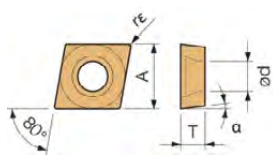
GRADES A
 INSERTS B
 CBN & PCD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

How to read this page → B7

80° Diamond

Positive Insert with Hole

Part Number	A	T	Ød (in)	α
CC_215_	1/4	3/32	0.110	7°
CC_325_	3/8	5/32	0.173	
CC_43_	1/2	3/16	0.217	



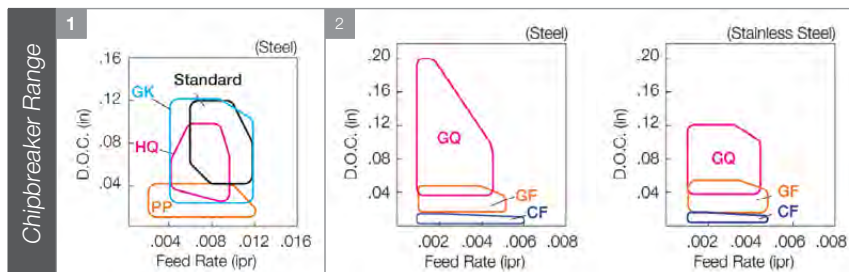
Usage Classification

- ✳ Interruption / 1st Choice
- ✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

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

	ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Material																	Toolholder Page	Chipbreaker Range					
				Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide							MEGACOAT / MEGACOAT NANO		PVD Coated Carbide	Carbide										
Finishing-Medium Sharp Edge / Polished 	CCGT 21502MFP-GQ	060201MFP-GQ	<.004																							Reference Table Below	2
		060202MFP-GQ	<.008																								
	060204MFP-GQ	<1/64																									
	CCGT 32502MFP-GQ	09T301MFP-GQ	<.004																								
	09T302MFP-GQ	<.008																									
Finishing 	CCMT 21505PP	060202PP	0.008	●	○	○	●	○	○	○	○	○	○	○			○	○								Reference Table Below	
	2151PP	060204PP	1/64	●	○	○	●	○	○	○	○	○	○	○			○	○									
	CCMT 32505PP	09T302PP	0.008	●	○	○	●	○	○	○	○	○	○	○			○	○									
	3251PP	09T304PP	1/64	●	○	○	●	○	○	○	○	○	○	○			○	○									
	3252PP	09T308PP	1/32	●	○	○	●	○	○	○	○	○	○	○			○	○									
Finishing-Medium 	CCMT 21505GK	060202GK	0.008	●	○	○	●	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○	Reference Table Below	
	2151GK	060204GK	1/64	●	○	○	●	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○		
	CCMT 32505GK	09T302GK	0.008	●	○	○	●	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○		
	3251GK	09T304GK	1/64	●	○	○	●	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○		
	CCMT 431GK	120404GK	1/64	●	○	○	●	○	○	○	○	○	○	○			○	○	○	○	○	○	○	○	○		
Finishing-Medium 	CCMT 21505HQ	060202HQ	0.008	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reference Table Below	1
	2151HQ	060204HQ	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	CCMT 32505HQ	09T302HQ	0.008	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	3251HQ	09T304HQ	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	3252HQ	09T308HQ	1/32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Medium Honed Edge Standard Chipbreaker 	CCGT 21502	060201	0.004	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Reference Table Below	
		060202	0.008	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
		060204	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	CCGT 32502	09T301	0.004	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	32505	09T302	0.008	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	3251	09T304	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	CCMT 3252	09T308	1/32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	CCGT 215013M	0602005M	<.002																								
	21502M	060201M	<.004																								
	21505M	060202M	<.008																								
	2151M	060204M	<1/64																								
CCGT 325013M	09T3005M	<.002																									
32502M	09T301M	<.004																									
32505M	09T302M	<.008																									
3251M	09T304M	<1/64																									

• Insert whose corner R(ε) dimension expressed with less than sign (e.g. <.002, <.004, <.008 etc.) indicate models with minus tolerance for corner R (ε).

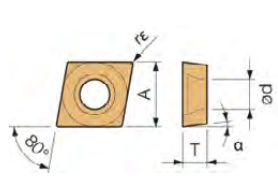


Part Number	Applicable Toolholder Page
CC..215	E22- E23, E34, F39
CC..325	E22- E23, E34, F39

● : U.S. Stock Ⓡ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only)
 ○ : World Express (Shipping: 7-10 Business Days) Ⓢ : World Express (R-hand Only) Ⓧ : World Express (L-hand Only)

Inserts sold in 10 piece boxes.

80° Diamond Positive Insert with Hole



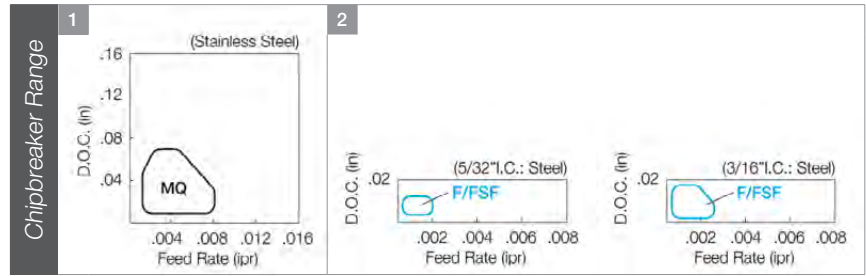
Usage Classification

- ✳ Interruption / 1st Choice
- ✳✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	(in)				α	Part Number	(in)				α
	A	T	Ød	α			A	T	Ød	α	
CC_1109_	0.138	0.055	0.075	7°		CC_215_	1/4	3/32	0.110		
CC_1411_	0.169	0.071	0.091			CC_325_	3/8	5/32	0.173	7°	
						CC_43_	1/2	3/16	0.217		

Corner Radius (in)	Cermet	MEGA COAT Cermet			PVD Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO			PVD Coated Carbide		Carbide	Toolholder Page	Chipbreaker Range									
		TN620	TN6010	TN6020		TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515				CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325
ANSI Part Number	ISO Part Number																											
Medium Sharp Edge Standard Chipbreaker	CCGT 215013MF	0602005MF	<0.002																		Reference Table Below	B9 1						
	21502MF	060201MF	<0.004																									
	21505MF	060202MF	<0.008																									
	2151MF	060204MF	<1/64																									
	CCGT 325013MF	09T3005MF	<0.002																									
	32502MF	09T301MF	<0.004																									
Finishing-Medium Stainless Steel / Heat Resistant Alloy	CCMT 3251MQ	09T304MQ	1/64																		1							
	3252MQ	09T308MQ	1/32																									
	CCET 110901%-FSF	0301003%-FSF	0.001																		Reference Table Below	F18 F39 2						
	110902%-FSF	030101%-FSF	0.004																									
	110905%-FSF	030102%-FSF	0.008																									
	11091%-FSF	030104%-FSF	1/64																									
	CCET 141101%-FSF	0401003%-FSF	0.001																									
	141102%-FSF	040101%-FSF	0.004																									
	141105%-FSF	040102%-FSF	0.008																									
	14111%-FSF	040104%-FSF	1/64																									
	CCET 1109013M%-FSF	0301005M%-FSF	<0.002																									
	110902M%-FSF	030101M%-FSF	<0.004																									
	110905M%-FSF	030102M%-FSF	<0.008																									
	11091M%-FSF	030104M%-FSF	<1/64																									
	CCET 1411013M%-FSF	0401005M%-FSF	<0.002																									
	141102M%-FSF	040101M%-FSF	<0.004																									
	141105M%-FSF	040102M%-FSF	<0.008																									
	14111M%-FSF	040104M%-FSF	<1/64																									
Finishing Sharp Edge	CCET 1109013M%-F	0301005M%-F	<0.002																									
	110902M%-F	030101M%-F	<0.004																									
	110905M%-F	030102M%-F	<0.008																									
	11091M%-F	030104%-F	<0.016																									
	CCET 141102M%-F	040101M%-F	<0.004																									
	141105M%-F	040102M%-F	<0.008																									
	14111M%-F	040104M%-F	<0.016																									

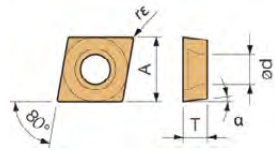
• Insert whose corner R(re) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (re).



Part Number	Applicable Toolholder Page
CC..215	E22- E23, E34, F39
CC..325	E22- E23, E34, F39

How to read this page B7

80° Diamond Positive Insert with Hole



Usage Classification

- ✱ Interruption / 1st Choice
- ✱ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
CC_1109_	0.138	0.055	0.075	7°	CC_215_	1/4	3/32	0.110	
CC_1411_	0.169	0.071	0.091		CC_325_	3/8	5/32	0.173	7°
					CC_43_	1/2	3/16	0.217	

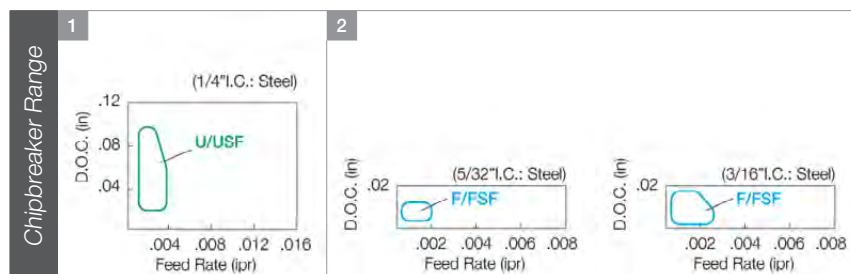
P	M	K	N	S	H	Free-Cutting Steel
●	●	●	●	●	●	Carbon/Alloy Steel
○	○	○	○	○	○	Stainless Steel
○	○	○	○	○	○	Gray Cast Iron
○	○	○	○	○	○	Nodular Cast Iron
○	○	○	○	○	○	Non-ferrous Metals
○	○	○	○	○	○	Heat-Resistant Alloys
○	○	○	○	○	○	Titanium Alloy
○	○	○	○	○	○	Hard materials



ANSI Part Number ISO Part Number

ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide	MEGACOAT / MEGACOAT NANO	PVD Coated Carbide	Carbide	Toolholder Page	Chipbreaker Range
CCGT 110901%-F	0301003%-F	0.001	○	○	○						
CCGT 110902%-F	030101%-F	0.004	○	○	○						
CCGT 110905%-F	030102%-F	0.008	○	○	○						
CCGT 11091%-F	030104%-F	1/64	○	○	○						
CCGT 141101%-F	0401003%-F	0.001	○	○	○						
CCGT 141102%-F	040101%-F	0.004	○	○	○						
CCGT 141105%-F	040102%-F	0.008	○	○	○						
CCGT 14111%-F	040104%-F	1/64	○	○	○						
CCGT 1109013M%-F	0301005M%-F	<0.002				●					
CCGT 110902M%-F	030101M%-F	<0.004				●					
CCGT 110905M%-F	030102M%-F	<0.008				●					
CCGT 11091M%-F	030104M%-F	<1/64				●					
CCGT 1411013M%-F	0401005M%-F	<0.002				●					
CCGT 141102M%-F	040101M%-F	<0.004				●					
CCGT 141105M%-F	040102M%-F	<0.008				●					
CCGT 14111M%-F	040104M%-F	<1/64				●					
CCET 21501F%-USF	0602003F%-USF	0.001		Ⓡ							
CCET 21502F%-USF	060201F%-USF	0.004	○	○							
CCET 21505F%-USF	060202F%-USF	0.008	○	○							
CCET 32501F%-USF	09T3003F%-USF	0.001		Ⓡ							
CCET 32502F%-USF	09T301F%-USF	0.004	○	○							
CCET 32505F%-USF	09T302F%-USF	0.008	○	○							
CCET 215013MF%-USF	0602005MF%-USF	<0.002				●					
CCET 21502MF%-USF	060201MF%-USF	<0.004				●					
CCET 21505MF%-USF	060202MF%-USF	<0.008				●					
CCET 325013MF%-USF	09T3005MF%-USF	<0.002				●					
CCET 32502MF%-USF	09T301MF%-USF	<0.004				●					
CCET 32505MF%-USF	09T302MF%-USF	<0.008				●					
CCET 215013MF%-U	0602005MF%-U	<0.002	○	○		●					
CCET 21502MF%-U	060201MF%-U	<0.004	○	○		●					
CCET 21505MF%-U	060202MF%-U	<0.008	○	○		●					
CCET 325013MF%-U	09T3005MF%-U	<0.002	Ⓡ	Ⓡ		●					
CCET 32502MF%-U	09T301MF%-U	<0.004	Ⓡ	Ⓡ		●					
CCET 32505MF%-U	09T302MF%-U	<0.008	Ⓡ	Ⓡ		●					
CCET 3251MF%-U	09T304MF%-U	<0.016	●			●					

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



Part Number	Applicable Toolholder Page
CC..215	E22- E23, E34, F39
CC..325	E22- E23, E34, F39

● : U.S. Stock Ⓡ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only)
○ : World Express (Shipping: 7-10 Business Days) Ⓢ : World Express (R-hand Only) Ⓣ : World Express (L-hand Only)

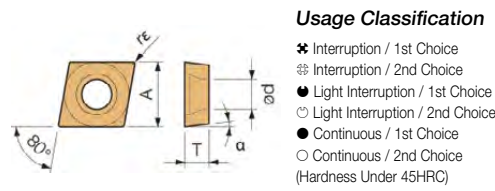
Inserts sold in 10 piece boxes.



80° Diamond

Positive Insert with Hole

Part Number	Applicable Toolholder Page	Part Number	A	T	Ød	α
CC..215	E22~ E23, E34, F39	CC_215_	1/4	3/32	0.110	
CC..325	E22~ E23, E34, F39	CC_325_	3/8	5/32	0.173	7°
		CC_43_	1/2	3/16	0.217	



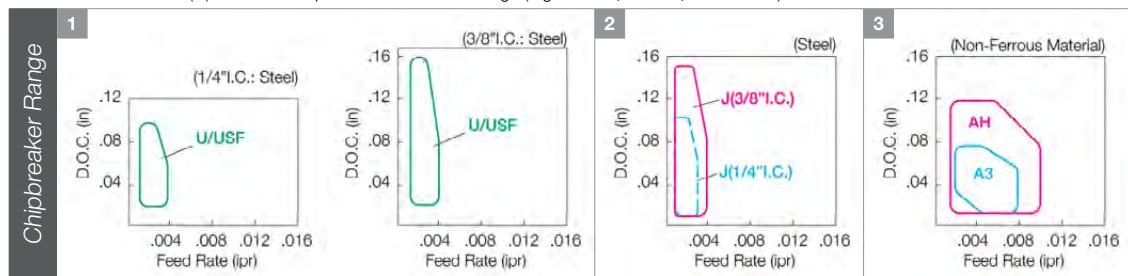
Usage Classification

- ✱ Interruption / 1st Choice
- ✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

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

E	TURNING	ANSI Part Number	ISO Part Number	Corner Radius (in) rE	Material														Toolholder Page	Chipbreaker Range																
					Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide				MEGACOAT / MEGACOAT NANO			PVD Coated Carbide	Carbide																				
					TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05			
F	BORING	CCGT 21501F%-U	0602003F%-U	0.001																																
		21502F%-U	060201F%-U	0.004																																
		21505F%-U	060202F%-U	0.008																																
G	GROOVING	CCGT 32501F%-U	09T3003F%-U	0.001																																
		32502F%-U	09T301F%-U	0.004																																
		32505F%-U	09T302F%-U	0.008																																
H	CUT-OFF	CCGT 215013MF%-U	0602005MF%-U	<0.002																																
		21502MF%-U	060201MF%-U	<0.004																																
		21505MF%-U	060202MF%-U	<0.008																																
		2151MF%-U	060204MF%-U	<1/64																																
		CCGT 325013MF%-U	09T3005MF%-U	<0.002																																
J	THREADING	CCGT 21502E%-U	060201E%-U	0.004																																
		21505E%-U	060202E%-U	0.008																																
		2151E%-U	060204E%-U	1/64																																
		CCGT 32502E%-U	09T301E%-U	0.004																																
		32505E%-U	09T302E%-U	0.008																																
L	SOLID END MILLS	CCGT 21502ME%-U	060201ME%-U	<0.004																																
		21505ME%-U	060202ME%-U	<0.008																																
		2151ME%-U	060204ME%-U	<1/64																																
		CCGT 32502ME%-U	09T301ME%-U	<0.004																																
		32505ME%-U	09T302ME%-U	<0.008																																
M	MILLING	CCGT 3251ME%-U	09T304ME%-U	<1/64																																
		Low Feed Sharp Edge / Precision	CCET 215013MF%-J	0602005MF%-J	<0.002																															
			21502MF%-J	060201MF%-J	<0.004																															
			21505MF%-J	060202MF%-J	<0.008																															
			CCET 32502MF%-J	09T301MF%-J	<0.004																															
P	SPARE PARTS	CCET 32505MF%-J	09T302MF%-J	<0.008																																
		3251MF%-J	09T304MF%-J	<0.016																																
		Finishing-Medium Sharp Edge Non-Ferrous Metals	CCGT 3251AH	09T304AH	1/64																															
R	TECHNICAL		3252AH	09T308AH	1/32																															

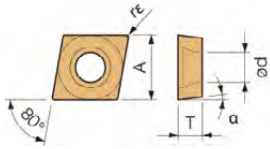
• Insert whose corner R(re) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (re).



How to read this page B7

80° Diamond

Positive Insert with Hole



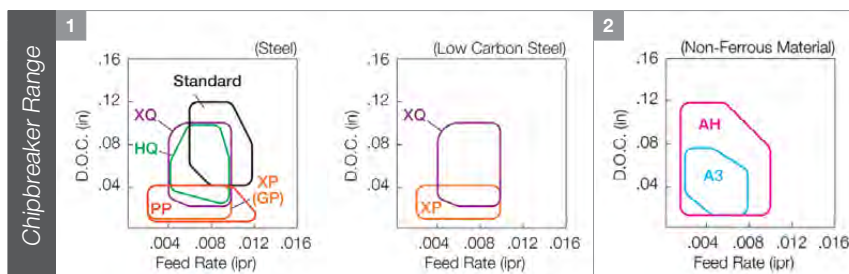
Usage Classification

- Interruption / 1st Choice
- Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
CC_215_	1/4	3/32	0.110	7°	CPMT251_	5/16	3/32	0.138	11°
CC_325_	3/8	5/32	0.173		CPMT32_	3/8	1/8	0.177	
CC_43_	1/2	3/16	0.217		CP_215_	1/4	3/32	0.110	
				CP_32_	3/8	5/32	0.173		

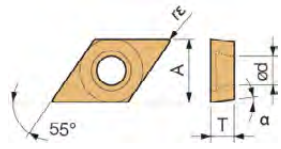
P M K N S H	Material Groups														Free-Cutting Steel Carbon/Alloy Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloy	Hard materials						
	Cermet				MEGA COAT Cermet		CVD Coated Carbide				MEGACOAT / MEGACOAT NANO		PVD Coated Carbide										Carbide	Toolholder Page	Chipbreaker Range			
	TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515												CA5525	CA5535	CA6515
	ANSI Part Number		ISO Part Number		Corner Radius (in)	rε																						
	CCGT	32505%-A3	09T302%-A3	0.008																				See Table Below	2			
		3251%-A3	09T304%-A3	1/64																								
		3252%-A3	09T308%-A3	1/32																								
	CCGT	4305%-A3	120402%-A3	0.008																								
		431%-A3	120404%-A3	1/64																								
	CCGW	21502	060201	0.004																				See Table Below				
		21505	060202	0.008																								
	CCGW	32500	09T300	0.0																								
		32502	09T301	0.004																								
		32505	09T302	0.008																								
	CPGT	21505	060202	0.008																				F41				
		2151	060204	1/64																								
	CPGT	32505	09T302	0.008																								
		3251	09T304	1/64																								
		3252	09T308	1/32																								
	CPMT	251505PP	080202PP	0.008																				F41	1			
		25151PP	080204PP	1/64																								
	CPMT	3205PP	090302PP	0.008																								
		321PP	090304PP	1/64																								
		322PP	090308PP	1/32																								
	CPMT	25151GP	080204GP	1/64																				F41	1			
	CPMT	321GP	090304GP	1/64																								
		322GP	090308GP	1/32																								
	CPMH	25151HQ	080204HQ	1/64																				F41	1			
		25152HQ	080208HQ	1/32																								
	CPMH	321HQ	090304HQ	1/64																								
		322HQ	090308HQ	1/32																								
	CPMH	25151	080204	1/64																				F41	1			
		25152	080208	1/32																								
	CPMH	321	090304	1/64																								
		322	090308	1/32																								

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



Part Number	Applicable Toolholder Page
CC..215	E22- E23, E34, F39
CC..325	E22- E23, E34, F39

55° Diamond Positive Insert with Hole



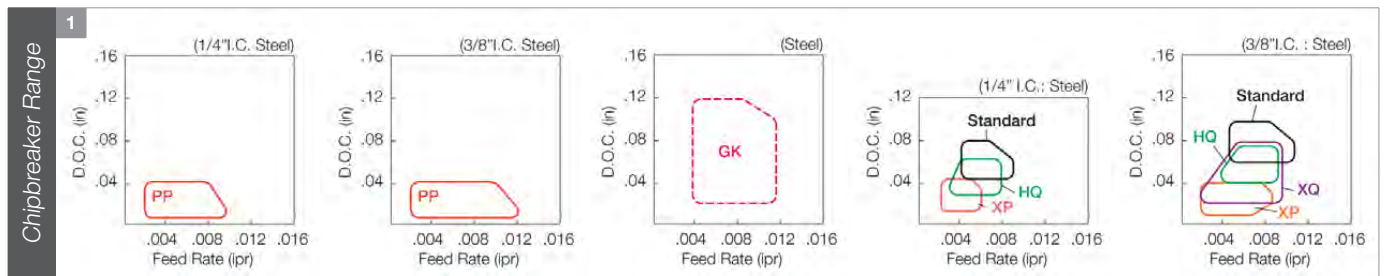
Usage Classification

- ✱ Interruption / 1st Choice
- ✉ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	Applicable Toolholder Page	Part Number	A	T	Ød	α
DC..215	E24~ E27, E35, F45~ F49	DC_215_	1/4	3/32	0.110	7°
DC..325	E20, E24~ E27, E35, F45~ F49	DC_325_	3/8	5/32	0.173	

	ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Applicable Materials																Toolholder Page	Chipbreaker Range							
				Cermet				MEGA COAT Cermet				CVD Coated Carbide				MEGACOAT / MEGACOAT NANO		PVD Coated Carbide				Carbide						
				TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535				CA6515	CA6525	PR1425	PR1225	PR1305	PR1310
Finishing <i>Sharp Edge / Polished</i>	DCGT 21502MP-CK 21505MP-CK	070201MP-CK 070202MP-CK	<0.004 <0.008																									
					DCGT 32502MP-CK 32505MP-CK	11T301MP-CK 11T302MP-CK	<0.004 <0.008																					
Finishing-Medium <i>Sharp Edge</i>	DCGT 21502MF-GQ 21505MF-GQ	070201MF-GQ 070202MF-GQ	<0.004 <0.008																									
					DCGT 2151MF-GQ 32502MF-GQ 32505MF-GQ 3251MF-GQ	070204MF-GQ 11T301MF-GQ 11T302MF-GQ 11T304MF-GQ	<1/64 <0.004 <0.008 <1/64																					
Finishing-Medium <i>Sharp Edge / Polished</i>	DCGT 21502MFP-GQ 21505MFP-GQ	070201MFP-GQ 070202MFP-GQ	<0.004 <0.008																									
					DCGT 2151MFP-GQ 32502MFP-GQ 32505MFP-GQ 3251MFP-GQ	070204MFP-GQ 11T301MFP-GQ 11T302MFP-GQ 11T304MFP-GQ	<1/64 <0.004 <0.008 <1/64																					
Finishing	DCMT 21505PP 2151PP	070202PP 070204PP	0.008 1/64																									
					DCMT 32505PP 3251PP 3252PP	11T302PP 11T304PP 11T308PP	0.008 1/64 1/32																					
Finishing	DCMT 21505GP 2151GP	070202GP 070204GP	0.008 1/64																									
					DCMT 3251GP 3252GP	11T304GP 11T308GP	0.004 0.008																					
Finishing-Medium	DCMT 21505GK 2151GK	070202GK 070204GK	0.008 1/64																									
					DCMT 2152GK 32505GK 3251GK 3252GK	070208GK 11T302GK 11T304GK 11T308GK	1/32 0.008 1/64 1/32																					
Finishing-Medium	DCMT 21505HQ 2151HQ	070202HQ 070204HQ	0.008 1/64																									
					DCMT 2152HQ 32505HQ 3251HQ 3252HQ	070208HQ 11T302HQ 11T304HQ 11T308HQ	1/32 0.008 1/64 1/32																					

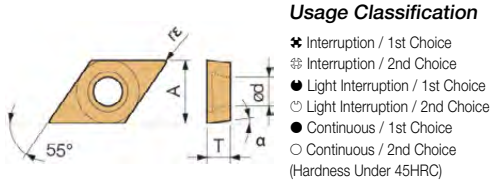
• Insert whose corner R(ε) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (ε).



55° Diamond

Positive Insert with Hole

Part Number	Applicable Toolholder Page	Part Number	A	T	Ød	α
DC..215	E24- E27, E35, F45- F49	DC_215_	1/4	3/32	0.110	7°
DC..325	E20, E24~ E27, E35, F45~ F49	DC_325_	3/8	5/32	0.173	



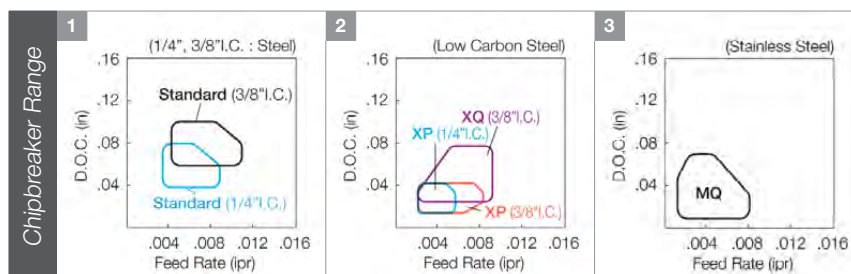
Usage Classification

- ✳ Interruption / 1st Choice
- ✳✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

	P	M	K	N	S	H	Free-Cutting Steel Carbon/Alloy Steel
●	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○
✳	✳	✳	✳	✳	✳	✳	✳
✳✳	✳✳	✳✳	✳✳	✳✳	✳✳	✳✳	✳✳

	ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Material												Toolholder Page	Chipbreaker Range																
				Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide			MEGACOAT / MEGACOAT NANO			PVD Coated Carbide	Carbide																			
				TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05	
Medium Standard Chipbreaker	DCGT 21502	070201	0.004	○	○	●	●	○	○	●																		●					
	DCGT 21505	070202	0.008	○	○	○	○	○	○	○	○																	○					
	DCGT 2151	070204	1/64	○	○	○	○	○	○	○	○																	○					
	DCGT 32502	11T301	0.004	○	○	○	○	○	○	○	○																	○					
	DCGT 32505	11T302	0.008	○	○	○	○	○	○	○	○																	○					
DCGT 3251	11T304	1/64	○	○	○	○	○	○	○	○																	○						
DCMT 3252	11T308	1/32	○	○	○	○	○	○	○	○							●										○						
Medium Sharp Edge	DCGT 215013M	0702005M	<0.002																														
	DCGT 21502M	070201M	<0.004																														
	DCGT 21505M	070202M	<0.008																														
	DCGT 2151M	070204M	<1/64																														
	DCGT 325013M	11T3005M	<0.002																														
Finishing Low Carbon Steel	DCMT 2151XP	070204XP	1/64	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	DCMT 32505XP	11T302XP	0.008	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	DCMT 3251XP	11T304XP	1/64	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	DCMT 3252XP	11T308XP	1/32	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Finishing-Medium Low Carbon Steel	DCMT 3251XQ	11T304XQ	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
DCMT 3252XQ		11T308XQ	1/32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Finishing-Medium Stainless Steel / Heat Resistant Alloy	DCMT 21505MQ	070202MQ	0.008																									○					
	DCMT 2151MQ	070204MQ	1/64																									○					
	DCMT 32505MQ	11T302MQ	0.008																									○					
	DCMT 3251MQ	11T304MQ	1/64																									○					
	DCMT 3252MQ	11T308MQ	1/32																									○					

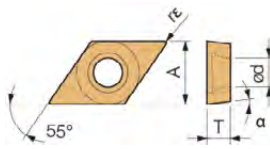
• Insert whose corner R(ε) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (ε).



How to read this page B7

55° Diamond

Positive Insert with Hole



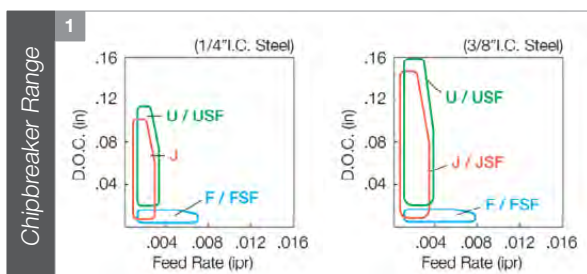
Usage Classification

- ✱ Interruption / 1st Choice
- ✱ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	Applicable Toolholder Page	Part Number	A	T	Ød	α
DC..215	E24~ E27, E35, F45~ F49	DC_215_	1/4	3/32	0.110	7°
DC..325	E20, E24~ E27, E35, F45~ F49	DC_325_	3/8	5/32	0.173	

ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Material														Toolholder Page	Chipbreaker Range														
			Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide				MEGACOAT / MEGACOAT NANO		PVD Coated Carbide	Carbide																			
			TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05	
DCET 21501F%-USF	0702003F%-USF	0.001																														
DCET 21502F%-USF	070201F%-USF	0.004																														
DCET 21505F%-USF	070202F%-USF	0.008																														
DCET 32501F%-USF	11T3003F%-USF	0.001				Ⓜ																										
DCET 32502F%-USF	11T301F%-USF	0.004				Ⓜ																										
DCET 32505F%-USF	11T302F%-USF	0.008				Ⓜ																										
DCET 215013MF%-USF	0702005MF%-USF	<0.002																														
DCET 21502MF%-USF	070201MF%-USF	<0.004																														
DCET 21505MF%-USF	070202MF%-USF	<0.008																														
DCET 325013MF%-USF	11T3005MF%-USF	<0.002																														
DCET 32502MF%-USF	11T301MF%-USF	<0.004																														
DCET 32505MF%-USF	11T302MF%-USF	<0.008																														
DCET 215013MF%-U	0702005MF%-U	<0.002																														
DCET 21502MF%-U	070201MF%-U	<0.004																														
DCET 21505MF%-U	070202MF%-U	<0.008																														
DCET 325013MF%-U	11T3005MF%-U	<0.002																														
DCET 32502MF%-U	11T301MF%-U	<0.004																														
DCET 32505MF%-U	11T302MF%-U	<0.008																														
DCET 3251MF%-U	11T304MF%-U	<0.016																														
DCGT 21501F%-U	0702003F%-U	0.001																														
DCGT 21502F%-U	070201F%-U	0.004																														
DCGT 21505F%-U	070202F%-U	0.008																														
DCGT 32501F%-U	11T3003F%-U	0.001																														
DCGT 32502F%-U	11T301F%-U	0.004																														
DCGT 32505F%-U	11T302F%-U	0.008																														
DCGT 21501MF%-U	0702003MF%-U	<0.001																														
DCGT 215013MF%-U	0702005MF%-U	<0.002																														
DCGT 21502MF%-U	070201MF%-U	<0.004																														
DCGT 21505MF%-U	070202MF%-U	<0.008																														
DCGT 2151MF%-U	070204MF%-U	<1/64																														
DCGT 325013MF%-U	11T3005MF%-U	<0.002																														
DCGT 32502MF%-U	11T301MF%-U	<0.004																														
DCGT 32505MF%-U	11T302MF%-U	<0.008																														
DCGT 3251MF%-U	11T304MF%-U	<1/64																														

● Insert whose 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).



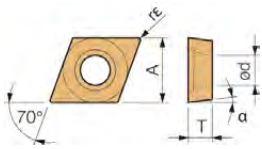
● : U.S. Stock Ⓜ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only)
 ○ : World Express (Shipping: 7-10 Business Days) Ⓜ : World Express (R-hand Only) Ⓛ : World Express (L-hand Only)

Inserts sold in 10 piece boxes.



70° Diamond Positive Insert with Hole

Part Number	A	T	Ød (in)	α
JC_1109_	0.138	0.055	0.075	7°

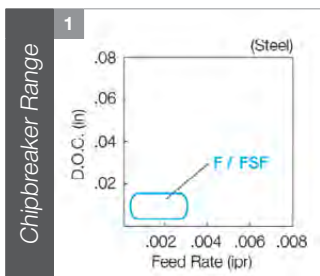


Usage Classification

- ✘ Interruption / 1st Choice
- ⊗ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- ⊙ Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

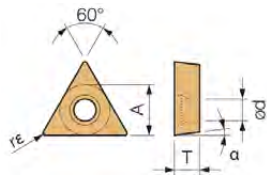
E TURNING	ANSI Part Number		ISO Part Number		Corner Radius (in) <i>rε</i>	Cermet		MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO			PVD Coated Carbide		Carbide	Toolholder Page	Chipbreaker Range														
	TN620	TN6010	TN6020	TN60		PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225			PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05					
F BORING	Finishing Sharp Edge / Precision Super Fine	JCET	110902%-FSF	030101%-FSF	0.004																																
			110905%-FSF	030102%-FSF	0.008																																
			11091%-FSF	030104%-FSF	1/64																																
G GROOVING		JCET	110902M%-FSF	030101M%-FSF	<0.004																																
			110905M%-FSF	030102M%-FSF	<0.008																																
			11091M%-FSF	030104M%-FSF	<1/64																																
H CUT-OFF	Finishing Sharp Edge	JCET	110905M%-F	030102M%-F	0.008																																
			11091M%-F	030104M%-F	0.016																																
J THREADING	Finishing Sharp Edge	JCGT	110902%-F	030101%-F	0.004																																
			110905%-F	030102%-F	0.008																																
			11091%-F	030104%-F	1/64																																
L SOLID END MILLS		JCGT	110902M%-F	030101M%-F	<0.004																																
			110905M%-F	030102M%-F	<0.008																																
			11091M%-F	030104M%-F	<1/64																																

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



60° Triangle

Positive Insert with Hole



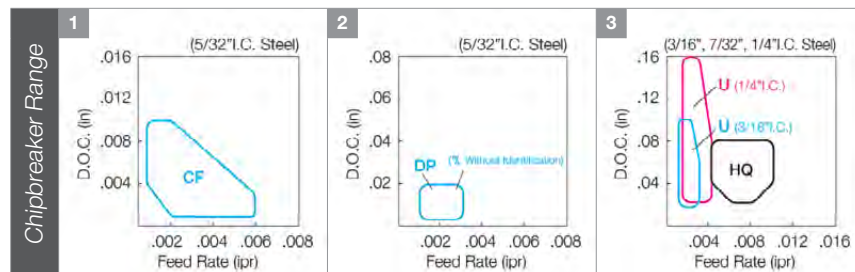
Usage Classification

- ✱ Interruption / 1st Choice
- ✪ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
TB_121_	5/32	1/16	0.091	5°	TC_215_	1/4	3/32	0.110	7°
TC_1815_	7/32	3/32	0.098	7°	TC_325_	3/8	5/32	0.173	

	ANSI Part Number	ISO Part Number	Corner Radius (in)	Material														Toolholder Page	Chipbreaker Range																
				Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide																		
			rε	TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05			
Minute D.O.C. <i>Sharp Edge</i>	TBGT 12105CF	060102CF	0.008																																
	TBGT 12102M-CF	060101M-CF	<-0.004																																
	12105M-CF	060102M-CF	<-0.008																																
Minute D.O.C. <i>Sharp Edge / Polished</i>	TBGT 12102MP-CF	060101MP-CF	<-0.004																																
	12105MP-CF	060102MP-CF	<-0.008																																
Finishing	TBMT 12105DP	060102DP	0.008																																
	1211DP	060104DP	1/64																																
Finishing <i>Sharp Edge</i>	TBET 121013M%	0601005M%	<-0.002																																
	12102M%	060101M%	<-0.004																																
	12105M%	060102M%	<-0.008																																
	1211M%	060104M%	<1/64																																
	TBGT 12101%	0601003%	0.001																																
	12102%	060101%	0.004																																
Cast Iron <i>Without Chipbreaker</i>	TBGW 12105	060102	0.008																																
	1211	060104	1/64																																
	TCMT 181505HQ	090202HQ	0.008																																
	18151HQ	090204HQ	1/64																																
Finishing-Medium	TCMT 21505HQ	110202HQ	0.008																																
	2151HQ	110204HQ	1/64																																
	2152HQ	110208HQ	1/32																																
	TCMT 3251HQ	16T304HQ	1/64																																
3252HQ	16T308HQ	1/32																																	

• Insert whose 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).



● : U.S. Stock (R) : U.S. Stock (R-hand Only) (L) : U.S. Stock (L-hand Only)
○ : World Express (Shipping: 7-10 Business Days) (®) : World Express (R-hand Only) (Ⓞ) : World Express (L-hand Only)

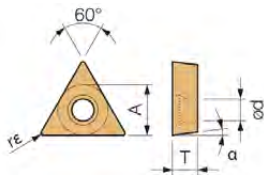
Inserts sold in 10 piece boxes.



60° Triangle

Positive Insert with Hole

(in)					(in)				
Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
TP_1515_	3/16	3/32	0.095	11°	TP_215	1/4	3/32	0.138	11°
TP_1815_	7/32	3/32	0.118		TP_22_	1/4	1/8	0.130	



Usage Classification

- ✘ Interruption / 1st Choice
- ⊗ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- ⊙ Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

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

E	ANSI Part Number	ISO Part Number	Corner Radius (in) rε	Material														Toolholder Page	Chipbreaker Range																	
				Cermet		MEGA COAT Cermet	CVD Coated Carbide				MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide																					
				TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05				
F	TPMT 221XQ	110304XQ	1/64	○	○	○	○	○	●	●	○	○	●	●	○	●	●																			
			1/32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
G	TPGH 151502%	080201%	0.004				○																●				○									
			0.008	○	Ⓛ	●	Ⓛ	○	Ⓛ	○	Ⓛ													●				○								
			1/64	○	Ⓛ	Ⓡ	Ⓛ	○	Ⓛ	○	Ⓛ														●				○							
H	TPGH 181502%	090201%	0.004				○																	●				○								
			0.008	○	Ⓛ	●	●	○	Ⓛ	○	Ⓛ														●				○							
			1/64	○	Ⓛ	●	Ⓛ	○	Ⓛ	○	Ⓛ															●				○						
J	TPGH 21505%	110202%	0.008		Ⓛ	○				Ⓛ														●				○								
			1/64		Ⓛ	○						Ⓛ														●				○						
L	TPGH 2205%	110302%	0.008	○	Ⓛ	●	●	○	Ⓛ	○	Ⓛ														●				○							
			1/64	○	Ⓛ	●	●	○	Ⓛ	○	Ⓛ															●				○						
			1/32	Ⓛ	○		○	Ⓛ	Ⓛ	Ⓛ																	●				○					
M	TPGH 151502M%	080201M%	<0.004																									○	○							
			<0.008																										○	○						
			<1/64																											○	○					
P	TPGH 181502M%	090201M%	<0.004																										○	○						
			<0.008																											○	○					
			<1/64																												○	○				
P	TPGH 2205M%	110302M%	<0.008																										○	○						
			<1/64																											○	○					
			<1/32																											○	○					

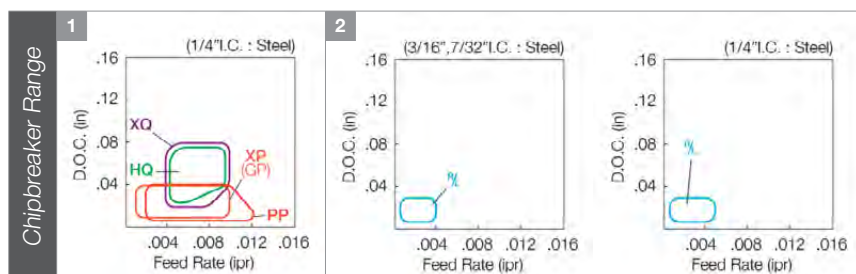
Finishing-Medium
Low Carbon Steel



Finishing

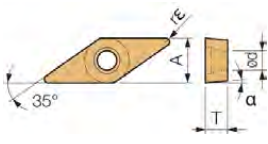


• Insert whose corner R(rε) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (rε).



Part Number	Applicable Toolholder Page
TP_1515_	E29, F53- F57
TP_1815_	F53- F57
TP_22_	E29, F53- F57

35° Diamond
Positive Insert with Hole



Usage Classification

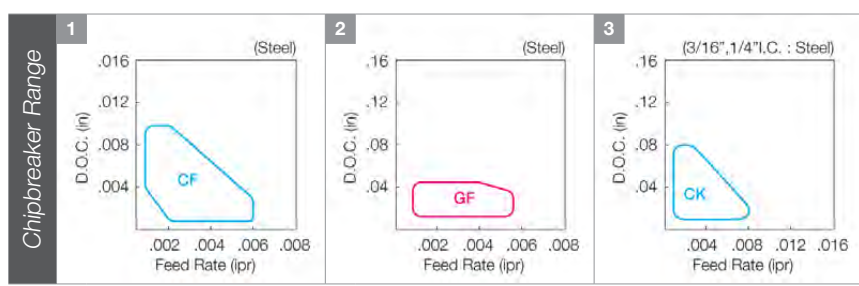
- ✘ Interruption / 1st Choice
✘ Interruption / 2nd Choice
● Light Interruption / 1st Choice
○ Light Interruption / 2nd Choice
● Continuous / 1st Choice
○ Continuous / 2nd Choice
(Hardness Under 45HRC)

Table with columns: Part Number, Applicable Toolholder Page, Part Number, A, T, Ød, α. Values include VP_1515_, VP_22_, E32, E33, F58, E21, E32, E33, 3/16, 3/32, 0.091, 11°, 1/4, 1/8, 0.110.

Main product matrix table with columns for material groups (P, M, K, N, S, H), tool materials (Cermet, MEGA COAT Cermet, PVD Cermet, CVD Coated Carbide, MEGACOAT / MEGACOAT NANO, PVD Coated Carbide, Carbide), and chipbreaker ranges (1, 2, 3). Includes sub-columns for ANSI Part Number and ISO Part Number.



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



● : U.S. Stock (R) : U.S. Stock (R-hand Only) (L) : U.S. Stock (L-hand Only)
○ : World Express (Shipping: 7-10 Business Days) (R) : World Express (R-hand Only) (L) : World Express (L-hand Only)

Inserts sold in 10 piece boxes.



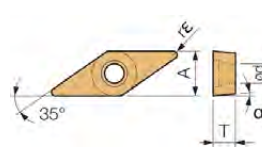
Vertical navigation menu on the right side with labels: GRADES, INSERTS, CBN & PCD, TURNING, BORING, GROOVING, CUT-OFF, THREADING, SOLID END MILLS, MILLING, SPARE PARTS, TECHNICAL, INDEX. Large letters A through T are placed next to the labels.

How to read this page B7

35° Diamond Positive Insert with Hole

Part Number	Applicable Toolholder Page
VP_1515_	E32 , E33 , F58
VP_22_	E21 , E32 , E33

Part Number	A	T	Ød	α
VP_1515_	3/16	3/32	0.091	11°
VP_22_	1/4	1/8	0.110	



Usage Classification

- ✱ Interruption / 1st Choice
- ✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- ⊙ Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

P	Applicable Toolholder Page																Free-Cutting Steel Carbon/Alloy Steel														
	Cermet				MEGA COAT Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO			PVD Coated Carbide	Carbide															
M	TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05	Toolholder Page	Chipbreaker Range
K																															
N																															Non-ferrous Metals
S																															Heat-Resistant Alloys
H																															Titanium Alloy Hard materials
E	ANSI Part Number	ISO Part Number	Corner Radius (in) rε																												
F	VPET 151502%-FSF	080201%-FSF	0.004																												
G	VPET 151505%-FSF	080202%-FSF	0.008																												
H	VPET 2201%-FSF	1103003%-FSF	0.001																												
I	VPET 2202%-FSF	110301%-FSF	0.004																												
J	VPET 2205%-FSF	110302%-FSF	0.008																												
K	VPET 151502M%-FSF	080201M%-FSF	<0.004																												
L	VPET 151505M%-FSF	080202M%-FSF	<0.008																												
M	VPET 22013M%-FSF	1103005M%-FSF	<0.002																												
N	VPET 2202M%-FSF	110301M%-FSF	<0.004																												
O	VPET 2205M%-FSF	110302M%-FSF	<0.008																												
P	VPET 151502M%-F	080201M%-F	<0.004																												
Q	VPET 151505M%-F	080202M%-F	<0.008																												
R	VPET 22013M%-F	1103005M%-F	<0.002																												
S	VPET 2202M%-F	110301M%-F	<0.004																												
T	VPET 2205M%-F	110302M%-F	<0.008																												
U	VPET 151502F%-USF	080201F%-USF	0.004																												
V	VPET 151505FR-USF	080202FR-USF	0.008																												
W	VPET 151505FL-USF	080202FL-USF	0.008																												
X	VPET 2201F%-USF	1103003F%-USF	0.001																												
Y	VPET 2202F%-USF	110301F%-USF	0.004																												
Z	VPET 2205FR-USF	110302FR-USF	0.008																												
AA	VPET 2205FL-USF	110302FL-USF	0.008																												
AB	VPET 151502MF%-USF	080201MF%-USF	<0.004																												
AC	VPET 151505MF%-USF	080202MF%-USF	<0.008																												
AD	VPET 22013MF%-USF	1103005MF%-USF	<0.002																												
AE	VPET 2202MF%-USF	110301MF%-USF	<0.004																												
AF	VPET 2205MF%-USF	110302MF%-USF	<0.008																												
AG	VPET 151502MF%-U	080201MF%-U	<0.004																												
AH	VPET 151505MF%-U	080202MF%-U	<0.008																												
AI	VPET 22013MF%-U	1103005MF%-U	<0.002																												
AJ	VPET 2202MF%-U	110301MF%-U	<0.004																												
AK	VPET 2205MF%-U	110302MF%-U	<0.008																												
AL	VPET 22013MF%-J	1103005MF%-J	<0.002																												
AM	VPET 2202MF%-J	110301MF%-J	<0.004																												
AN	VPET 2205MF%-J	110302MF%-J	<0.008																												

Finishing
Sharp Edge / Precision
Super Fine



Finishing
Sharp Edge



Low Feed
Sharp Edge / Precision
Super Fine



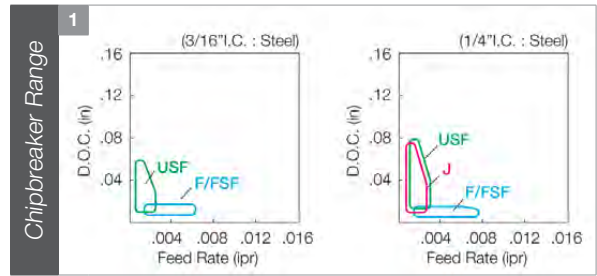
Low Feed
Sharp Edge



Low Feed
Sharp Edge



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

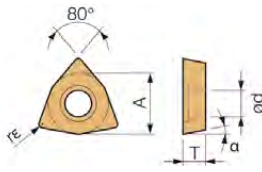


How to read this page B7

80° Trigon

Positive Insert with Hole

Part Number	A	T	(in)		Part Number	A	T	(in)	
			Ød	α				Ød	α
WB_121_	5/32	1/16	0.091	5°	WP_215_	1/4	3/32	0.110	11°
WB_1515_	3/16	3/32	0.091		WP_321_	3/8	1/8	0.173	



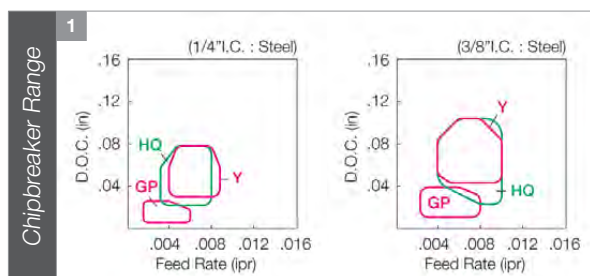
Usage Classification

- ✱ Interruption / 1st Choice
- ✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

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

Material	ANSI Part Number	ISO Part Number	Corner Radius (in)	Material																Toolholder Page	Chipbreaker Range														
				Cermet	MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide						MEGACOAT / MEGACOAT NANO		PVD Coated Carbide		Carbide																		
	rε	TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05					
Cast Iron <i>Without Chipbreaker</i>	WBGW 12105%	060102%	0.008																																
		1211%	060104%	1/64																															
	WBGW 151502%	080202%	0.008																																
		15151%	080204%	1/64																															
Finishing	WPMT 2151GP	110204GP	1/64	○										●	●											●									
	WPMT 321GP	160304GP	1/64	○						●	○	○	○		●	●										●									
	WPMT 21505HQ	110202HQ	0.008	○			●			○	○	○	○		●	●										●									
		2151HQ	110204HQ	1/64	○	○	●	●	●	○	○	○	○	○	○	●	●	●	●	○							○		○	○	●				
Finishing-Medium	WPMT 321HQ	160304HQ	1/64	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○						○	○	○	○						
		322HQ	160308HQ	1/32	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○						○	○	○	○					
	WPGT 21505%-Y	110202%-Y	0.008																																
		2151%-Y	110204%-Y	1/64																															
Finishing-Medium	WPGT 321%-Y	160304%-Y	1/64																																
		322%-Y	160308%-Y	1/32																															
	WPGT 2151M%-Y	110204M%-Y	<1/64																																
		321M%-Y	160304M%-Y	<1/64																															
Cast Iron <i>Without Chipbreaker</i>	WPGW 21505	110202	0.008																																
		2151	110204	1/64																															
	WPGW 321	160304	1/64																																
		322	160308	1/32																															

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



Back Turning

Turning Inserts

Usage Classification

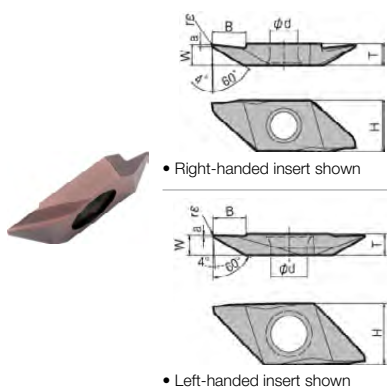
- ✱ Interruption / 1st Choice
- ✱ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice
- (Hardness Under 45HRC)

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

Dimension (mm)									MEGACOAT NANO	PVD Coated Carbide	Carbide	Toolholder Page	
W	a	B	Corner Radius (r) rε	T	H	∅d	PR1425	PR1225	PR1025	KW10			
TKFB	12R15005M	1.5	0.25	2.6	<0.002	3.0	8.7	5.2	●	●	○	○	E12
	12R28005M	2.8	0.3	4.6	<0.002	3.0	8.7	5.2	●	●	○	○	
	12R28010M	2.8	0.3	4.6	<0.004	3.0	8.7	5.2	●	●	○	○	
TKFB	16R38005M	3.8	0.3	6.3	<0.002	4.0	9.5	5.2	●	●	○	○	
	16R38010M	3.8	0.3	6.3	<0.004	4.0	9.5	5.2	●	●	○	○	
TKFB	12L28005MR	2.8	0.3	4.6	<0.002	3.0	8.7	5.2		●			
	12L28010MR	2.8	0.3	4.6	<0.004	3.0	8.7	5.2		●			
TKFB	16L38005MR	3.8	0.3	6.3	<0.002	4.0	9.5	5.2		●			
	16L38010MR	3.8	0.3	6.3	<0.004	4.0	9.5	5.2		●			

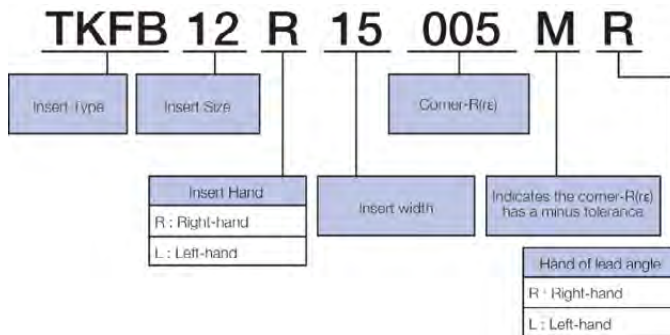


• Right-handed insert shown

• Left-handed insert shown

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

Insert Identification System (See tables below)



Small Depths of Cut		General Purpose		Large Depths of Cut	
Part Number	Cutting Edge Length (S)	Part Number	Cutting Edge Length (S)	Part Number	Cutting Edge Length (S)
TKFB12R15..	2.1mm	TKFB12R28..	4.2mm	TKFB16R38..	5.8mm
-	-	TKFB12L28..	4.4mm	TKFB16L38..	6.2mm

Toolholder	Right-hand (R)	Toolholder	Left-hand (L)
Insert	Right-hand (R)	Insert	Left-hand (L)
Lead angle	Right-hand (R)	Lead angle	Left-hand (R)

Back Turning

Turning Inserts

Usage Classification

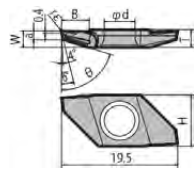
- ✱ Interruption / 1st Choice
- ✳ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice
- (Hardness Under 45HRC)

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 (GQ Chipbreaker)

(for KTKF Toolholders)

NEW ANSI Part Number



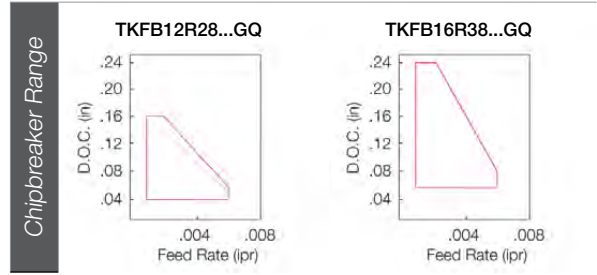
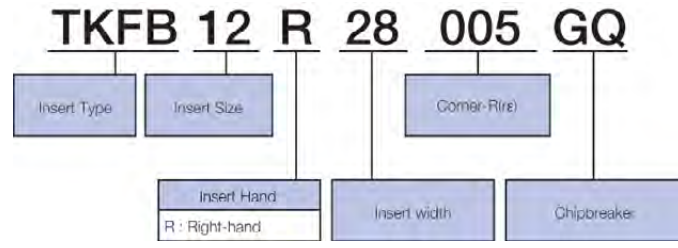
• Right-handed insert shown

TKFB 12R28005-GQ	2.8	1.5	4.6	0.05	3.0	8.7	5.2	74°	●	●
12R28015-GQ	2.8	1.5	4.6	0.15	3.0	8.7	5.2	74°	●	●
TKFB 16R38005-GQ	3.8	1.8	6.3	0.05	4.0	9.5	5.2	72°	●	●
16R38015-GQ	3.8	1.8	6.3	0.15	4.0	9.5	5.2	72°	●	●

Dimension (mm)									MEGACOAT NANO		Toolholder	Page
W	a	B	Corner Radius (in) rε	T	H	Ød	θ					
									PR1425	PR1225		

Insert Identification System

(See tables below)



Back Turning

Turning Inserts

Usage Classification

- ✱ Interruption / 1st Choice
- ✱ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice
- (Hardness Under 45HRC)

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

AABS / SABS / AABW / SABW Inserts (for AABS / SABS / AABW / SABW Toolholders)

ANSI Part Number

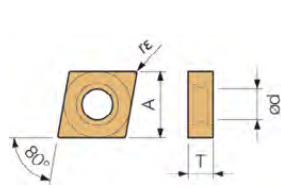
Corner Radius (in)	rE	Cermet	MEGACOAT NANO		PVD Coated Carbide		Carbide	Toolholder Page
			PR1425	PR1225	PR930	PR1005		
0.002	15R4005	●			●		●	E17
		●			●		●	
	<0.002	●	●		○	○		
	<0.006	●	●		○	○		
0.006	15R4015	●			●		○	E18
		●			●		●	
	<0.002	●	●		○	○		
	<0.006	●	●		○	●		
0.002	23R5005	●			●		●	E19
		●			●		●	
	<0.002	●	●		○	○		
	<0.006	●	●		○	●		

• Insert whose 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).

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Double-Sided Turning Inserts

Part Number	A	T	Ød (in)
CN_242_	0.295	1/8	0.142



Usage Classification

- ✖ Interruption / 1st Choice
- ⊗ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- ⊙ Light Interruption / 2nd Choice
- Continuous / 1st Choice
- ⊙ Continuous / 2nd Choice (Hardness Under 45HRC)

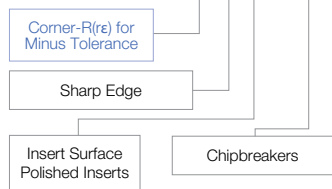
	P	M	K	N	S	H	Free-Cutting Steel	Carbon/Alloy Steel	Stainless Steel	Gray Cast Iron	Nodular Cast Iron	Non-ferrous Metals	Heat-Resistant Alloys	Titanium Alloy	Hard materials
P							●			⊙	⊙				
M									●	⊙					
K															
N															
S															
H															

	ANSI Part Number	ISO Part Number	Corner Radius (in)	Material												Toolholder Page	Chipbreaker Range																		
				Cermet	MEGA COAT Cermet		CVD Coated Carbide					MEGACOAT / MEGACOAT NANO		PVD Coated Carbide	Carbide																				
			rε	TN620	TN6010	TN6020	TN60	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05				
Finishing-Medium Sharp Edge	CNGU 24202MF-SK	070301MF-SK	<0.004																																
	24205MF-SK	070302MF-SK	<0.008																																
Finishing-Medium Sharp Edge / Polished	CNGU 24202MFP-SK	070301MFP-SK	<0.004																			●	●												
	24205MFP-SK	070302MFP-SK	<0.008																			●	●												
Medium-Roughing Honed Edge	CNMU 24205E-GK	070302E-GK	0.008																				●												
	2421E-GK	070304E-GK	1/64																			●	●												
Finishing Sharp Edge	CNGU 242013MF%-F	0703005MF%-F	<0.002																				Ⓡ												
	24202MF%-F	070301MF%-F	<0.004																				Ⓡ	Ⓡ											
	24205MF%-F	070302MF%-F	<0.008																				Ⓡ	Ⓡ											
	2421MF%-F	070304MF%-F	<1/64																				Ⓡ	Ⓡ											
Low Feed Sharp Edge	CNGU 242013MF%-U	0703005MF%-U	<0.002																				Ⓡ												
	24202MF%-U	070301MF%-U	<0.004																				Ⓡ	Ⓡ											
	24205MF%-U	070302MF%-U	<0.008																				Ⓡ	Ⓡ											
	2421MF%-U	070304MF%-U	<1/64																				Ⓡ	Ⓡ											
Low Feed Honed Edge	CNGU 24202ME%-U	070301ME%-U	<0.004																																
	24205ME%-U	070302ME%-U	<0.008																																
	2421ME%-U	070304ME%-U	<1/64																																

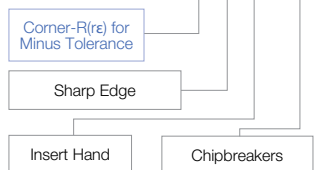
• Insert whose corner R(rε) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (rε).

● Double-Sided Small Tool Identification System

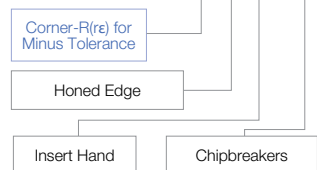
CNGU070301 M F P - SK



CNGU070301 M F R - U



CNGU070301 M E R - U



● When minus tolerance is specified for corner-R (rε)

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

• Use an insert whose corner-R (rε) has a minus tolerance.

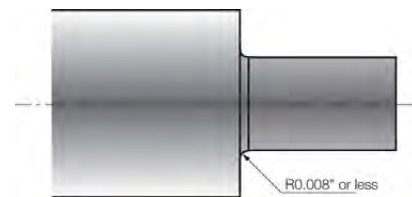
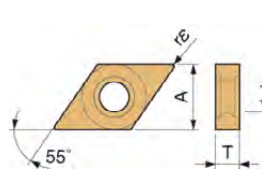


Fig.1 Example of a specified corner-R in drawing

Double-Sided Turning Inserts

Part Number	A	T	Ød
DN_222_	0.276	1/8	0.142



Usage Classification

- ✱ Interruption / 1st Choice
- ✱✱ Interruption / 2nd Choice
- Light Interruption / 1st Choice
- Light Interruption / 2nd Choice
- Continuous / 1st Choice
- Continuous / 2nd Choice (Hardness Under 45HRC)

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

ANSI Part Number	ISO Part Number	Corner Radius (in)	rε	Cermet		MEGA COAT Cermet	PVD Cermet	CVD Coated Carbide					MEGACOAT / MEGACOAT NANO			PVD Coated Carbide		Carbide	Toolholder Page	Chipbreaker Range							
				TN6010	TN6020	TN60		PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525			CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310
Finishing-Medium DNGU Sharp Edge	22202MF-SK	080301MF-SK	<0.004															●									
	22205MF-SK	080302MF-SK	<0.008															●									
	2221MF-SK	080304MF-SK	<1/64															●									
Finishing-Medium DNGU Sharp Edge / Polished	22202MFP-SK	080301MFP-SK	<0.004										●	●													
	22205MFP-SK	080302MFP-SK	<0.008										●	●													
	2221MFP-SK	080304MFP-SK	<1/64										●	●													
Medium-Roughing DNMU Honed Edge	22205E-GK	080302E-GK	0.008										●	●				●									
	2221E-GK	080304E-GK	1/64										●	●				●	●								
Finishing DNGU Sharp Edge	222013MF%-F	0803005MF%-F	<0.002																								
	22202MF%-F	080301MF%-F	<0.004															Ⓡ	Ⓡ								
	22205MF%-F	080302MF%-F	<0.008															Ⓡ	Ⓡ								
	2221MF%-F	080304MF%-F	<1/64															Ⓡ	Ⓡ								
Low Feed DNGU Sharp Edge	222013MF%-U	0803005MF%-U	<0.002																								
	22202MF%-U	080301MF%-U	<0.004															Ⓡ	Ⓡ								
	22205MF%-U	080302MF%-U	<0.008															Ⓡ	Ⓡ								
	2221MF%-U	080304MF%-U	<1/64															Ⓡ	Ⓡ								
Low Feed DNGU Honed Edge	22202ME%-U	080301ME%-U	<0.004															Ⓡ	Ⓡ								
	22205ME%-U	080302ME%-U	<0.008															Ⓡ	Ⓡ								
	2221ME%-U	080304ME%-U	<1/64															Ⓡ	Ⓡ								

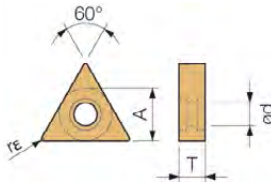
• Insert whose corner R(ε) dimension expressed with less than sign (e.g. <0.002, <0.004, <0.008 etc.) indicate models with minus tolerance for corner R (rε).

Cutting Range	Name	Cross-Section	Advantages
Finishing-Medium	SK		A low cutting force chipbreaker designed for chip control in steel and stainless steel. Cutting performance is similar to comparably sized positive inserts.
Medium-Roughing	GK		Chipbreaker "dot" and pocket design provide chip control at multiple depths of cut and feed rates.
Finishing	F		Controlled chip evacuation direction with low cutting forces.
Low Feed	U		Good chip control at low feed rates and varied depths of cut with low cutting forces.

GRADES **A**
 INSERTS **B**
 CBN & PCD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

Double-Sided Turning Inserts

Part Number	A	T	Ød
TN_182_	0.219	1/8	0.118

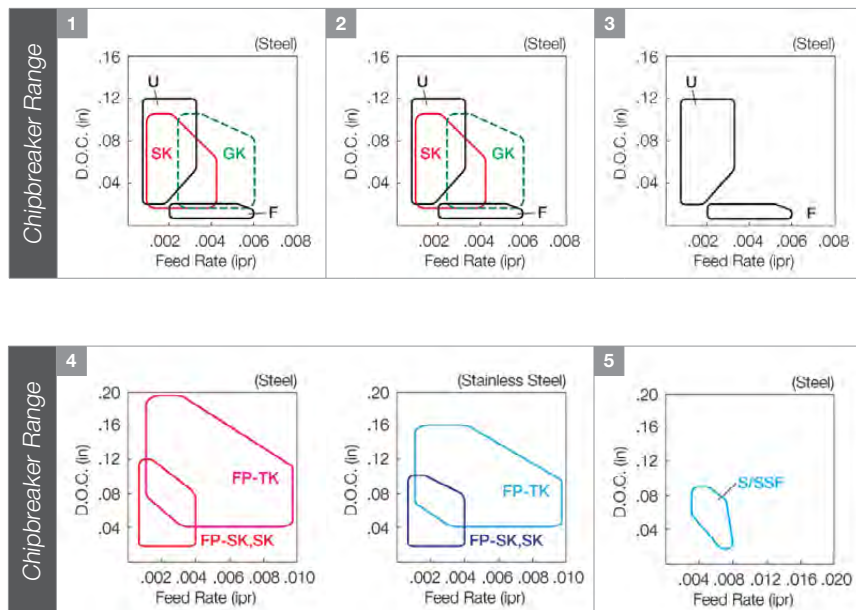


Usage Classification

- ✖ Interruption / 1st Choice
 - ✘ Interruption / 2nd Choice
 - Light Interruption / 1st Choice
 - Light Interruption / 2nd Choice
 - Continuous / 1st Choice
 - Continuous / 2nd Choice
- (Hardness Under 45HRC)

	ANSI		ISO		Corner Radius (in)	Material Group												Toolholder Page	Chipbreaker Range																			
	Part Number	Part Number	Part Number	Part Number		Corner Radius (in)	Cermet				CVD Coated Carbide				MEGACOAT / MEGACOAT NANO		PVD Coated Carbide			Carbide																		
	TNGU				rε	TN620	TN6010	TN6020	TN60	PV720	PV7010	PV7025	PV90	CA510	CA515	CA525	CA530	CA5505	CA5515	CA5525	CA5535	CA6515	CA6525	PR1425	PR1225	PR1305	PR1310	PR1325	PR930	PR1005	PR1025	PR1125	KW10	SW05				
Finishing Sharp Edge 	TNGU	182013MF%-F	0903005MF%-F	<0.002																					⊙	●		⊙										
		18202MF%-F	090301MF%-F	<0.004																					⊙	⊙		⊙										
		18205MF%-F	090302MF%-F	<0.008																																		
		1821MF%-F	090304MF%-F	<1/64																																		
Low Feed Sharp Edge 	TNGU	182013MF%-U	0903005MF%-U	<0.002																					⊙													
		18202MF%-U	090301MF%-U	<0.004																					⊙	⊙		⊙										
		18205MF%-U	090302MF%-U	<0.008																																		
		1821MF%-U	090304MF%-U	<1/64																																		
Low Feed Honed Edge 	TNGU	18202ME%-U	090301ME%-U	<0.004																																		
		18205ME%-U	090302ME%-U	<0.008																																		
		1821ME%-U	090304ME%-U	<1/64																																		

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



Micro Boring

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Twin Bars

Micro Boring	Micro Face Grooving
TWB Twin-Bars F36	TWFG Twin-Bars G48
TWBT Twin-Bars F37	TWFGT Twin-Bars G49

EZ Bars / Swiss IQ Bars / Micro-Bars

Micro Boring		Micro Back Boring
EZB EZ Bar F14	EZVB EZ Bar F19	-
		-
VNB-S/VNB Swiss IQ Bar F30	VNBX-S Swiss IQ Bar F34	VNBT Swiss IQ Bar F31
HPB Double-Sided Micro-Bar F28	-	HPBT Double-Sided Micro-Bar F28
	-	

Solid Micro-Bars (Grooving / Threading)

Micro Grooving	Micro Face Grooving	Micro Back Boring
EZG EZ Bars G34	EZFG EZ Bars G45	EZT EZ Bars J10
VNG Swiss IQ Bar G37	VNFG Swiss IQ Bar G47	VNT Swiss IQ Bar J15
HPG Double-Sided Micro-Bar G36	HPFG Double-Sided Micro-Bar G47	HPT Double-Sided Micro-Bar J14

CBN & PCD TOOLS



C1 - C21

CBN TOOLS		C2 - C10
MEGACOAT CBN GRADES AND FEATURES		C2
IDENTIFICATION SYSTEM		C2
APPLICATION MAPS		C3
RECOMMENDED CUTTING CONDITIONS		C3
TURNING INSERTS (POSITIVE)	CC□□...80° Diamond	C4
	CP□□...80° Diamond	C4
	DC□□...55° Diamond	C5
	TP□□...60° Triangle	C6
	VB□□...35° Diamond	C7
	VC□□...35° Diamond	C7
	WB□□...80° Trigon	C8
EXTERNAL GROOVING	GBA / GMN / GDGS	C9
EZ BARS (MICRO BORING)	EZB-NB	C10
PCD TOOLS		C11 - C21
PCD GRADES AND FEATURES		C11
IDENTIFICATION SYSTEM		C11
RECOMMENDED CUTTING CONDITIONS		C11
TURNING INSERTS (POSITIVE)	CC□□...80° Diamond	C12
	CP□□...80° Diamond	C13
	DC□□...55° Diamond	C13
	TP□□...60° Triangle	C14
	TC□□...60° Triangle	C14
	TB□□...60° Triangle	C14
	VB□□...35° Diamond	C16
	VC□□...35° Diamond	C16
	WB□□...80° Trigon	C16
	WP□□...80° Trigon	C17
MILLING INSERTS	BDMT	C17
TURNING / GROOVING	TKF-AS / TKF-NB	C18
EXTERNAL GROOVING	GBA / TGF / GMN	C20
	GDGS	C20
SYSTEM TIP-BARS (MICRO BORING)	VNB-NB	C21
EZ BARS (MICRO BORING)	EZB-NB	C21

MEGACOAT CBN



Extended Tool Life

Improved Stability

High Speed Cutting

Kyocera's new innovative CBN tools.
CBN Variation and Features Ref. Page [A15](#)

Various edge preparations added to the high performance MEGACOAT CBN inserts

Turning Insert Identification System

C C M W 2 15 05 T00315 ME

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

Insert Type	Part Number	Edge Prep.	Manufacture's Option	Cutting Edge Length	No. of Edges	Re-Grinding
Positive	CPGB321T00315	T00315	No Indication	Long	1	Possible
	CCMW21505MEF	F	MEF	Short (Small Edge)	2	Not Recommended
	CCMW21505T00315ME	T00315	ME		2	
	CCMW21515S00525MES	S00525	MES		2	
	CCMW21505T00315SE	T00315	SE		1	

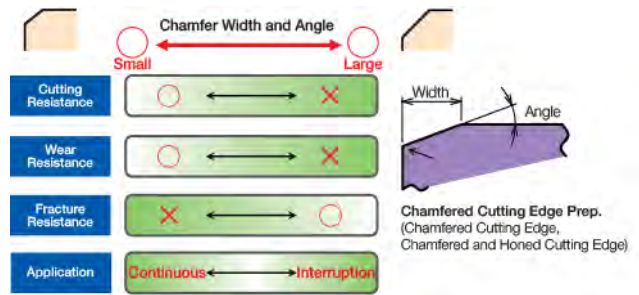
Re-Grinding

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

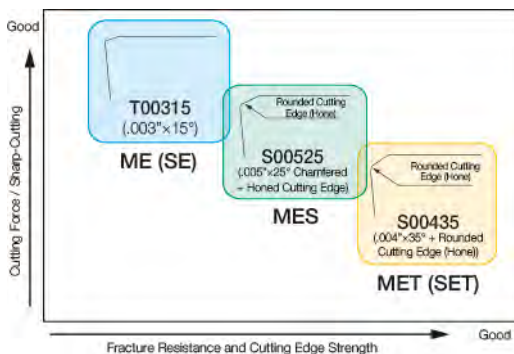
How To Identify Edge Preparation

Symbol	Cutting Edge Spec.	Edge Prep.		Shape
		Example		
F	Sharp Edge	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 + Honed Cutting Edge	

Features of Chamfer Width & Angle



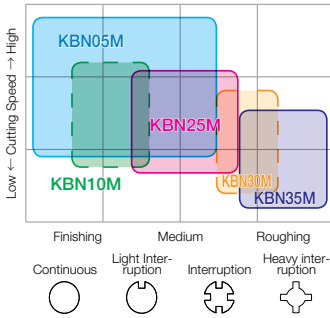
Standard Cutting Edge Prep. of Positive Inserts



Manufacturers Option	Cutting Edge Prep.	Application & Features
ME	T00315 0.003" X 15°	Chamfered Sharp cutting oriented, less burring
MES	T00515 0.005" X 25° + Rounded Cutting Edge (Hone)	General Purpose
MET	S00525 0.004" X 35° + Rounded Cutting Edge (Hone)	Interrupted Cutting Stable cutting oriented

Application Maps

Hardened Materials



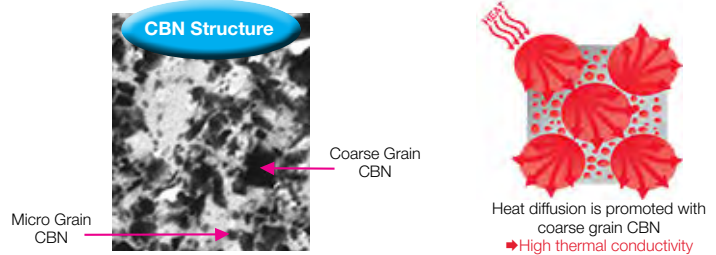
KBN05M

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

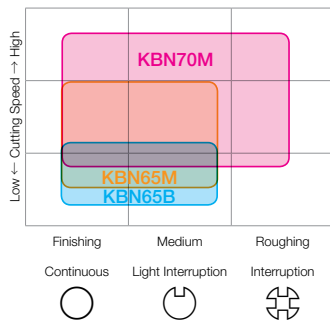


KBN25M: High stability for general cutting

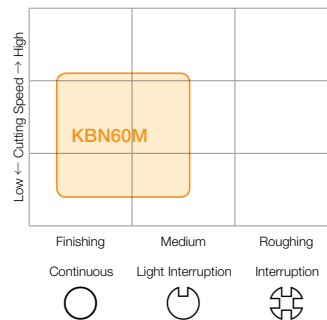
KBN30M: High stability during interrupted cutting

KBN35M: Honeycomb structure CBN Superior fracture resistance in heavy interrupted cutting

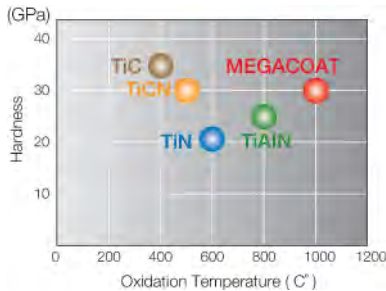
Powdered Steel



Cast Iron



PVD Layer Coating Properties



Advantages of MEGACOAT

- Long tool life and stable cutting due to superior heat-resistance and hardness
- Improved crater wear resistance
- High thermal stability and surface smoothness provide excellent surface finish



Recommended Cutting Conditions

Workpiece Material	Hardness	Applications		Recommended Insert Grade	Cutting Conditions		
					Vc (sfm)	D.O.C. (in)	f (ipr)
Hardened Steel	Over 55HRC	General Finishing	Continuous ~ Interruption	KBN05M	325-500-650	0.002-0.012-0.020	0.002-0.003-0.004
		High Efficient Stable Cutting	Light Interruption ~ Interruption	KBN25M	250-400-525	0.002-0.012-0.020	0.002-0.003-0.004
		Interruption (Small ap)	Interruption ~ Heavy Interruption	KBN35M	200-325-500	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
Gray Cast Iron	Under 250HB	Finishing	Continuous ~ Light Interruption	KBN475	175-500-650	0.002-0.008-0.012	0.002-0.004-0.008
		Finishing	Continuous ~ Light Interruption	KBN60M	325-650-825	0.002-0.008-0.012	0.002-0.004-0.008
		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
Powdered Steel (Iron based)	-	Finishing	Continuous ~ Light Interruption	KBN570	175-500-650	0.002-0.008-0.012	0.002-0.004-0.008
	-	Finishing	Continuous ~ Interruption	KBN70M	325-650-825	0.002-0.008-0.012	0.002-0.004-0.008

※PT600M is a titanium carbide ceramic + MEGACOAT. (Al₂O₃ + TiC)

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

80° Diamond Positive Insert with Hole

Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
CCMW 1109_	0.138	0.055	0.075		CPGB 2515_	5/16	3/32	0.138	11°
1411_	0.169	0.071	0.091	7°	32_	3/8	1/8	0.177	
215_	1/4	3/32	0.110						
325_	3/8	5/32	0.173						

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

Edge Prep.			K	H	H	MEGACOAT CBN											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													
			Dimensions (in)		CBN											Toolholder Page									
Insert			ANSI Part Number	Edge Prep (in)	ISO Part Number	FE	S	No. of Edges	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M		KBN70M	KBN510	KBN525	KBN475	KBN65B	KBN570			
NEW	Multi-Edge Sharp Edge		CCMW 3251MEF	F	CCMW 09T304MEF	1/64	0.075	2																	
			3252MEF		09T308MEF	1/32	0.071																		
NEW	Multi-Edge		CCMW 2150T00315ME	T00315	CCMW 06020T00815ME	0.008	0.079	2	○	○	●	○					○	●	●				See Table on C5		
			2151T00315ME		060204T00815ME	1/64	0.075		○	○	○	○	○					○	●	●					
			2152T00315ME		060208T00815ME	1/32	0.071		○	○	○	○	○	○					○	●	●				
NEW	Multi-Edge General Purpose		CCMW 2151S00525MES	S00525	CCMW 060204S01225MES	1/64	0.075	2	●														See Table on C5		
			2152S00525MES		060208S01225MES	1/32	0.071		●																
			3251S00525MES	S00525	09T304S01225MES	1/64	0.075		●												●				
3252S00525MES		09T308S01225MES	1/32	0.071		●													●						
NEW	Multi-Edge / Tough		CCMW 3251S00435MET	S00435	CCMW 09T304S01035MET	1/64	0.075	2	●	○	○	○											See Table on C5		
			3252S00435MET		09T308S01035MET	1/32	0.071		●	○	○	○	○												
NEW	Small Edge		CCMW 110905T00315SE	T00315	CCMW 030102T00815SE	0.008	0.055	1	○	○								○	○				See Table on C5		
			11091T00315SE		030104T00815SE	1/64	0.055		○	○									○	○					
			141105T00315SE	T00315	CCMW 040102T00815SE	0.008	0.055		○	○										○	○				
			14111T00315SE		040104T00815SE	1/64	0.055		○	○											○	○			
NEW	Small Edge / Tough		CCMW 21505T00315SE	T00315	CCMW 060202T00815SE	0.008	0.079	1											●	●			See Table on C5		
			2151T00315SE		060204T00815SE	1/64	0.075													●	●				
			32505T00315SE	T00315	CCMW 09T302T00815SE	0.008	0.079		○	○											○	○			
			3251T00315SE		09T304T00815SE	1/64	0.075		○	○											○	○			
NEW	Multi-Edge		CCMW 110905S00435SET	S00435	CCMW 030102S01035SET	0.008	0.055	1	○	○										○	○		See Table on C5		
			11091S00435SET		030104S01035SET	1/64	0.055		○	○											○	○			
			141105S00435SET	S00435	CCMW 040102S01035SET	0.008	0.055		○	○												○		○	
			14111S00435SET		040104S01035SET	1/64	0.055		○	○														○	○
			2151S00435SET	S00435	CCMW 060204S01035SET	1/64	0.075		○	○														○	○
3251S00435SET	S00435	CCMW 09T304S01035SET	1/64	0.075		○	○													○	○				
NEW	Multi-Edge General Purpose		CPGB 2515T00315ME	T00315	CPGB 080204T00815ME	1/64	0.075	2	○	○	○			●	●			●	●	○			See Table on C5		
			3205T00315ME		090302T00815ME	0.008	0.075		○	○	○					●	●		●	●					
			321T00315ME	T00315	090304T00815ME	1/64	0.075		○	○	○					●	●		●	●					
NEW	Multi-Edge / Tough		CPGB 321S00525MES	S00525	CPGB 090304S01225MES	1/64	0.075	2	●													See Table on C5			
			322S00525MES		090308S01225MES	1/32	0.098		●																
NEW	Multi-Edge / Tough		CPGB 2515S00435MET	S00435	CPGB 080204S01035MET	1/64	0.075	2	○	○				●	●							See Table on C5			
			2515S00435MET		080208S01035MET	1/32	0.087		○	○					●	●									
			321S00435MET	S00435	CPGB 090304S01035MET	1/64	0.075		○	○	○					●	●								
322S00435MET		090308S01035MET	1/32	0.098		○	○	○					●	●											
NEW	Small Edge		CPGB 251505T00315SE	T00315	CPGB 080202T00815SE	0.008	0.075	1												●	●	See Table on C5			
			2515T00315SE		080204T00815SE	1/64	0.075														○		○		
			3205T00315SE	T00315	CPGB 090302T00815SE	0.008	0.075																○	○	
321T00315SE		090304T00815SE	1/64	0.075																○	○				
NEW	Small Edge / Tough		CPGB 2515S00435SET	S00435	CPGB 080204S01035SET	1/64	0.075	1		○										○		See Table on C5			
			321S00435SET		090304S01035SET	1/64	0.075														○				

55° Diamond

Positive Insert with Hole

Part Number	A	T	Ød	α
DCMW 215_	1/4	3/32	0.110	7°
325_	3/8	5/32	0.177	

Symbol	Cutting Edge Spec.	Edge Prep.		Example	K	H	MEGACOAT CBN												Toolholder Page	
		Symbol	Example				KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN510	KBN525	KBN475	KBN65B		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																	

Insert	ANSI Part Number	Edge Prep (in)	ISO Part Number	Dimensions (in)		No. of Edges	MEGACOAT CBN												Toolholder Page			
				rE	S		KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN510	KBN525	KBN475	KBN65B		KBN570		
 NEW Multi-Edge Sharp Edge	DCMW 3251MEF	F	DCMW 11T304MEF	0.008	0.075	2																
	3252MEF		11T308MEF	1/64	0.067																	
 Multi-Edge	DCMW 21505T00315ME	T00315	DCMW 070202T00815ME	0.008	0.075	2	○	○	○	○	○	●					●	●	●			
	2151T00315ME		070204T00815ME	1/64	0.067		2	●	●	●	●	●	●	●	●	●	●	●	●	●		
	2152T00315ME		070208T00815ME	1/32	0.075		2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	DCMW 32505T00315ME	T00315	DCMW 11T302T00815ME	0.008	0.075	2	○	○	○	○	○	○	○	○	○	○	○	○	○			
	3251T00315ME		11T304T00815ME	1/64	0.067		2	○	○	○	○	○	○	○	○	○	○	○	○	○		
3252T00315ME	11T308T00815ME		1/32	0.075	2		○	○	○	○	○	○	○	○	○	○	○	○	○	○		
3253T00315ME	11T312T00815ME	3/64	0.075	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
 NEW Multi-Edge General Purpose	DCMW 32505S00525MES	S00525	DCMW 11T302S01225MES	0.008	0.075	2	●															
	3251S00525MES		11T304S01225MES	1/64	0.067		2	●														
	3252S00525MES		11T308S01225MES	1/32	0.075		2	●														
 Multi-Edge Tough	DCMW 21505S00435MET	S00435	DCMW 070202S01035MET	0.008	0.075	2		○	○	○	○											
	2151S00435MET		070204S01035MET	1/64	0.067		2		○	○	○	○	○	○	○	○	○	○	○	○	○	
	2152S00435MET		070208S01035MET	1/32	0.075		2		○	○	○	○	○	○	○	○	○	○	○	○	○	
	DCMW 32505S00435MET	S00435	DCMW 11T302S01035MET	0.008	0.075	2	●	○	○	○	○	○	○	○	○	○	○	○	○			
	3251S00435MET		11T304S01035MET	1/64	0.067		2	●	○	○	○	○	○	○	○	○	○	○	○	○		
3252S00435MET	11T308S01035MET		1/32	0.075	2		○	○	○	○	○	○	○	○	○	○	○	○	○	○		
3253S00435MET	11T312S01035MET	3/64	0.075	2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
 Small Edge	DCMW 21505T00315SE	T00315	DCMW 070202T00815SE	0.008	0.075	1		○	○									○	○			
	2151T00315SE		070204T00815SE	1/64	0.067		1		○	○										○	○	
	DCMW 32505T00315SE	T00315	DCMW 11T302T00815SE	0.008	0.075	1													○	○		
3251T00315SE	11T304T00815SE		1/64	0.067	1														○	○		
3252T00315SE	11T308T00815SE	1/32	0.075	1														○	○			
 Small Edge Tough	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		1														○	
3252S00435SET	11T308S01035SET	1/32	0.075	1															○			

Part Number	Applicable Toolholder Page
DC..215_	E24~ E27, E35, F45~ F49
DC..325_	E20, E24~ E27, E35, F45~ F49
Part Number	Applicable Toolholder Page
CC..215_	E22~ E23, E34, F39
CC..325_	E22~ E23, E34, F39

● : U.S. Stock ○ : U.S. Stock (Shipping: 7-10 Business Days) Ⓜ : U.S. Stock (L-hand Only) Ⓜ : U.S. Stock (R-hand Only) Ⓜ : World Express (L-hand Only)

CBN & PCD tools sold in 1 piece boxes.



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

NEW ITEMS!

CBN TOOLS

60° Triangle

Positive Insert with Hole

Part Number	A	T	Ød	α	Part Number	A	T	Ød	α
TPGB 1515_	3/16	3/32	0.091	11°	TPGB 22_	1/4	1/8	0.138	11°
1815_	7/32	3/32	0.118						

Symbol	Cutting Edge Spec.	Edge Prep.		Example	K	H	MEGACOAT CBN												Toolholder Page			
							Dimensions (in)		No. of Edges		CBN											
F	Sharp Edge						ε	S	KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN510	KBN525	KBN475	KBN65B	KBN570	
F	Sharp Edge	E003	R0.003" Honed	K	H	F	1/64	0.071												●	○	
							1/32	0.059														
T	Chamfered Cutting Edge	T00315	0.003" X 15° Chamfered Cutting Edge	K	H	T00315	0.008	0.091	○	○	○	○	○					○	○	●		
							1/64	0.083	3	○	○	○	○	○	○	○	○	○	○	○	○	○
S	Chamfered and Honed Cutting Edge	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	K	H	S00525	1/64	0.071	●											●		
							1/32	0.059	3	●												
NEW	Multi-Edge Sharp Edge	E003	R0.003" Honed	K	H	F	1/64	0.071												●	○	
							1/32	0.059	3													
NEW	Multi-Edge General Purpose	S00525	0.005" X 25° Chamfered and Honed Cutting Edge	K	H	S00525	1/64	0.071	●											●		
							1/32	0.059	3	●												

Part Number	Applicable Toolholder Page
TP..1515_	E29, F53- F57
TP..1815_	F53- F57
TP..22_	E29, F53- F57

Reference Table Below

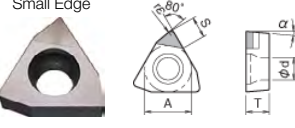
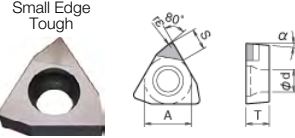
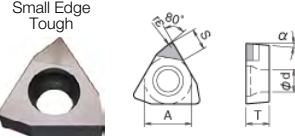
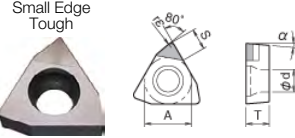
A GRADES
 B INSERTS
 C CBN & PCD
 E TURNING
 F BORING
 G GROOVING
 H CUT-OFF
 J THREADING
 L SOLID END MILLS
 M MILLING
 P SPARE PARTS
 R TECHNICAL
 T INDEX

80° Trigon

Positive Insert with Hole

Part Number	A	T	Ød	α
WBGW 121_	5/32	1/16	0.091	5°
1515_	3/16	3/32	0.091	

Symbol	Cutting Edge Spec.		Example	K												
	Edge Prep.				Material											
F	Sharp Edge			K	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)											
				H	Hard Materials (Roughing)											
					Hard Materials (Finishing)											
S	Chamfered and Honed Cutting Edge		S00525 0.005" X 25° Chamfered and Honed Cutting Edge	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	
				rε	S		KBN05M	KBN10M	KBN25M	KBN30M	KBN35M	KBN60M	KBN65M	KBN70M	KBN510			KBN525
	WBGW 12105T00315%-SE	T00315	WBGW 060102T00815%-SE	0.008	0.075	1	(L)	(L)							(L)	(L)		
	1211T00315%-SE		060104T00815%-SE	1/64	0.075		(L)	(L)							(L)	(L)		
	WBGW 151505T00315%-SE	T00315	WBGW 080202T00815%-SE	0.008	0.091	1	(L)	(L)						(L)	(L)			
	15151T00315%-SE		080204T00815%-SE	1/64	0.091		(L)	(L)							(L)	(L)		
	WBGW 12105S00435%-SET	S00435	WBGW 060102S01035%SET	0.008	0.075	1	(L)	(L)						(L)				
	1211S00435%-SET		060104S01035%SET	1/64	0.075		(L)	(L)							(L)			
	WBGW 151505S00435%-SET	S00435	WBGW 080202S01035%SET	0.008	0.091	1	(L)	(L)						(L)				
	15151S00435%-SET		080204S01035%SET	1/64	0.091		(L)	(L)							(L)			

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
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- T INDEX

External Grooving Inserts

1 - Edge

Grooving Inserts (1-edge)

Edge Prep.																			
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				Nodular Cast Iron (without Scale)												
S	Chamfered and Honed Cutting Edge	S00525	0.005* X 25° Chamfered and Honed Cutting Edge				Nodular Cast Iron (with Scale)												
						H		Hard Materials (Roughing)											
								Hard Materials (Finishing)											
								Hard Materials (Chip Control)											
								Powdered Steel											
<i>Insert</i>			<i>ANSI Part Number</i>	<i>ANSI Old Part Number</i>	<i>Edge Prep (in)</i>	<i>Dimensions</i>				<i>No. of Edges</i>	<i>CBN</i>		<i>Toolholder Page</i>						
External Internal Grooving			GBA43% 125-020 150-020 200-020 250-020 300-020	GBA43% 125 150 200 250 300	E003	<i>Unit</i>	$W_{\pm 0.0012}$ (in)	$W_{\pm 0.03}$ (mm)	<i>B</i>	<i>rε</i>	<i>A</i>	<i>T</i>	<i>∅d</i>	<i>S</i>	1	○ ○ ○ ○ ○	○ ● ○ ○ ○	○ ○ ○ ○ ○	G12 G13

Deep Grooving Inserts (1-edge)

Edge Prep.																		
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				Nodular Cast Iron (without Scale)											
S	Chamfered and Honed Cutting Edge	S00525	0.005* X 25° Chamfered and Honed Cutting Edge				Nodular Cast Iron (with Scale)											
						H		Hard Materials (Roughing)										
								Hard Materials (Finishing)										
								Hard Materials (Chip Control)										
								Powdered Steel										
<i>Insert</i>			<i>ANSI Part Number</i>	<i>ANSI Old Part Number</i>	<i>Edge Prep (in)</i>	<i>Dimensions</i>				<i>No. of Edges</i>	<i>CBN</i>		<i>Toolholder Page</i>					
External Grooving			GMN 2 3 4 5 6	- - - - -	E003	<i>Unit</i>	$W_{\pm 0.002}$ (in)	$W_{\pm 0.05}$ (mm)	<i>rε</i>	<i>L</i>	<i>H</i>	<i>M</i>	<i>S</i>	1	○ ○ ○ ○ ○	○ ○ ○ ○ ○	○ ○ ○ ○ ○	G30 G31

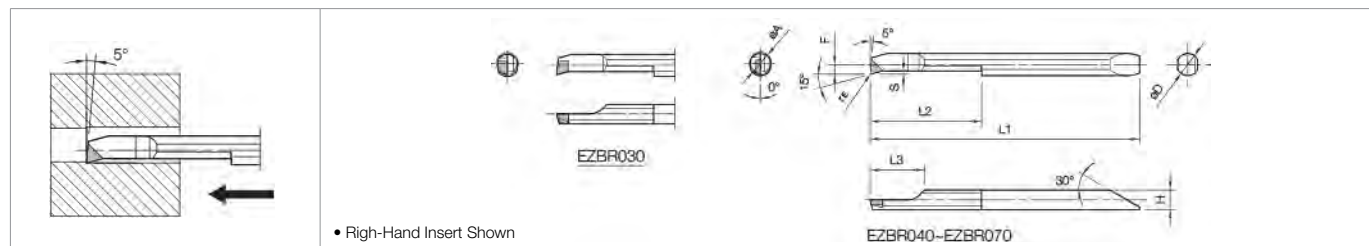
Deep Grooving Inserts (1-edge)

Edge Prep.																		
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				Nodular Cast Iron (without Scale)											
S	Chamfered and Honed Cutting Edge	S00525	0.005* X 25° Chamfered and Honed Cutting Edge				Nodular Cast Iron (with Scale)											
						H		Hard Materials (Roughing)										
								Hard Materials (Finishing)										
								Hard Materials (Chip Control)										
								Powdered Steel										
<i>Insert</i>			<i>ANSI Part Number</i>	<i>ANSI Old Part Number</i>	<i>Edge Prep (in)</i>	<i>Dimensions</i>				<i>No. of Edges</i>	<i>CBN</i>		<i>Toolholder Page</i>					
External Grooving			GDGS 2020N-020NB 3020N-040NB 4020N-040NB 5020N-040NB 6020N-040NB		E003 E001 E003 E001 E003 E001 E003 E001	<i>Unit</i>	$W_{\pm 0.0008}$ (in)	$W_{\pm 0.02}$ (mm)	<i>rε</i>	<i>L</i>	<i>H</i>	<i>M</i>	<i>S</i>	1	○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○	○ ○ ○ ○ ○ ○ ○ ○	G19 G21

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZ Bars

EZB-NB: CBN **NEW!**



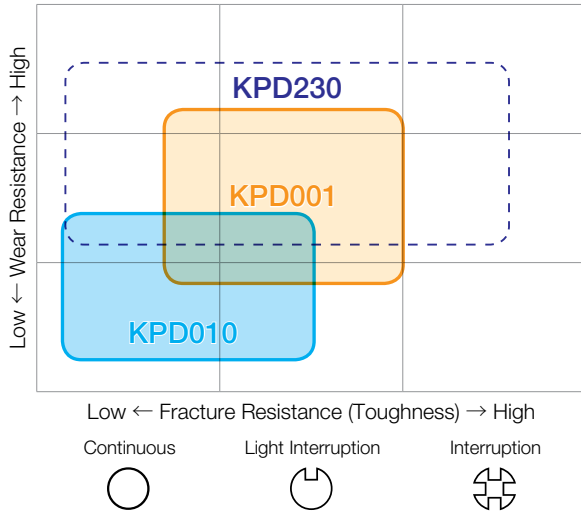
EZ Bar Dimensions

Symbol	Cutting Edge Spec.	Edge Prep.		Example	K	Material		No. of Edges	CBN			
		Symbol	Spec.			Material	Material					
E	Rounded Cutting Edge (Hone)	E003	R0.003* Honed		K	Gray Cast Iron (with Scale)		1				
T	Chamfered Cutting Edge	T00315	0.003° X 15° Chamfered Cutting Edge			Nodular Cast Iron (without Scale)						
S	Chamfered and Honed Cutting Edge	S00525	0.005° X 25° Chamfered and Honed Cutting Edge			Nodular Cast Iron (with Scale)						
					H	Hard Materials (Roughing)			●			
						Hard Materials (Finishing)						
						Hard Materials (Chip Control)						
						Powdered Steel						
ANSI Part Number		Edge Prep	Min. Bore Dia.	Dimensions (mm)							No. of Edges	CBN
ØA	ØD	H	L1	L2	L3	F	S	rε		KBN05M		
EZBR 030030-003NB	T00315	3	3	2.6	38.8	13	6.8	1.25	0.3	0.035± ^{0.015}	1	○
040040-003NB	T00315	4	4	3.6	48.8	20	9.8	1.75	0.5			○
050050-003NB	T00315	5	5	4.6	58.1	25	9.8	2.25	0.5			○
060060-003NB	T00315	6	6	5.6	66.1	30	11.8	2.75	0.5			○
070070-003NB	T00315	7	7	6.6	74.1	35	11.8	3.25	0.5			○

Applicable Sleeves Page

F21
F25

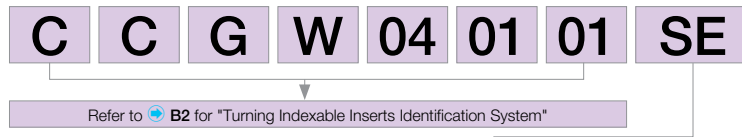
Application Map



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

Turning Insert Identification System



Insert Type	Part Number	Manufacture's Option	Series Name	Cutting Edge Length	No. of Edges	Regrinding
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	-		1	

Note) 1. No edge preparation symbols for PCD inserts. Most of the PCD inserts' edge preparations are sharp edge.
2. Refer to **Page B6** for insert color.

About Regrinding

- 1) Regrinding is possible with the inserts with "NE" and no symbol in manufacturer's option 2. Regrinding can not be available on the edge condition.
- 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)	
				Positive Inserts		
Aluminum Alloys Zinc Alloys	★	☆	975 - 4925	~0.039	0.001 ~ 0.020	Both Dry and Wet Cutting Available
Copper, Brass, Bronze	★	☆	975 - 3275	~0.039	0.001 ~ 0.020	
Magnesium Alloys	★	☆	1300 - 3925	~0.039	0.001 ~ 0.020	
Carbide	★	☆	25 - 100	~0.012	0.001 ~ 0.004	
Titanium Alloys	★	☆	325 - 650	~0.039	0.002 ~ 0.008	Wet
Glass Fiber Reinforced Plastics Carbon Fiber	★	☆	325 - 1975	~0.039	0.002 ~ 0.020	Dry
Silica Filling Plastic Particle Board	★	☆	1300 - 2625	~0.039	0.002 ~ 0.020	

★: 1st Recommendation ☆: 2nd Recommendation

GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GRINDING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

Positive

Positive Insert with Hole


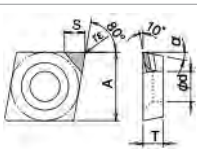
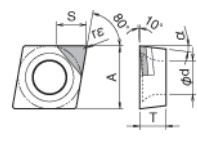

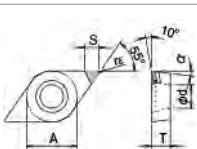
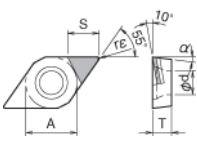
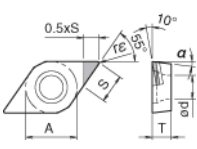
A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

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	ISO Part Number	Dimensions (in)					Angle (°)	No. of Edges	PCD	Toolholder	Page	
			A	T	Ød	rε	S						KPD001
	NEW CCGW 141102SE	CCGW 040101SE	0.169	0.071	0.091	0.004	0.051	7°	1	○	○	F18 F39	
	NEW 141105SE	040102SE	0.169	0.071	0.091	0.008	0.051	7°	1	○	○		
	NEW 14111SE	040104SE	0.169	0.071	0.091	1/64	0.051	7°	1	○	○		
	NEW CCGW 21502SE	CCGW 21505SE	CCGW 060201SE	1/4	3/32	0.110	0.004	0.091	7°	1	○	○	See Table Below
		NEW 21505SE	060202SE	1/4	3/32	0.110	0.008	0.091	7°	1	○	○	
		NEW 2151SE	060204SE	1/4	3/32	0.110	1/64	0.091	7°	1	○	○	
	NEW CCGW 32505SE	CCGW 3251SE	CCGW 09T302SE	3/8	5/32	0.173	0.008	0.106	7°	1	○	○	See Table Below
		NEW 3251SE	09T304SE	3/8	5/32	0.173	1/64	0.106	7°	1	○	○	
		NEW 3252SE	09T308SE	3/8	5/32	0.173	1/32	0.106	7°	1	○	○	
	CCGW 141102NE	CCGW 141105NE	CCGW 040101NE	0.169	0.071	0.091	0.004	0.067	7°	1	○	○	F18 F39
		141111NE	040102NE	0.169	0.071	0.091	0.008	0.063	7°	1	○	○	
		14111NE	040104NE	0.169	0.071	0.091	1/64	0.063	7°	1	○	○	
	CCGW 21502NE	CCGW 21505NE	CCGW 060201NE	1/4	3/32	0.110	0.004	0.122	7°	1	○	○	See Table Below
		NEW 21505NE	060202NE	1/4	3/32	0.110	0.008	0.118	7°	1	○	○	
		NEW 2151NE	060204NE	1/4	3/32	0.110	1/64	0.118	7°	1	○	○	
	CCGW 32502NE	CCGW 32505NE	CCGW 09T301NE	3/8	5/32	0.173	0.004	0.134	7°	1	○	○	See Table Below
		NEW 32505NE	09T302NE	3/8	5/32	0.173	0.008	0.134	7°	1	○	○	
		NEW 3251NE	09T304NE	3/8	5/32	0.173	1/64	0.134	7°	1	○	○	
	CCGW 141102	CCGW 141105	CCGW 40101	0.169	0.071	0.091	0.004	0.075	7°	1	○	○	F18 F39
		NEW 141105	40102	0.169	0.071	0.091	0.008	0.075	7°	1	○	○	
NEW 14111		40104	0.169	0.071	0.091	1/64	0.075	7°	1	○	○		
CCGW 21502	CCGW 21505	CCGW 60201	1/4	3/32	0.110	0.004	0.138	7°	1	○	○	See Table Below	
	NEW 21505	60202	1/4	3/32	0.110	0.008	0.138	7°	1	○	○		
	NEW 2151	60204	1/4	3/32	0.110	1/64	0.138	7°	1	○	○		
CCGW 32502	CCGW 32505	CCGW 09T301	3/8	5/32	0.173	0.004	0.150	7°	1	○	○	See Table Below	
	NEW 32505	09T302	3/8	5/32	0.173	0.008	0.150	7°	1	○	○		
	NEW 3251	09T304	3/8	5/32	0.173	1/64	0.146	7°	1	○	○		
CCGW 3252	CCGW 3252	09T308	3/8	5/32	0.173	1/32	0.142	7°	1	○	○	See Table Below	
	NEW 3252	09T308	3/8	5/32	0.173	1/32	0.142	7°	1	○	○		
	NEW 3252	09T308	3/8	5/32	0.173	1/32	0.142	7°	1	○	○		
CCMT 21505SE	CCMT 2151SE	CCMT 060202SE	1/4	3/32	0.110	0.008	0.087	7°	1	○	○	Reference Table Below	
	NEW 2151SE	060204SE	1/4	3/32	0.110	1/64	0.087	7°	1	○	○		
	NEW 32502SE	09T301SE	3/8	5/32	0.173	0.004	0.106	7°	1	○	○		
CCMT 32505SE	CCMT 3251SE	CCMT 09T302SE	3/8	5/32	0.173	0.008	0.106	7°	1	○	○	Reference Table Below	
	NEW 3251SE	09T304SE	3/8	5/32	0.173	1/64	0.106	7°	1	○	○		
	NEW 3252SE	09T308SE	3/8	5/32	0.173	1/32	0.106	7°	1	○	○		
CCMT 21502NE	CCMT 21505NE	CCMT 060201NE	1/4	3/32	0.110	0.004	0.110	7°	1	○	○	Reference Table Below	
	2151NE	060202NE	1/4	3/32	0.110	0.008	0.110	7°	1	○	○		
	2151NE	060204NE	1/4	3/32	0.110	1/64	0.110	7°	1	○	○		
CCMT 32502NE	CCMT 32505NE	CCMT 09T301NE	3/8	5/32	0.173	0.004	0.134	7°	1	○	○	Reference Table Below	
	NEW 32505NE	09T302NE	3/8	5/32	0.173	0.008	0.134	7°	1	○	○		
	NEW 3251NE	09T304NE	3/8	5/32	0.173	1/64	0.134	7°	1	○	○		
CCMT 3252NE	CCMT 3252NE	09T308NE	3/8	5/32	0.173	1/32	0.130	7°	1	○	○	Reference Table Below	
	NEW 3252NE	09T308NE	3/8	5/32	0.173	1/32	0.130	7°	1	○	○		
	NEW 3252NE	09T308NE	3/8	5/32	0.173	1/32	0.130	7°	1	○	○		
CCMT 21502	CCMT 21505	CCMT 60201	1/4	3/32	0.110	0.004	0.130	7°	1	○	○	Reference Table Below	
	NEW 21505	60202	1/4	3/32	0.110	0.008	0.130	7°	1	●	●		
	NEW 2151	60204	1/4	3/32	0.110	1/64	0.126	7°	1	●	●		
CCMT 32502	CCMT 32505	CCMT 09T301	3/8	5/32	0.173	0.004	0.154	7°	1	○	○	Reference Table Below	
	NEW 32505	09T302	3/8	5/32	0.173	0.008	0.154	7°	1	○	○		
	NEW 3251	09T304	3/8	5/32	0.173	1/64	0.154	7°	1	○	○		
CCMT 3252	CCMT 3252	09T308	3/8	5/32	0.173	1/32	0.150	7°	1	○	○	Reference Table Below	
	NEW 3252	09T308	3/8	5/32	0.173	1/32	0.150	7°	1	○	○		
	NEW 3252	09T308	3/8	5/32	0.173	1/32	0.150	7°	1	○	○		

Part Number	Applicable Toolholder Page
CC..215_	E22- E23, E34, F39
CC..325_	E22- E23, E34, F39

Positive

Positive Insert with Hole

		Edge Prep.																
All PCD Items		Sharp Edge		N		S		N		S		N		S				
				Non-Ferrous Metals (with Interruption)		Titanium Alloys (with Interruption)		Non-Ferrous Metals (without Interruption)		Titanium Alloys (without Interruption)		Non-Ferrous Metals (with Interruption)		Titanium Alloys (with Interruption)				
Insert		ANSI Part Number		ISO Part Number		Dimensions (in)					Angle (°)		No. of Edges		PCD		Toolholder Page	
						A	T	Ød	rε	S	α			KPD001	KPD010			
		NEW CPMH 3205SE 321SE	CPMH 090302SE		3/8	0.071	0.177	0.008	0.106	11°	1		○	○	F41 Reference Table Below			
			CPMH 090304SE		3/8	0.071	0.177	1/64	0.106	11°	1		○	○				
		CPMH 251505NE 25151NE	CPMH 080202NE		5/16	3/32	0.138	0.008	0.126	11°	1		○	○				
			CPMH 080204NE		5/16	3/32	0.138	1/64	0.126	11°	1		○	○				
		CPMH 3202NE 3205NE 321NE 322NE	CPMH 090301NE		3/8	0.071	0.177	0.004	0.134	11°	1		○	○				
			CPMH 090302NE		3/8	0.071	0.177	0.008	0.134	11°	1		○	○				
			CPMH 090304NE		3/8	0.071	0.177	1/64	0.134	11°	1		○	○				
			CPMH 090308NE		3/8	0.071	0.177	1/32	0.134	11°	1		○	○				
		CPMH 251502 251505 25151	CPMH 80201		5/16	3/32	0.138	0.004	0.146	11°	1		○	○				
			CPMH 80202		5/16	3/32	0.138	0.008	0.146	11°	1		●	○				
			CPMH 80204		5/16	3/32	0.138	1/64	0.146	11°	1		●	○				
			CPMH 90301		3/8	0.071	0.177	0.004	0.158	11°	1		○	○				
		NEW DCMT 21502SE 21505SE 2151SE	DCMT 070201SE		1/4	3/32	0.110	0.004	0.106	7°	1		○	○				
			DCMT 070202SE		1/4	3/32	0.110	0.008	0.106	7°	1		○	○				
			DCMT 070204SE		1/4	3/32	0.110	1/64	0.106	7°	1		○	○				
		NEW DCMT 32502SE 32505SE 3251SE 3252SE	DCMT 11T301SE		3/8	5/32	0.173	0.004	0.106	7°	1		○	○				
			DCMT 11T302SE		3/8	5/32	0.173	0.008	0.106	7°	1		○	○				
			DCMT 11T304SE		3/8	5/32	0.173	1/64	0.106	7°	1		●	○				
		DCMT 21502NE 21505NE 2151NE	DCMT 070201NE		1/4	3/32	0.110	0.004	0.134	7°	1		○	○				
			DCMT 070202NE		1/4	3/32	0.110	0.008	0.134	7°	1		○	○				
			DCMT 070204NE		1/4	3/32	0.110	1/64	0.126	7°	1		○	○				
		DCMT 32502NE 32505NE 3251NE 3252NE	DCMT 11T301NE		3/8	5/32	0.173	0.004	0.134	7°	1		○	○				
			DCMT 11T302NE		3/8	5/32	0.173	0.008	0.130	7°	1		○	○				
			DCMT 11T304NE		3/8	5/32	0.173	1/64	0.126	7°	1		○	○				
DCMT 21502 21505 2151	DCMT 70201		1/4	3/32	0.110	0.004	0.158	7°	1		○	○						
	DCMT 70202		1/4	3/32	0.110	0.008	0.154	7°	1		●	○						
	DCMT 70204		1/4	3/32	0.110	1/64	0.146	7°	1		●	○						
	DCMT 32502 32505 3251 3252	DCMT 11T301		3/8	5/32	0.173	0.004	0.158	7°	1		○	○					
		DCMT 11T302		3/8	5/32	0.173	0.008	0.154	7°	1		●	○					
	DCMT 11T304		3/8	5/32	0.173	1/64	0.146	7°	1		●	○						
	DCMT 11T308		3/8	5/32	0.173	1/32	0.130	7°	1		●	○						
	DCMT 21505% -NE 2151% -NE	DCMT 070202% -NE		1/4	3/32	0.110	0.008	0.130	7°	1		○	○					
		DCMT 070204% -NE		1/4	3/32	0.110	1/64	0.126	7°	1		○	○					
DCMT 32505% -NE 3251% -NE	DCMT 11T302% -NE		3/8	5/32	0.173	0.008	0.130	7°	1		○	○						
	DCMT 11T304% -NE		3/8	5/32	0.173	1/64	0.126	7°	1		○	○						

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
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Part Number	Applicable Toolholder Page
DC..215_	E24~ E27, E35, F45~ F49
DC..325_	E20, E24~ E27, E35, F45~ F49


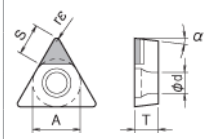

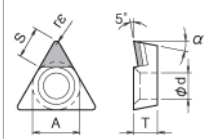





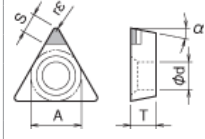
● : U.S. Stock ○ : World Express (Shipping: 7-10 Business Days) Ⓜ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only) Ⓢ : World Express (R-hand Only) Ⓣ : World Express (L-hand Only)

CBN & PCD tools sold in 1 piece boxes.

Positive

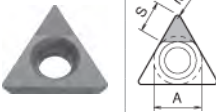


Positive Insert with Hole

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

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)					Angle (°)	No. of Edges	PCD		Toolholder		Page		
						A	T	Ød	rε	S	α		KPD001	KPD010					
		TBGW	12105NE	TBGW	060102NE	5/32	1/16	0.091	0.008	0.083	5°	1	○						
			1211NE		060104NE	5/32	1/16	0.091	1/64	0.075	5°	1	○						
		TBGW	12105	TBGW	060102	5/32	1/16	0.091	0.008	0.094	5°	1	○	○					
			1211	TBGW	060104	5/32	1/16	0.091	1/64	0.087	5°	1	○	○					
		TBMT	12102NE	TBMT	060101NE	5/32	1/16	0.091	0.004	0.087	5°	1	○				⊕ F53		
			12105NE		060102NE	5/32	1/16	0.091	0.008	0.083	5°		○				⊕ F55		
			1211NE		060104NE	5/32	1/16	0.091	1/64	0.079	5°		○				⊕ F57		
			1212NE		060108NE	5/32	1/16	0.091	1/32	0.067	5°		○						
		TBMT	12102	TBMT	060101	5/32	1/16	0.091	0.004	0.102	5°	1	○	○					
			12105		060102	5/32	1/16	0.091	0.008	0.098	5°	1	○	○					
			1211		060104	5/32	1/16	0.091	1/64	0.091	5°	1	○	○					
			1212		060108	5/32	1/16	0.091	1/32	0.079	5°	1	○	○					
		TCGW	2205SE	TCGW	110302SE	1/4	0.071	0.110	0.008	0.098	7°	1		○					
			221SE		110304SE	1/4	0.071	0.110	1/64	0.094	7°		1	○					
		TCGW	2205NE	TCGW	110302NE	1/4	0.071	0.110	0.008	0.130	7°	1	○						
			221NE		110304NE	1/4	0.071	0.110	1/64	0.126	7°		1	○					
		TCGW	2205	TCGW	110302	1/4	0.071	0.110	0.008	0.154	7°	1		○					
			221		110304	1/4	0.071	0.110	1/64	0.146	7°		1		○				
		TCMT	2202SE	TCMT	110301SE	1/4	0.071	0.110	0.004	0.102	7°	1		○			⊕ E29		
			2205SE		110302SE	1/4	0.071	0.110	0.008	0.098	7°		1		○				
			221SE		110304SE	1/4	0.071	0.110	1/64	0.094	7°		1		○				
		TCMT	151505NE	TCMT	080202NE	3/16	3/32	0.091	0.008	0.083	7°	1	○						
			2205NE		110302NE	1/4	0.071	0.110	0.008	0.134	7°	1	○						
		TCMT	221NE		110304NE	1/4	0.071	0.110	1/64	0.130	7°		1	○					
			151505	TCMT	080202	3/16	3/32	0.091	0.008	0.094	7°	1		○					
		15151		080204	3/16	3/32	0.091	1/64	0.087	7°	1			○					
		TCMT	2205	TCMT	110302	1/4	3/32	0.110	0.008	0.154	7°	1		○					
				TPGB	181505SE	TPGB	090202SE	7/32	3/32	0.118	0.008	0.083	11°	1		○			
18151SE					090204SE	7/32	3/32	0.118	1/64	0.083	11°	1			○				
18152SE					090208SE	7/32	3/32	0.118	1/32	0.083	11°	1			○			⊕ E29	
TPGB	2202SE			TPGB	110301SE	1/4	0.071	0.130	0.004	0.106	11°	1		○	○			⊕ F53	
	2205SE				110302SE	1/4	0.071	0.130	0.008	0.102	11°		1		○	○			
TPGB	221SE		110304SE	1/4	0.071	0.130	1/64	0.098	11°	1		○	○						

Positive

Positive Insert with Hole

All PCD Items		Sharp Edge		Edge Prep.					N		S		No. of Edges	PCD	Toolholder Page
Insert		ANSI Part Number	ISO Part Number	Dimensions (in)					Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)				
				A	T	Ød	rε	S	α	Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)		KPD001	KPD010
		TPGB 151505NE	TPGB 080202NE	3/16	3/32	0.098	0.008	0.087	11°	●	●	○	○		
		15151NE	080204NE	3/16	3/32	0.098	1/64	0.083	11°	○	○	○	○		
		15152NE	080208NE	3/16	3/32	0.098	1/32	0.071	11°	○	○	○	○		
		TPGB 181505NE	TPGB 090202NE	7/32	3/32	0.118	0.008	0.106	11°	○	○	○	○		
		18151NE	090204NE	7/32	3/32	0.118	1/64	0.102	11°	○	○	○	○		
		18152NE	090208NE	7/32	3/32	0.118	1/32	0.091	11°	○	○	○	○		
		TPGB 2205NE	TPGB 110302NE	1/4	1/8	0.130	0.008	0.134	11°	○	○	○	○		
		221NE	110304NE	1/4	1/8	0.130	1/64	0.130	11°	○	○	○	○		
		222NE	110308NE	1/4	1/8	0.130	1/32	0.118	11°	○	○	○	○		
		TPGB 151505	TPGB 80202	3/16	3/32	0.098	0.008	0.102	11°	○	○	○	○		
		15151	80204	3/16	3/32	0.098	1/64	0.094	11°	○	○	○	○		
		TPGB 181505	TPGB 90202	7/32	3/32	0.118	0.008	0.126	11°	○	○	○	○		
18151	90204	7/32	3/32	0.118	1/64	0.118	11°	○	○	○	○				
TPGB 2205	TPGB 110302	1/4	1/8	0.130	0.008	0.154	11°	○	○	○	○				
221	110304	1/4	1/8	0.130	1/64	0.146	11°	○	○	○	○				
222	110308	1/4	1/8	0.130	1/32	0.134	11°	○	○	○	○				
		NEW TPMH 151505SE	TPMH 080202SE	3/16	3/32	0.098	0.008	0.067	11°	○	○	○	○		
		NEW 15151SE	080204SE	3/16	3/32	0.098	1/64	0.067	11°	○	○	○	○		
		NEW TPMH 181505SE	TPMH 090202SE	7/32	3/32	0.118	0.008	0.079	11°	○	○	○	○		
		NEW 18151SE	090204SE	7/32	3/32	0.118	1/64	0.079	11°	○	○	○	○		
		TPMH 2202SE	TPMH 110301SE	1/4	1/8	0.138	0.004	0.106	11°	○	○	○	○		
		2205SE	110302SE	1/4	1/8	0.138	0.008	0.102	11°	○	○	○	○		
		221SE	110304SE	1/4	1/8	0.138	1/64	0.098	11°	○	○	○	○		
		TPMH 151502NE	TPMH 080201NE	3/16	3/32	0.098	0.004	0.091	11°	○	○	○	○		
		151505NE	080202NE	3/16	3/32	0.098	0.008	0.087	11°	○	○	○	○		
		15151NE	080204NE	3/16	3/32	0.098	1/64	0.083	11°	○	○	○	○		
		TPMH 181502NE	TPMH 090201NE	7/32	3/32	0.118	0.004	0.106	11°	○	○	○	○		
		181505NE	090202NE	7/32	3/32	0.118	0.008	0.102	11°	○	○	○	○		
		18151NE	090204NE	7/32	3/32	0.118	1/64	0.098	11°	○	○	○	○		
		18152NE	090208NE	7/32	3/32	0.118	1/32	0.087	11°	○	○	○	○		
		TPMH 2202NE	TPMH 110301NE	1/4	1/8	0.130	0.004	0.134	11°	○	○	○	○		
		2205NE	110302NE	1/4	1/8	0.130	0.008	0.130	11°	○	○	○	○		
		221NE	110304NE	1/4	1/8	0.130	1/64	0.126	11°	○	○	○	○		
		222NE	110308NE	1/4	1/8	0.130	1/32	0.114	11°	○	○	○	○		
		TPMH 151502	TPMH 80201	3/16	3/32	0.098	0.004	0.102	11°	○	○	○	○		
		151505	80202	3/16	3/32	0.098	0.008	0.098	11°	○	○	○	○		
		15151	80204	3/16	3/32	0.098	1/64	0.091	11°	○	○	○	○		
		TPMH 181502	TPMH 90201	7/32	3/32	0.118	0.004	0.118	11°	○	○	○	○		
		181505	90202	7/32	3/32	0.118	0.008	0.114	11°	○	○	○	○		
		18151	90204	7/32	3/32	0.118	1/64	0.091	11°	○	○	○	○		
18152	90208	7/32	3/32	0.118	1/32	0.098	11°	○	○	○	○				
TPMH 2202	TPMH 110301	1/4	1/8	0.130	0.004	0.154	11°	○	○	○	○				
2205	110302	1/4	1/8	0.130	0.008	0.154	11°	○	○	○	○				
221	110304	1/4	1/8	0.130	1/64	0.146	11°	○	○	○	○				
222	110308	1/4	1/8	0.130	1/32	0.134	11°	○	○	○	○				

Part Number	Applicable Toolholder Page
TP..1515_	E29, F53- F57
TP..1815_	F53- F57
TP..22_	E29, F53- F57

● : U.S. Stock ○ : U.S. Stock (R-hand Only) ◐ : U.S. Stock (L-hand Only)
 ○ : World Express (Shipping: 7-10 Business Days) ◐ : World Express (R-hand Only) ◑ : World Express (L-hand Only)

CBN & PCD tools sold in 1 piece boxes.



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Positive

Positive Insert with Hole

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Edge Prep.		All PCD Items		Sharp Edge		N					PCD		Toolholder Page	
		Insert		ANSI Part Number	ISO Part Number	Dimensions (in)					Angle (°)	No. of Edges		KPD001
						A	T	Ød	rε	S	α			
		TPMH 2205%-NE	TPMH 110302%-NE	1/4	1/8	0.130	0.008	0.150	11°		1	○		
		221%-NE	110304%-NE	1/4	1/8	0.130	1/64	0.142	11°		1	○		
		VBMT 2202SE	VBMT 110301SE	1/4	1/8	0.110	0.004	0.098	5°		1	○		
		NEW 2205SE	110302SE	1/4	1/8	0.110	0.008	0.091	5°		1	○		
		221SE	110304SE	1/4	1/8	0.110	1/64	0.075	5°		1	○		
		222SE	110308SE	1/4	1/8	0.110	1/32	0.075	5°		1	○		
		NEW 3302SE	VBMT 160401SE	3/8	3/16	0.173	0.004	0.106	5°		1	○		
		3305SE	160402SE	3/8	3/16	0.173	0.008	0.098	5°		1	○		
		331SE	160404SE	3/8	3/16	0.173	1/64	0.083	5°		1	○		
		332SE	160408SE	3/8	3/16	0.173	1/32	0.079	5°		1	○		
		VBMT 2202NE	VBMT 110301NE	1/4	1/8	0.110	0.004	0.102	5°		1	○		
		2205NE	110302NE	1/4	1/8	0.110	0.008	0.094	5°		1	○		
		221NE	110304NE	1/4	1/8	0.110	1/64	0.079	5°		1	○		
		222NE	110308NE	1/4	1/8	0.110	1/32	0.122	5°		1	○		
		VBMT 3302NE	VBMT 160401NE	3/8	3/16	0.173	0.004	0.110	5°		1	○		
		3305NE	160402NE	3/8	3/16	0.173	0.008	0.102	5°		1	○		
		331NE	160404NE	3/8	3/16	0.173	1/64	0.087	5°		1	○		
		332NE	160408NE	3/8	3/16	0.173	1/32	0.118	5°		1	○		
		VBMT 2202	VBMT 110301	1/4	1/8	0.110	0.004	0.118	5°		1	○	○	
		2205	110302	1/4	1/8	0.110	0.008	0.110	5°		1	○	○	
		221	110304	1/4	1/8	0.110	1/64	0.094	5°		1	●	●	
		222	110308	1/4	1/8	0.110	1/32	0.138	5°		1	○	○	
		VBMT 3302	VBMT 160401	3/8	3/16	0.173	0.004	0.126	5°		1	○	○	
		3305	160402	3/8	3/16	0.173	0.008	0.118	5°		1	●	●	
		331	160404	3/8	3/16	0.173	1/64	0.102	5°		1	●	○	
		332	160408	3/8	3/16	0.173	1/32	0.138	5°		1	○	●	
		NEW VCMT 151505SE	VCMT 080202SE	3/16	3/32	0.091	0.008	0.055	7°		1	○		
		15151SE	080204SE	3/16	3/32	0.091	1/64	0.055	7°		1	○		
		15152SE	080208SE	3/16	3/32	0.091	1/32	0.055	7°		1	○		
		VCMT 151502NE	VCMT 080201NE	3/16	3/32	0.091	0.004	0.067	7°		1	○	○	
		151505NE	080202NE	3/16	3/32	0.091	0.008	0.067	7°		1	○	○	
		15151NE	080204NE	3/16	3/32	0.091	1/64	0.071	7°		1	○	○	
		15152NE	080208NE	3/16	3/32	0.091	1/32	0.075	7°		1	○	○	
		VCMT 151502	VCMT 080201	3/16	3/32	0.091	0.004	0.079	7°		1	○	○	
		151505	080202	3/16	3/32	0.091	0.008	0.079	7°		1	○	○	
		15151	080204	3/16	3/32	0.091	1/64	0.083	7°		1	○	○	
		15152	080208	3/16	3/32	0.091	1/32	0.087	7°		1	○	○	
				WBMT 12105L-SE	WBMT 060102L-SE	5/32	1/16	0.091	0.008	0.051	5°		1	○
WBMT 12102L-NE	WBMT 060101L-NE			5/32	1/16	0.091	0.004	0.067	5°		1	○	○	
NEW 12105L-NE	060102L-NE			5/32	1/16	0.091	0.008	0.063	5°		1	○	○	
1211L-NE	060104L-NE			5/32	1/16	0.091	1/64	0.063	5°		1	○	○	
WBMT 12102L	WBMT 060101L			5/32	1/16	0.091	0.004	0.075	5°		1	○	○	
12105L	060102L			5/32	1/16	0.091	0.008	0.075	5°		1	○	○	
1211L	060104L	5/32	1/16	0.091	1/64	0.075	5°		1	○	●			

Reference Table Below

Part Number	Applicable Toolholder Page	Part Number	Applicable Toolholder Page
TP..22_	E29, F49~ F50	VB..22_	E30~ E31, E36, F61~ F63
		VB..33_	E30~ E31, F61~ F63

Positive

Positive Insert with Hole

		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	ISO Part Number	Dimensions (in)					Angle (°)	No. of Edges	PCD		Toolholder Page	
			A	T	Ød	rε	S	α		KPD001	KPD010		
	WBMT 151505L-SE	WBMT 080202L-SE	3/16	3/32	0.091	0.008	0.063	5°	1	○		F65 F66 F67	
	WBMT 151505L-NE	WBMT 080202L-NE	3/16	3/32	0.091	0.008	0.083	5°	1	○			
	WBMT 15151L-NE	WBMT 080204L-NE	3/16	3/32	0.091	1/64	0.083	5°	1	○			
	WBMT 151505L	WBMT 080202L	3/16	3/32	0.091	0.008	0.094	5°	1	○	○		
WBMT 15151L	WBMT 080204L	3/16	3/32	0.091	1/64	0.091	5°	1	○	○			
	WPMT 21505SE	WPMT 110202SE	1/4	3/32	0.110	0.008	0.083	11°	1	○			
	WPMT 21505NE	WPMT 110202NE	1/4	3/32	0.110	0.008	0.106	11°	1	○			
	WPMT 21505	WPMT 110202	1/4	3/32	0.110	0.008	0.122	11°	1	●			

Milling Inserts

		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	Dimensions (mm)							Angle (°)	No. of Edges	PCD		Toolholder Page
		A	T	Ød	W	rε	S	α	β		KPD001	KPD010	
	BDMT 11T302FR	6.7	3.8	2.8	11.0	0.2	3.6	18°	13°	1	●	○	M3
	11T304FR	6.7	3.8	2.8	11.0	0.4	3.6	18°	13°	1	●	○	

● : U.S. Stock Ⓜ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only)
 ○ : World Express (Shipping: 7-10 Business Days) Ⓜ : World Express (R-hand Only) Ⓛ : World Express (L-hand Only)

CBN & PCD tools sold in 1 piece boxes.



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Grooving

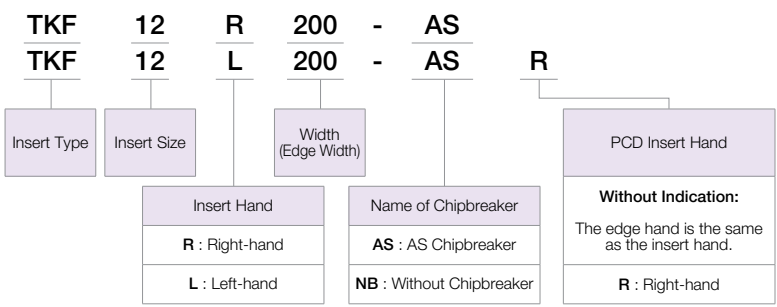
1 - Edge

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

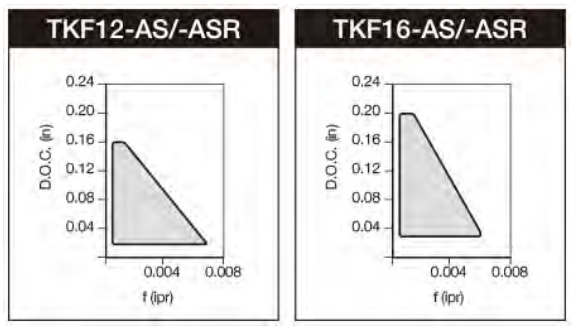
Edge Prep.		N		Non-Ferrous Metals (with Interruption)		Non-Ferrous Metals (without Interruption)		S		Titanium Alloys (with Interruption)		Titanium Alloys (without Interruption)		PCD									
All PCD Items		Sharp Edge		Dimensions (mm)										Angle (°)		No. of Edges		KPD001		Toolholder		Page	
Insert		ANSI Part Number		W ^{+0.0012} (in)	W ^{+0.03} (mm)	B	r _ε ^{+0.00} ^{-0.05}	T	H	h1	Ød	S	θ										
Turning Grooving		TKF12 ^{R/L} 200-AS	200-AS	0.079	2.0	5.0	0.1	3	8.7	7.3	5	5.5	0°	1		Ⓢ							
		250-AS	250-AS	0.098	2.5	5.0	0.1	3	8.7	7.3	5	5.5	0°	1		○							
		TKF16 ^{R/L} 250-AS	250-AS	0.098	2.5	8.0	0.1	4	9.5	8.0	5	6.5	0°	1		○							
		TKF12 ^{R/L} 200-ASR	200-ASR	0.079	2.0	5.0	0.1	3	8.7	7.3	5	5.5	0°	1		Ⓢ							
External Grooving (Turning is Possible)		TKF12 ^{R/L} 150-NB	150-NB	0.059	1.5	3.5	0.1	3	8.7	8.3	5	2.0	0°	1		○							
		200-NB	200-NB	0.079	2.0	4.0	0.1	3	8.7	8.3	5	3.0	0°	1		○							
		250-NB	250-NB	0.098	2.5	4.0	0.1	3	8.7	8.3	5	3.0	0°	1		○							
		250-NB4.5	250-NB4.5	0.098	2.5	5.0	0.1	3	8.7	8.3	5	4.5	0°	1		○							

- Lead angle (front cutting edge angle: θ) shows the angle when installed into toolholder
- TKF PCD inserts are only for turning and grooving
- Cut-off is not recommended.
- Dimension B 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/-ASR will be 1mm 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 1mm adjustment is not possible on your automatic lathe, use the TKF-NB (Ref. Fig.2).

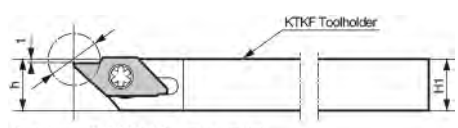


Fig.1 When a TKF-AS/-ASR insert is attached (The cutting edge is 1mm lower than the center line.)

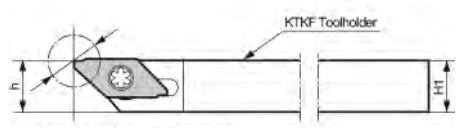
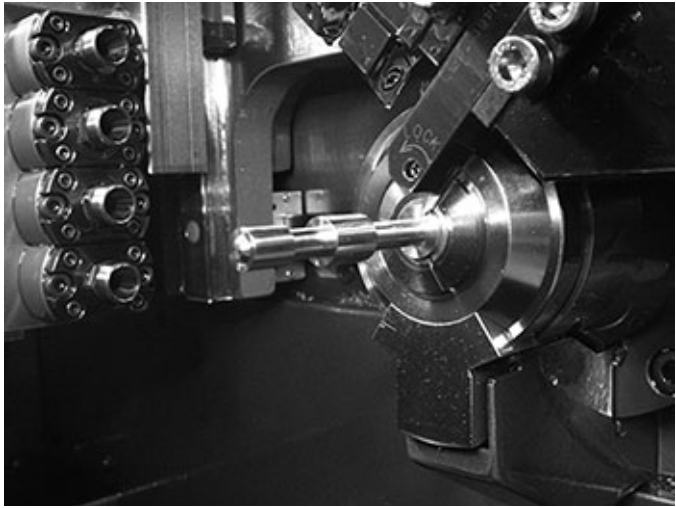


Fig.2 When a TKF-NB insert is attached

When Using TKF-AS Inserts

KTKF toolholder is multi-functional for non-ferrous and non-metal materials when combined with a TKF-AS insert. (Fig.1)



Example of Spool Cutting

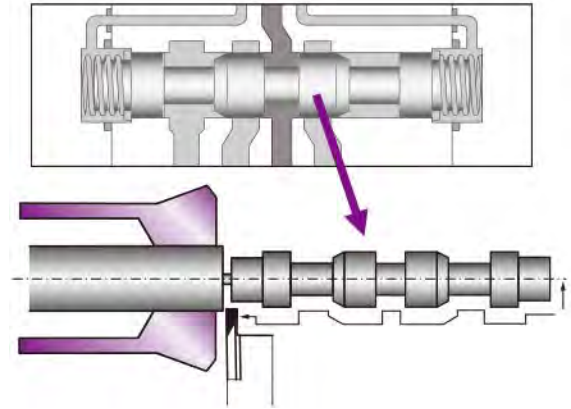


Fig.1 Example of the pass of KTKF toolholder + TKF-AS insert

Recommended Cutting Conditions (TKF12 / TKF16)

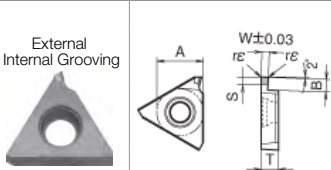
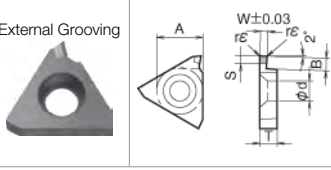
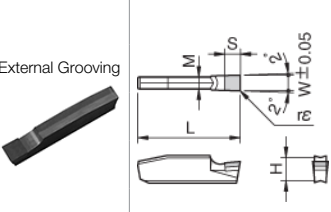
Workpiece Material		PCD		Remarks
		KPD001		
		Grooving	Turning	
Aluminum alloys	Cutting speed Vc (sfm)	975~4925		Wet
	Feed rate f (ipr)	0.0004~0.0012	0.0008~0.0047	
Brass	Cutting speed Vc (sfm)	325~1150		
	Feed rate f (ipr)	0.0004~0.0020	0.0008~0.0059	

- GRADES **A**
- INSERTS **B**
- CBN & PCD** **C**
- TURNING **E**
- BORING **F**
- GROOVING **G**
- CUT-OFF **H**
- THREADING **J**
- SOLID END MILLS **L**
- MILLING **M**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**


External Grooving Inserts

1 - Edge

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	W ^{+0.0012} (in)	W ^{+0.03} (mm)	B	rε	A	T	Ød	S	No. of Edges	KPD001	KPD010	Toolholder Page
		GBA32 [®] 125-010	GBA32 [®] 125	0.049	1.25	2.0	0.1	9.525	3.18	4.4	1.7	1	Ⓡ	Ⓡ	G12 G13
		150-010	150	0.059	1.50	2.0	0.1	9.525	3.18	4.4	1.7				
		GBA43 [®] 125-010	GBA43 [®] 125	0.049	1.25	2.0	0.1	12.700	4.76	5.5	1.9				
		150-010	150	0.059	1.50	3.5	0.1	12.700	4.76	5.5	1.9				
		200-010	200	0.079	2.00	3.5	0.1	12.700	4.76	5.5	1.9				
		TGF32 [®] 125-010	-	0.049	1.25	2.0	0.1	9.525	3.18	4.5	1.7	1	Ⓡ		G4 G5
		150-010	-	0.059	1.50	2.0	0.1	9.525	3.18	4.5	1.7				
		200-010	-	0.079	2.00	2.5	0.1	9.525	3.18	4.5	1.9				
		GMN 2	-	0.079	2.00	0.2	20	4.3	1.8	2.9	1	○	○	G30 G31	
		3	-	0.118	3.00	0.2	20	4.3	2.3	2.9					
		4	-	0.157	4.00	0.2	20	4.3	3.3	2.9					
		5	-	0.197	5.00	0.2	20	4.3	4.2	2.9					
		6	-	0.236	6.00	0.2	20	4.3	5.2	2.9					

Deep 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		W ^{+0.0008} (in)	W ^{+0.02} (mm)	rε	L	H	M	S	No. of Edges	KPD001		Toolholder Page	
		GDGS 2020N-020NB		0.079	2.0	0.2	20	4.3	1.8	2.9	1	○		G19 G21	
		3020N-020NB		0.118	3.0	0.2	20	4.3	2.3	2.9					
		4020N-020NB		0.157	4.0	0.2	20	4.3	3.3	2.9					
		5020N-020NB		0.197	5.0	0.2	20	4.3	4.2	2.9					
		6020N-020NB		0.236	6.0	0.2	20	4.3	5.2	2.9					

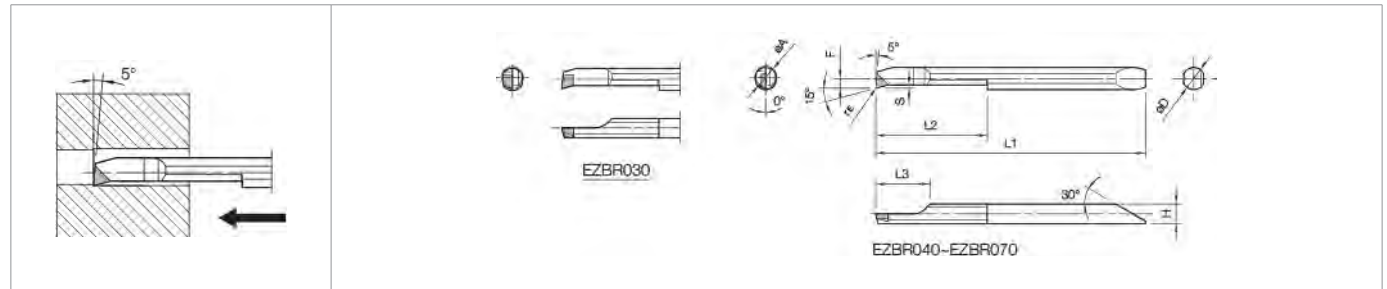
System Tip-Bars

Micro Boring

Edge Prep.										N		●	
All PCD Items		Sharp Edge								S		●	
		Min. Bore Dia.	Dimensions (mm)							No. of Edges	PCD		Toolholder Page
Insert		ØA	H	L1	L2	F	S	rε	KPD001		KPD010		
	VNBR 0411-02NB	4	3.9	30.8	11	3.5	0.5	0.2	1	○	○	F32 F33	
	VNBR 0420-02NB	4	3.9	39.8	20	3.5	0.5	0.2	1	○	○		
	VNBR 0511-02NB	5	3.9	30.8	11	4.5	0.7	0.2	1	○	○		
	VNBR 0520-02NB	5	3.9	39.8	20	4.5	0.7	0.2	1	○	○		
	VNBR 0620-02NB	6	3.9	39.8	20	5.3	1.0	0.2	1	○	○		
	VNBR 0630-02NB	6	3.9	49.8	30	5.3	1.0	0.2	1	○	○		
VNBR 0720-02NB	7	3.9	39.8	20	6.2	1.0	0.2	1	○	○			
VNBR 0730-02NB	7	3.9	49.8	30	6.2	1.0	0.2	1	○	○			

EZ Bar

EZB-NB : PCD **NEW**



EZ Bar Dimensions

Edge Prep.										N		●	
All PCD Items		Sharp Edge								S		●	
		Min. Bore Dia.	Dimensions (mm)							No. of Edges	PCD		Applicable Sleeves Page
ANSI Part Number		ØA	ØD	H	L1	L2	L3	F	S		rε	KPD001	
EZBR	040040-003NB	4	4	3.6	48.8	20	9.8	1.75	0.5	0.035 ^{+0.015}	1	○	F20 ~ F24
	050050-003NB	5	5	4.6	58.1	25	9.8	2.25	0.5			○	
	060060-003NB	6	6	5.6	66.1	30	11.8	2.75	0.5			○	
	070070-003NB	7	7	6.6	74.1	35	11.8	3.25	0.5			○	

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

E

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TURNING SUMMARY E2 - E10

IDENTIFICATION SYSTEM E11

TOOLHOLDERS FOR BACK TURNING E12 - E19

TKFB INSERT	(Back Turning / Goose-neck Holder)	E12
TKF-AS INSERT	(Back Turning / Goose-neck Holder)	E16
ABS INSERT	(Back Turning)	E17
ABW INSERT	(Back Turning)	E18

GOOSE-NECK HOLDER E20 - E21

DC INSERT	(Goose-neck Holder)	E20
VP INSERT	(Goose-neck Holder)	E21

EXTERNAL TURNING (BACK CLAMP / SCREW CLAMP) E22 - E32

CC INSERT	(Without Offset / With Offset)	E22
DC INSERT	(Without Offset / With Offset)	E24
DP INSERT	(Without Offset)	E28
TC / TP INSERT		E29
VB / VC INSERT	(Without Offset / With Offset)	E30
VP INSERT	(Without Offset / With Offset)	E32

EXTERNAL SLEEVE HOLDER TOOLS E34 - E36

CC INSERT		E34
DC INSERT		E35
VB / VC INSERT		E36

SMALL DOUBLE-SIDED TOOLING (SCREW CLAMP) E37 - E39

CN / DN INSERT	(Without Offset)	E38
TN INSERT	(Without Offset)	E39

SMALL DOUBLE-SIDED TOOLING (LEVER LOCK) E40 - E41

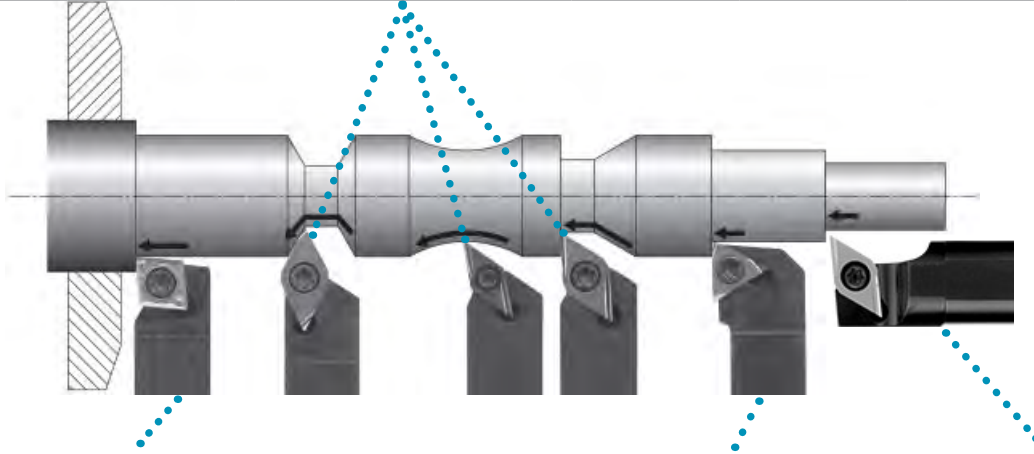
CN INSERT	(Without Offset)	E40
TN INSERT	(Without Offset)	E41

SUB-SPINDLE TOOLS (FOR STAR™ MACHINES) E42 - E43

RECOMMENDED CUTTING CONDITIONS E44 - E45

External / Copying

ADJC-FF	SDJC-FF	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



External / Facing

ACLFC-FF	SCLC-FF	SCLC	SCLN-FF
Back Clamp Without Offset	Screw Clamp Without Offset	Screw Clamp	Screw Clamp Without Offset

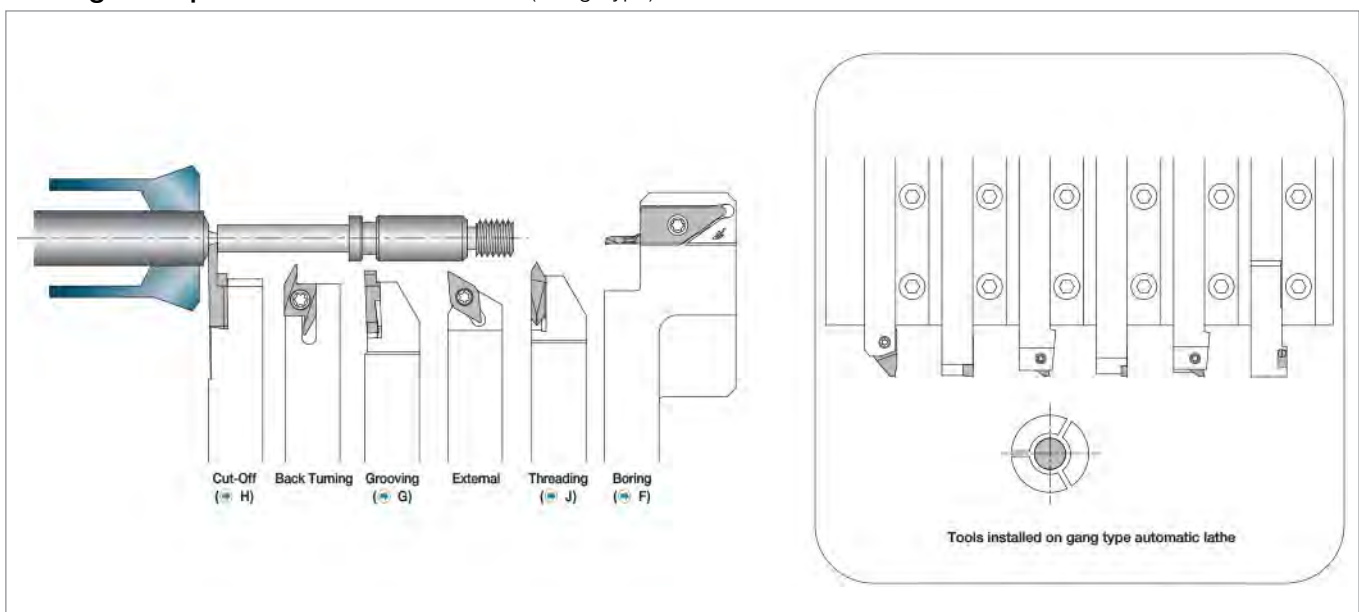
External

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

External Sleeve Holder

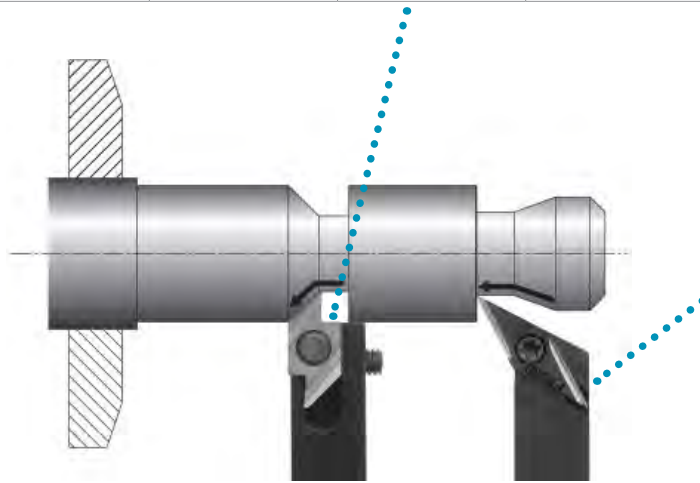
S...SDLC
Screw Clamp Shank Dia. Ø12.0mm-Ø25.4mm

Tooling Example ① - CNC Automatic Lathe (Gang Type)



Back Turning

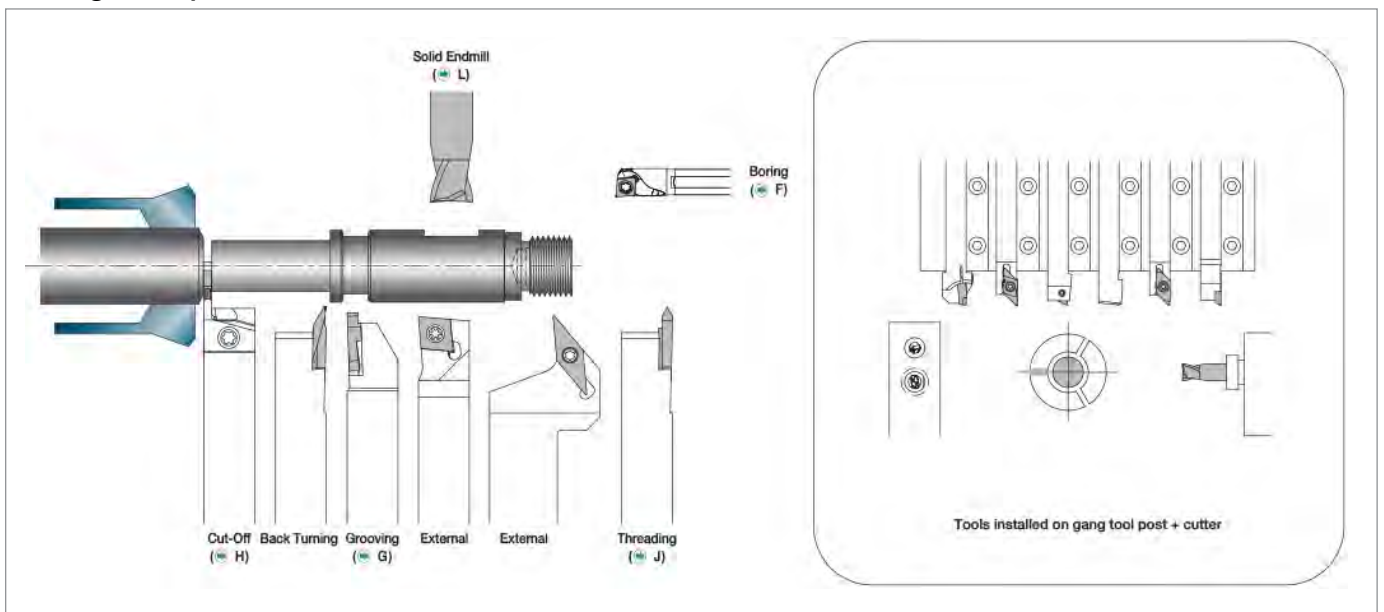
AABS-40F	SABS-40F	AABW-40F	SABW-40F	AABW-50F	SABW-50F	KTKF
Back Clamp Edge Width : 2.8mm D.O.C. : ~4.0mm	Screw Clamp Edge Width : 2.8mm D.O.C. : ~4.0mm	Back Clamp Edge Width : 4.7mm D.O.C. : ~4.0mm	Screw Clamp Edge Width : 4.7mm D.O.C. : ~4.0mm	Back Clamp Edge Width : 4.7mm D.O.C. : ~5.0mm	Screw Clamp Edge Width : 4.7mm D.O.C. : ~5.0mm	Screw Clamp Edge Width : 1.5mm~3.8mm D.O.C. : 1.8mm~5.5mm



External / Facing / Copying / Undercutting

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

Tooling Example ② - CNC Automatic Lathe (Gang Type)



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Goose-neck Toolholder

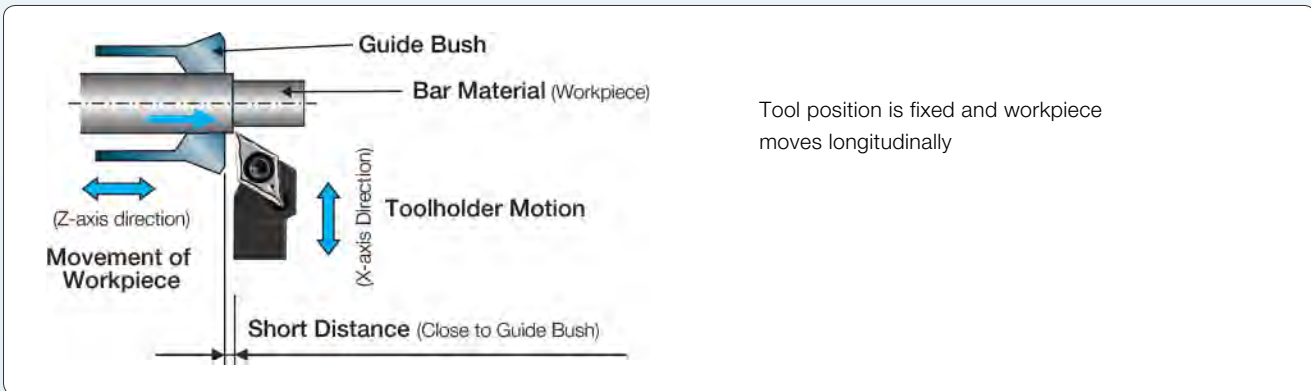
for Swiss Tool Automatic Lathe (Gang Edge Tool Post)



Swiss Tool Automatic Lathe (Guide Bushing System)

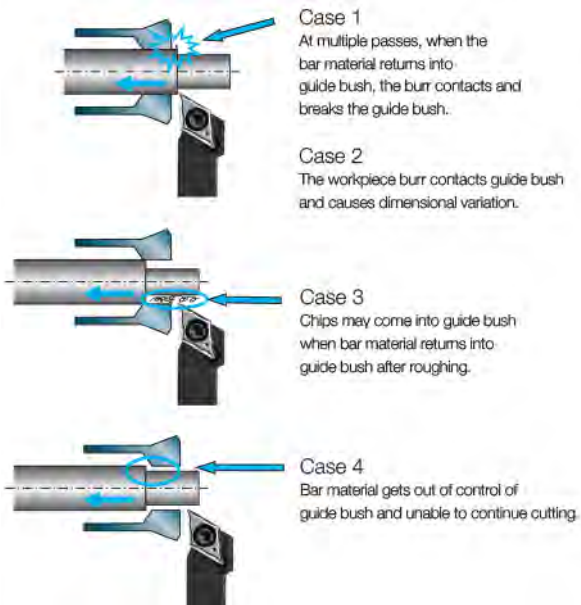
The Goose-neck Holder works with automatic lathes that do not move toolholders in longitudinal direction (Z-axis)

When Using a Conventional Toolholder



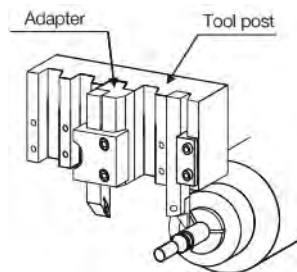
Problems When Using a Conventional Toolholder

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.

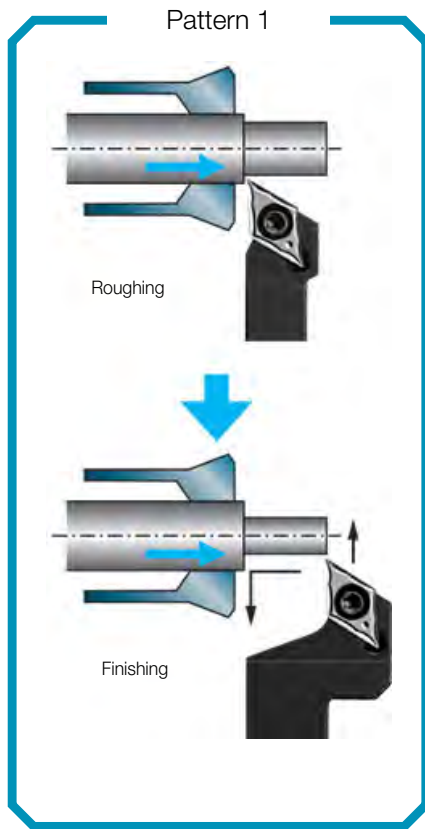


ADVANTAGES

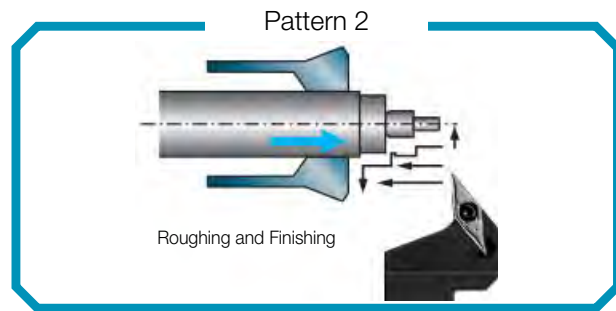
of the Goose-Neck Holder

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

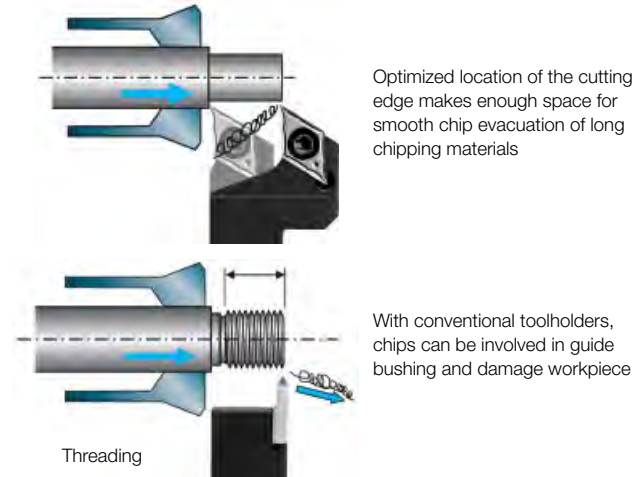
Available for machining after roughing without returning bar material into guide bushing, prevents damages and improves precision.



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



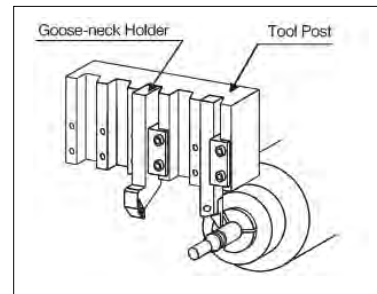
For smooth chip control



Advantages of Toolholder Installation

Using Goose-neck Holder

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



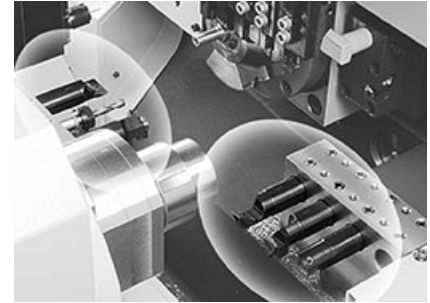
GRADES	A
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SOLID END MILLS	L
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External Sleeve Holder Tools

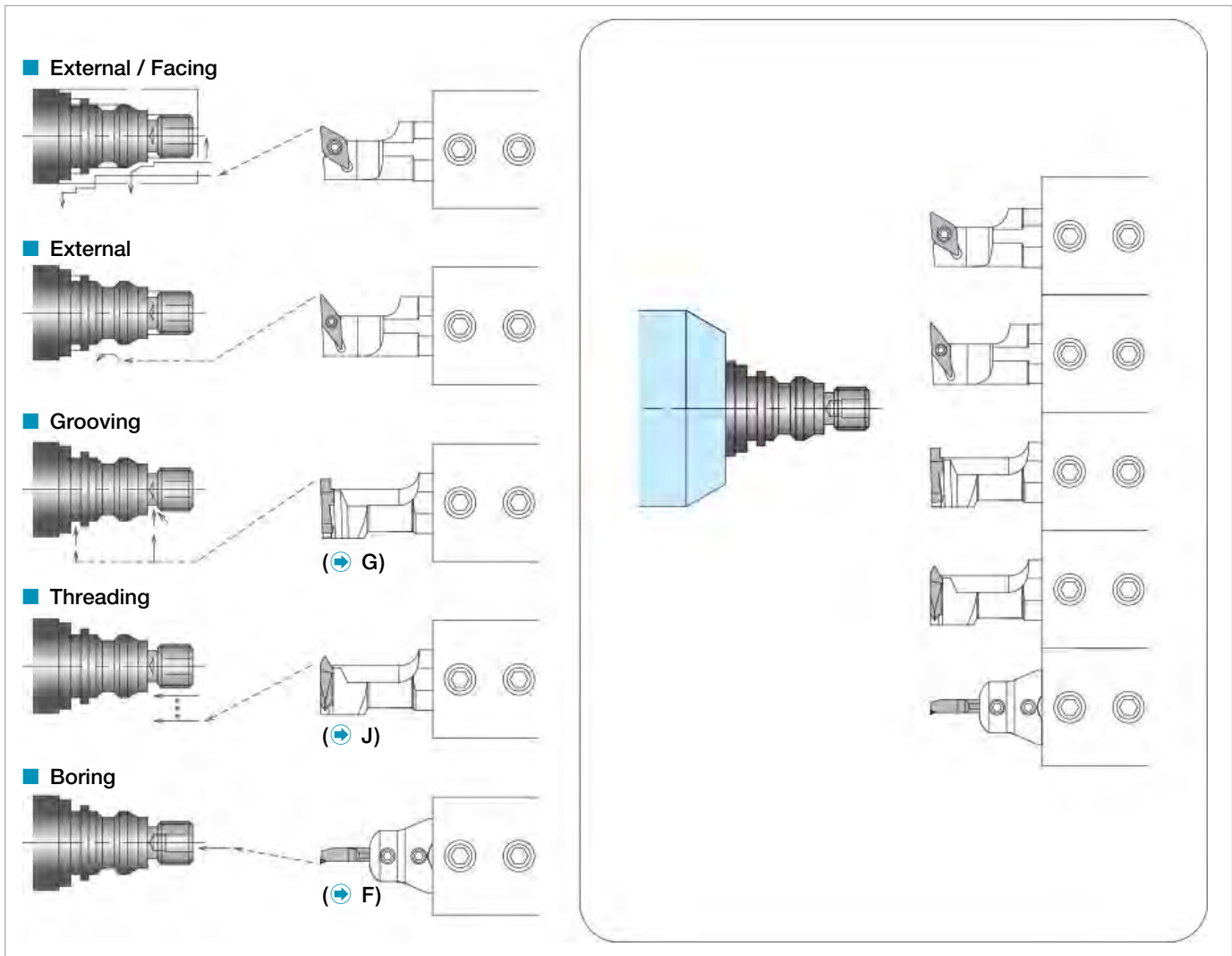
More Tools for CNC Automatic Lathe

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

S...SCLC	S...SDUC	S...SDLC	S...SVUB(C)
Screw Clamp Shank Dia. Ø12.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø14.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø12.0mm~Ø25.4mm	Screw Clamp Shank Dia. Ø12.0mm~Ø25.4mm
➔ E34	➔ E35	➔ E35	➔ E36



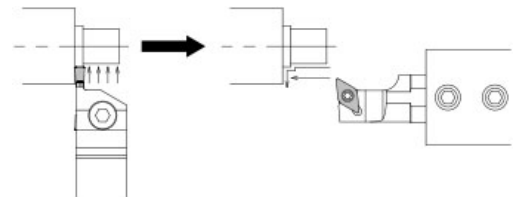
Tooling Example ③ - CNC Automatic Lathe (Opposed Gang Type)



See Page ➔ R19~R24 for Automatic Lathe List of Machine Manufacturer and Tooling Examples

Examples of Finishing by 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)			
Ref. Page	E38	E39	E38

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

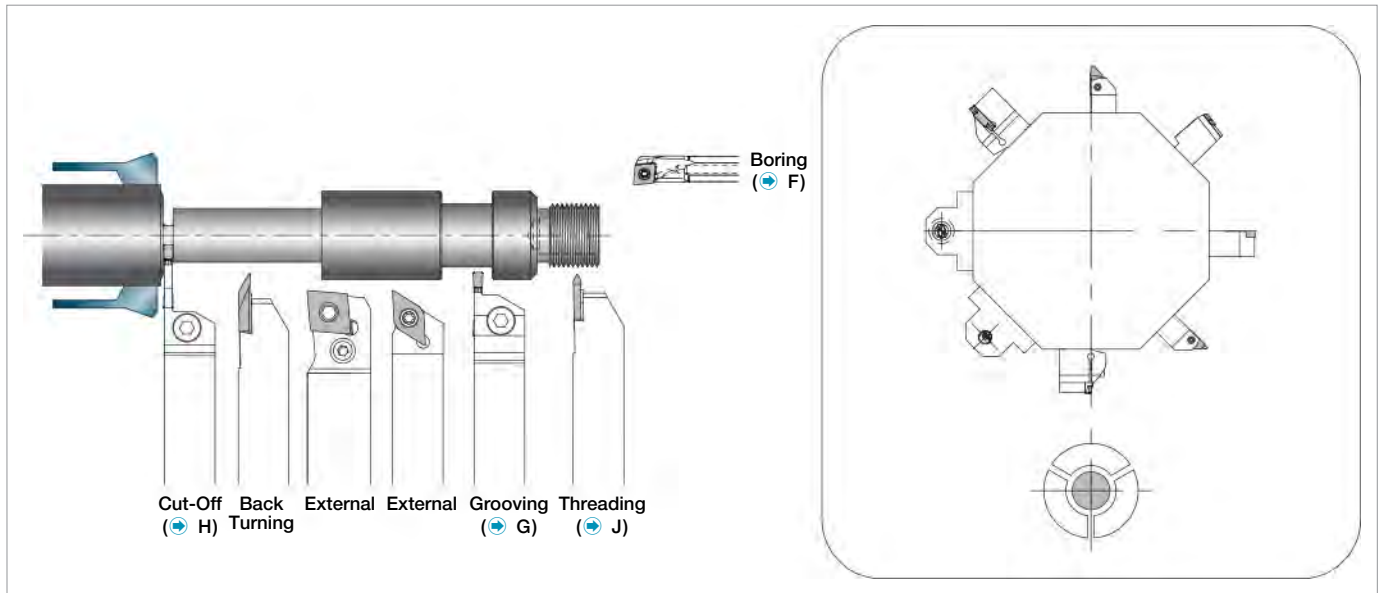
Double-Sided Toolholder for Automatic Lathe (Without Offset / Lever Lock)



Application	External / Facing	External / Up Facing
Cutting Edge Angle	95°	95°
Screw Clamp (Without Offset)		
Ref. Page	E40	E41

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

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



See Page [R19~R24](#) for Automatic Lathe List of Machine Manufacturer and Tooling Examples

Achieving Better Chip Control During External Turning

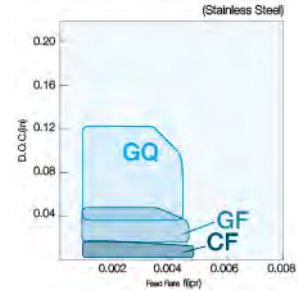
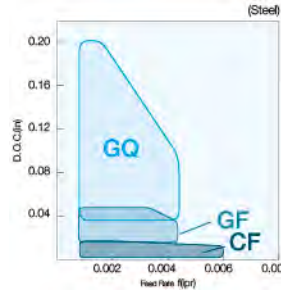
1) Use chipbreakers for various depths of cut

- Applicable to high precision cutting due to a finely ground sharp edge.
- The mirror polished insert provides improved adhesion resistance and surface finish.

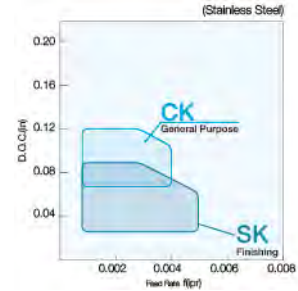
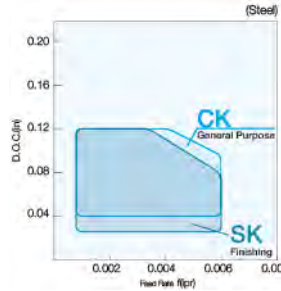
2) Improved chip control by cutting in 2 passes; roughing and finishing

- If chip control is not improved in 1 pass, use Goose-neck Holders or Sleeve Holders

Chip Processing



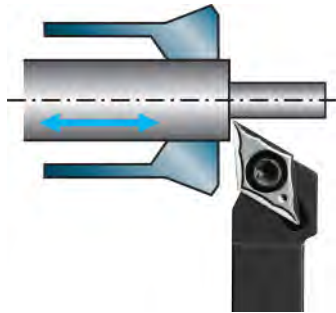
Low Resistance



Problems

Finishing with a General Toolholder

Bad Chip Control



After Roughing

Solution ①

Finishing with a Goose-neck Holder



Solution ②

Finishing with a Sleeve Holder



Choosing Toolholders to Improve Productivity

Application	Tooling Example	Toolholder	Advantages	Workpiece diameter	D.O.C. for medium to roughing of carbon steel
Medium to Roughing	SCLN-FF SDLN-FF STLN-FF	Small Double-Sided Tooling	Cost Reduction	Ø6mm or more	D.O.C.=~2.5mm
	PCLN-FF PTLN-FF	Toolholder for Double Sided Tooling (Lever Lock) FP-TK Chipbreaker	Cost Reduction	Ø16mm or more	D.O.C.=1.5~5.0mm
Medium to Roughing + Finishing	E9 Fig.1	Small Double-Sided tooling (Screw Clamp)	Cost Reduction	Ø16mm or more	D.O.C.=~2.5mm
		Goose-neck Holder (Sleeve Holder)	Better Chip Control	-	-
	E9 Fig.2	Toolholder for Double-Sided Tooling (Lever Lock) FP-TK Chipbreaker	Cost Reduction	Ø16mm ~ Ø32mm	D.O.C.=1.5~5.0mm
		Goose-neck Holder (Sleeve Holder)	Better Chip Control	-	-
E9 Fig.3	Grooving Toolholders	Long curled chips are evacuated toward a fixed direction.	Ø16mm ~ Ø32mm	D.O.C.=4.0mm or more	
	Goose-neck Holder (Sleeve Holder)	Better Chip Control	-	-	

● Tool Selection Examples for Productivity Improvement

<p>Guideline for Roughing: D.O.C.=~2.5mm</p>	<p>Roughing Double-Sided Tooling for Automatic Lathe</p>		<p>Finishing ① Goose-neck Holder</p>	
<p>Fig.1</p>	<p>Finishing ② Sleeve Holder</p>			
<p>Guideline for Roughing: D.O.C.=1.5mm~5.0mm</p>	<p>Roughing Ground Insert with FP-TK Chipbreaker</p>		<p>Finishing ① Goose-neck Holder</p>	
<p>Fig.2</p>	<p>Finishing ② Sleeve Holder</p>			
<p>Guideline for Roughing: D.O.C.=~4.0mm</p>	<p>Roughing Grooving Toolholder</p>		<p>Finishing ① Goose-neck Holder</p>	
<p>Fig.3</p>	<p>Finishing ② Sleeve Holder</p>			

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Small Parts Machining

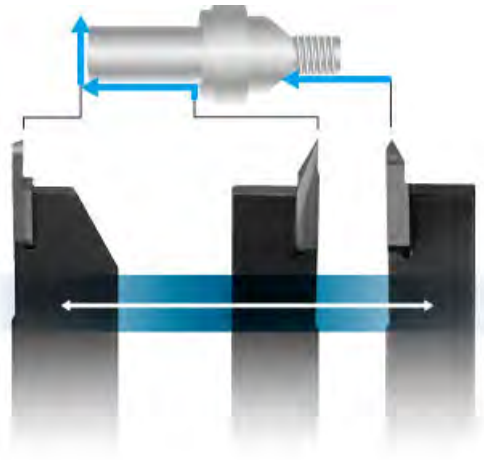
KTKF

E12

Back Turning

TKFB

E12



NEW

GQ Chipbreaker

Double function chipbreaker for improved chip control

PR1425

Insert grade for steel

PR1225

Insert grade for stainless steel

New "TKF..L-ASR" insert added to "TKF-AS" PCD Inserts

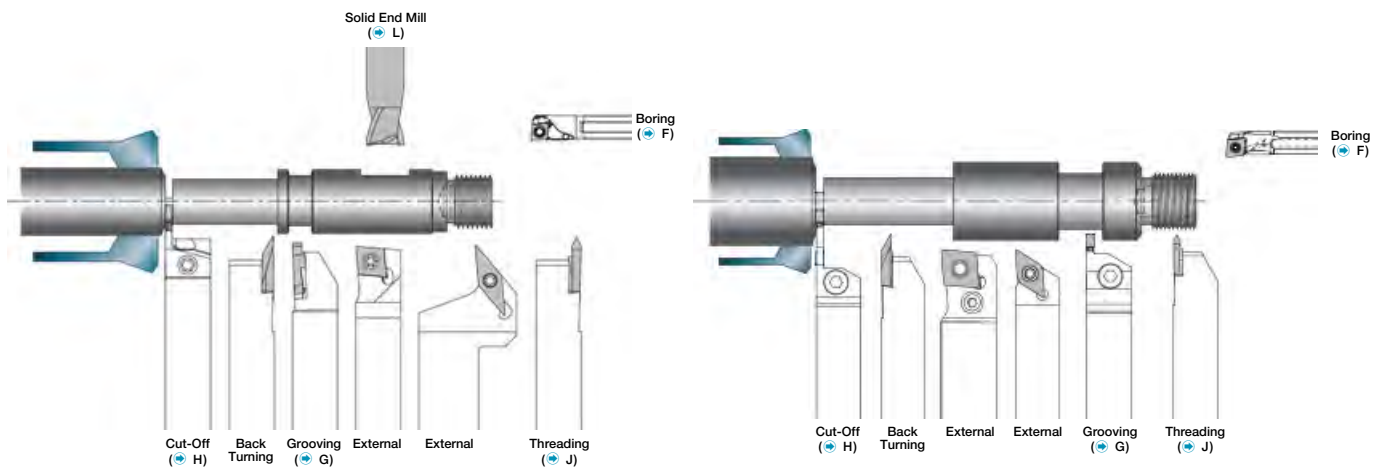


GQ Chipbreaker



TKF-AS Type

Tooling Examples of KTKF Toolholders

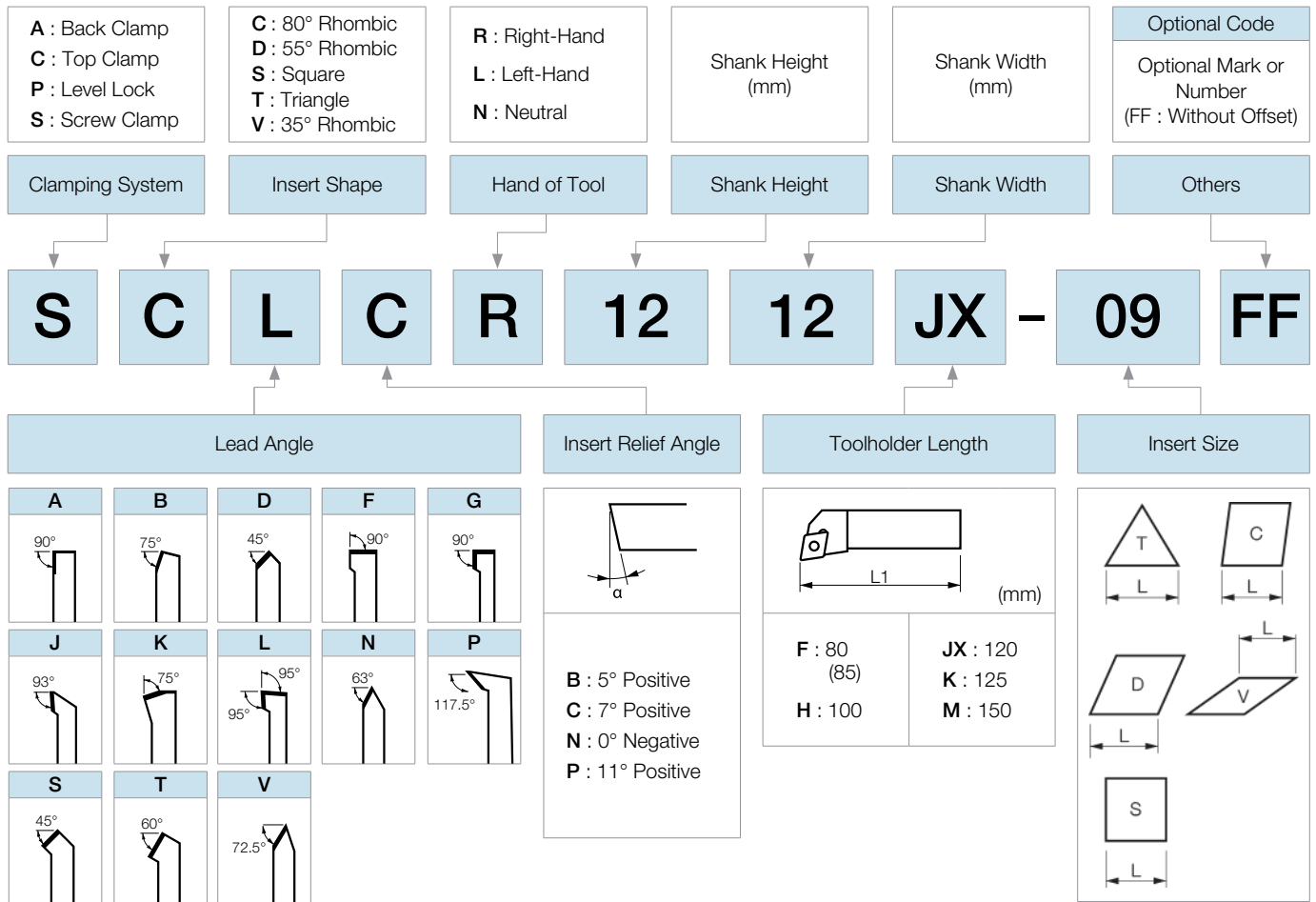


Cutting Edge Shape

For Small D.O.C.		For General Purpose		For Large D.O.C.	
Part Number	Cutting Edge Length S	Part Number	Cutting Edge Length S	Part Number	Cutting Edge Length S
TKFB12R15..	2.1	TKFB12R28..	4.2	TKFB16R38..	5.8
-	-	TKFB12L28..	4.4	TKFB16L38..	6.2
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	

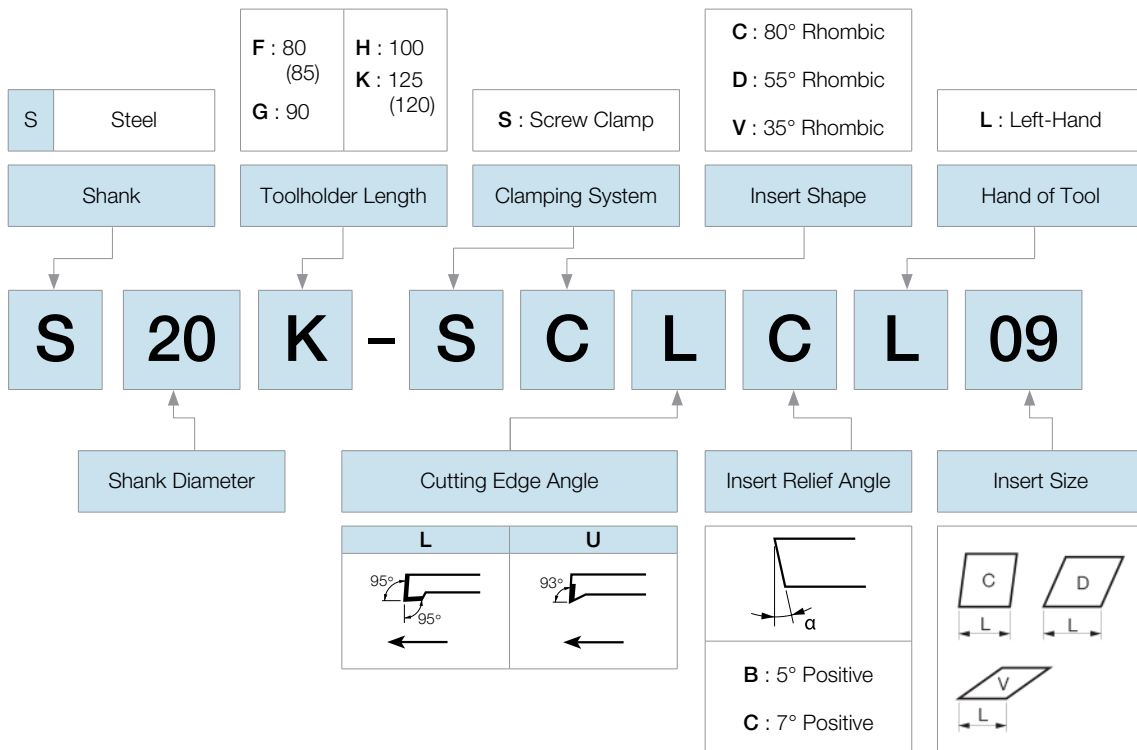
SMALL TOOLS IDENTIFICATION SYSTEM

Square Shank Identification System



• Some back turning toolholders have Kyocera's unique descriptions

Sleeve Holder

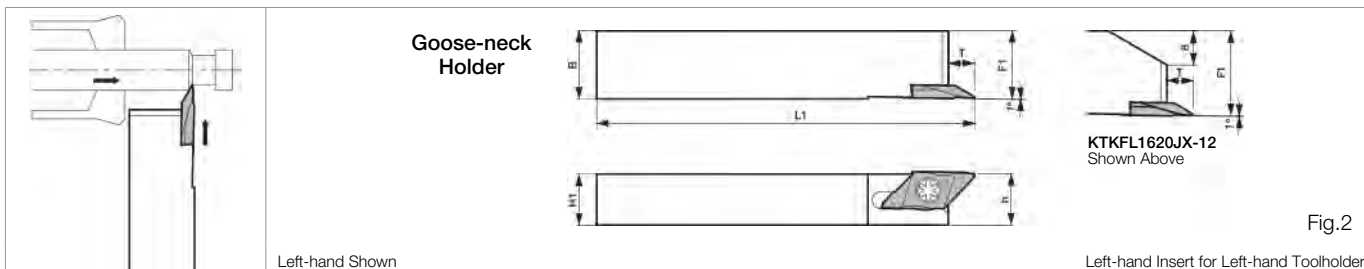
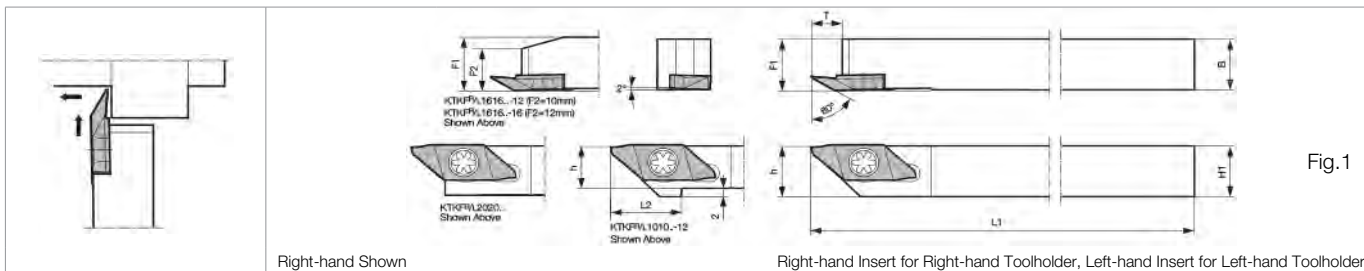


• The dimensions and specifications are subject to change for improvement without notice.

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

GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GRINDING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

KTKF / KTKF Goose-neck Holder



KTKF / KTKF Goose-neck Holder

Part Number	Stock		Unit	Dimensions						Drawing	Spare Parts		Applicable Inserts
	R	L		H1=h	B	L1	L2	F1	T		Clamp Screw	Wrench	
KTKF% 6-12JX	●	●	inch	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFB12%...
8-12JX	●	●		0.500	0.500	4.750	-	0.500	0.236	Fig.1			
10-12JX	●	●		0.625	0.625	4.750	-	0.625	0.236	Fig.1			
KTKF% 6-16JX	●	●	inch	0.375	0.375	4.750	0.787	0.375	0.315	Fig.1	SB-4590TRWN	LTW-10S	TKFB16%...
8-16JX	●	●		0.500	0.500	4.750	-	0.500	0.315	Fig.1			
10-16JX	●	●		0.625	0.625	4.750	-	0.625	0.315	Fig.1			
KTKF% 1010JX-12	●	○	mm	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFB12%...
1212JX-12	●	○		12	12	120	-	12	6	Fig.1			
1616JX-12	●	○		16	16	120	-	16	6	Fig.1			
NEW 2020JX-12	●	○		20	20	120	-	20	6	Fig.1			
KTKF% 1010JX-16	○	○	mm	10	10	120	20	10	8	Fig.1	SB-4590TRWN	LTW-10S	TKFB16%...
1212JX-16	○	○		12	12	120	-	12	8	Fig.1			
1616JX-16	○	○		16	16	120	-	16	8	Fig.1			
NEW 2020JX-16	○	○		20	20	120	-	20	8	Fig.1			
KTKF% 1212F-12	○	○	inch	12	12	85	-	12	6	Fig.1	SB-4590TRWN	LTW-10S	TKFB12%... TKFB16%...
1212F-16	○	○		12	12	85	-	12	8	Fig.1			
KTKFL 52-12JX		●	inch	0.500	0.625	4.750	-	0.625	0.236	Fig.2	SB-4590TRWN	LTW-10S	TKFB12L...
62.5-12JX		●		0.625	0.750	4.750	-	0.750	0.236	Fig.2			
KTKFL 1216JX-12		○	mm	12	16	120	-	16	6	Fig.2	SB-4590TRWN	LTW-10S	TKFB12L...
1620JX-12		○		16	20	120	-	20	6	Fig.2			

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

Recommended Cutting Conditions **E45**
For applicable PCD inserts, see page **E16**

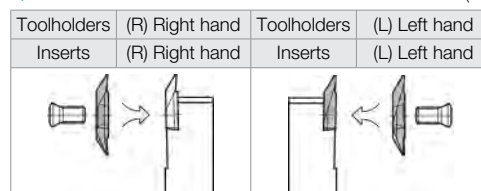
Applicable Inserts **B35**

Insert Photo Shows Right-Hand	Part Number	Corner-R re:mm (inch)
	TKFB 12R15005M	<0.05 (<0.002)
	12R28005M	<0.05 (<0.002)
	12R28010M	<0.01 (<0.004)
	TKFB 16R38005M	<0.05 (<0.002)
	16R38010M	<0.01 (<0.004)
	TKFB 12L28005MR	<0.05 (<0.002)
	12L28010MR	<0.01 (<0.004)
	TKFB 16L38005MR	<0.05 (<0.002)
	16L38010MR	<0.01 (<0.004)

Applicable Inserts (GQ Chipbreaker) **B36**

Insert Photo Shows Right-Hand	Part Number	Corner-R re:mm (inch)
	TKFB 12R28005-GQ	0.05 (<0.002)
	12R28015-GQ	0.15 (<0.006)
	TKFB 16R28005-GQ	0.05 (<0.002)
	16R28015-GQ	0.15 (<0.006)

Combination of Toolholders & Inserts (See Fig Below)



TKFB-GQ Chipbreaker NEW

for Back-Turning


GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

1 Original double-function chipbreaker


Turning Function

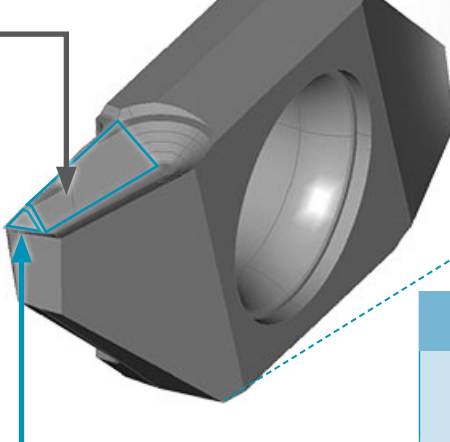
- Prevents chip entanglement


GQ
Chipbreaker



Competitor
(Ground)









Grooving Function

- Prevents chip biting

GQ
Chipbreaker



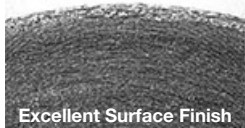
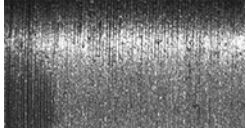
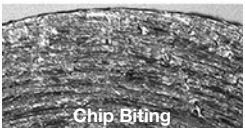
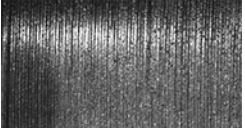
Competitor
(Ground)



2 Prevents chip biting and clogging for excellent surface finishes

Surface Finish Comparison

Cutting Conditions: $V_c = 330\text{sfm}$ D.O.C. = $0.112''$ $f = 0.008\text{ipr}$ (Grooving), 0.002ipr (Turning)
Workpiece: 1045 Steel

	GQ Chipbreaker		Competitor (Ground)	
	Grooving	Turning	Grooving	Turning
Workpiece Surface	 Excellent Surface Finish Rz = 2.92 μm	 Rz = 3.85 μm	 Chip Biting Rz = 31.23 μm	 Rz = 7.67 μm

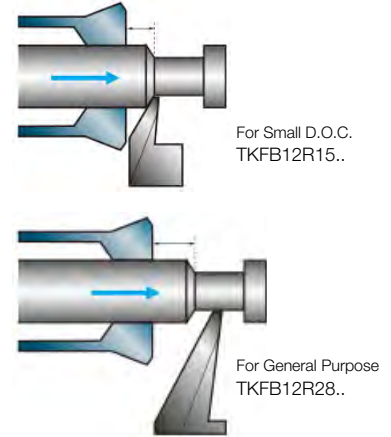
Reduced cycle time with excellent surface finish in a single pass!

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 S	Part Number	Cutting Edge Length S	Part Number	Cutting Edge Length S
TKFB12R15..	2.1	TKFB12R28..	4.2	TKFB16R38..	5.8
-	-	TKFB12L28..	4.4	TKFB16L38..	6.2
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


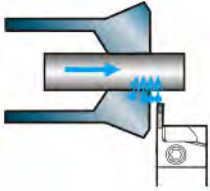
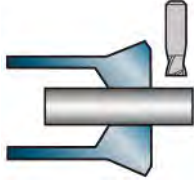
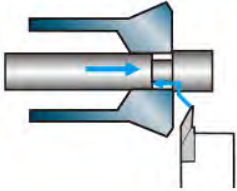
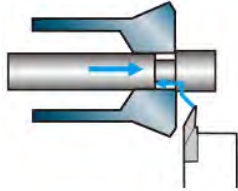
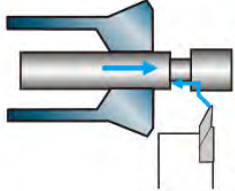
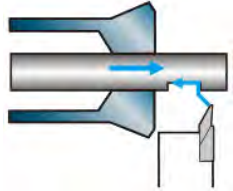
Workpiece Material Motion & How to Select Hand of Tool

● When Roughing, Medium, & Finishing

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

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

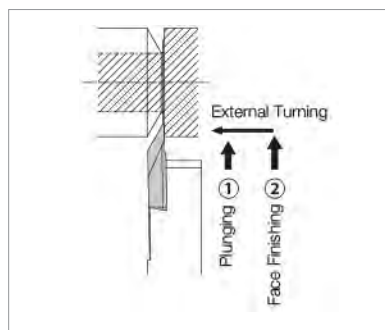
Chip Control Improvement During Back Turning

	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)  Advantages : Smooth Surface Finish Disadvantages : If machining pass is long, the guide bushing can not support the workiece	(1) When Using TKFB12R28010M (Back Turning / Right-hand)  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
Finishing (Countermeasure 2) Use Left-Hand Toolholder	(2) When Using TKFB12L28010M (Back Turning / Left-hand)  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	(2) When Using TKFB12L28010M (Back Turning / Left-hand)  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

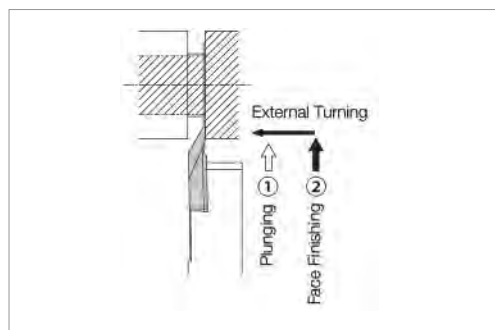
Peeled Surface Countermeasures During Face Back Turning

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

● Countermeasure 1 (Face Finishing)



● Countermeasure 2 (Face Finishing After Grooving)

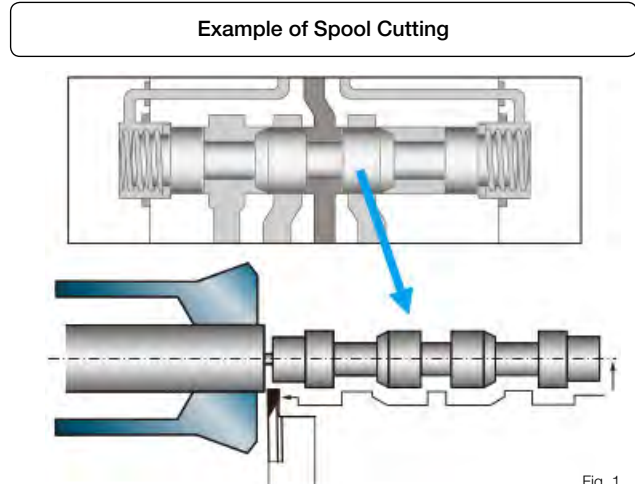
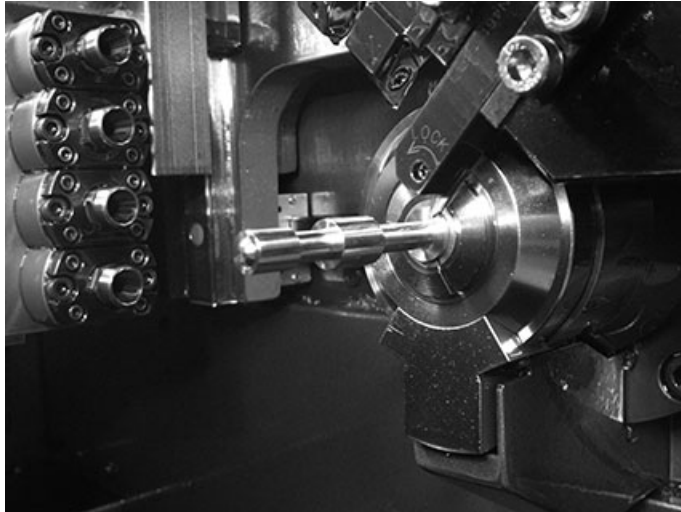


GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

BACK TURNING TOOLHOLDERS [TKF INSERT]

TKF-AS Inserts


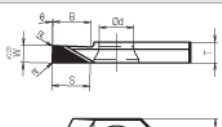

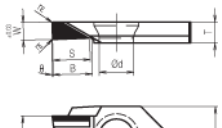


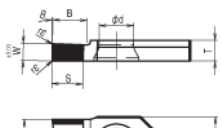

The KTKF toolholder can be used as multi-functional tooling for non-ferrous and non-metal when combined with a TKF-AS insert. (See Fig. 1)



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

Fig. 1

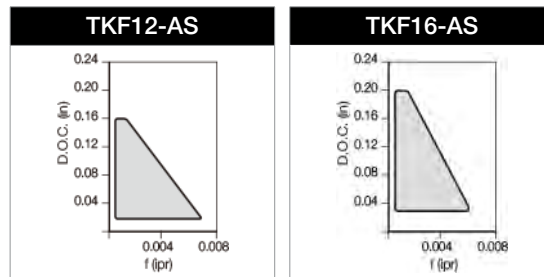
Applicable Inserts C18

Inserts (Photo Shows Right-hand)		Part Number
	 Handed insert shows Right-hand	TKF12 ^{R/L} 200-AS 250-AS
	 Handed insert shows Right-hand	TKF16 ^{R/L} 250-AS
	 Handed insert shows Right-hand	TKF12L 200-ASR 250-ASR
	 Handed insert shows Right-hand	TKF16L 250-ASR
Turning / Grooving	Insert hand: L-hand / PCD edge hand: R-hand	
	 Handed insert shows Right-hand	TKF12 ^{R/L} 150-NB 200-NB 250-NB 250-NB4.5
	 Handed insert shows Right-hand	
	Grooving Inserts (Turning possible)	
	Insert hand: L-hand / PCD edge hand: R-hand	

Applicable Toolholder E12

Recommended Cutting Conditions E45

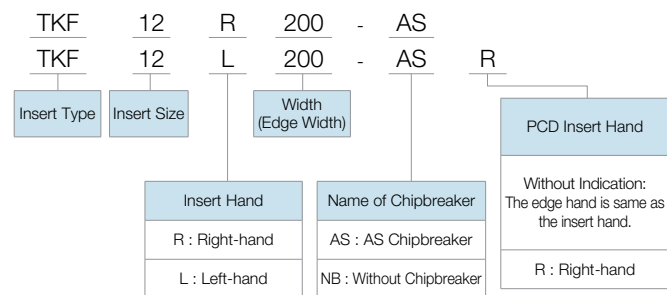
Applicable Range



※ PCD inserts are for traversing and grooving.

※ Cut-off is not recommended with these inserts.

Insert Identification System



Note 1) When using TKF-AS/-ASR 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-NB insert. (Fig.3)

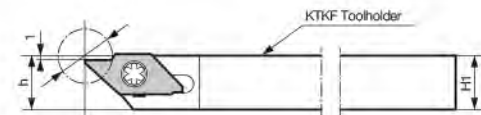


Fig.2 When TKF-AS/-ASR installed (the edge position: 1.0mm below the center)

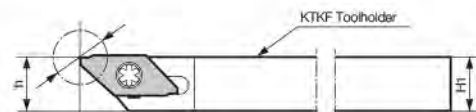
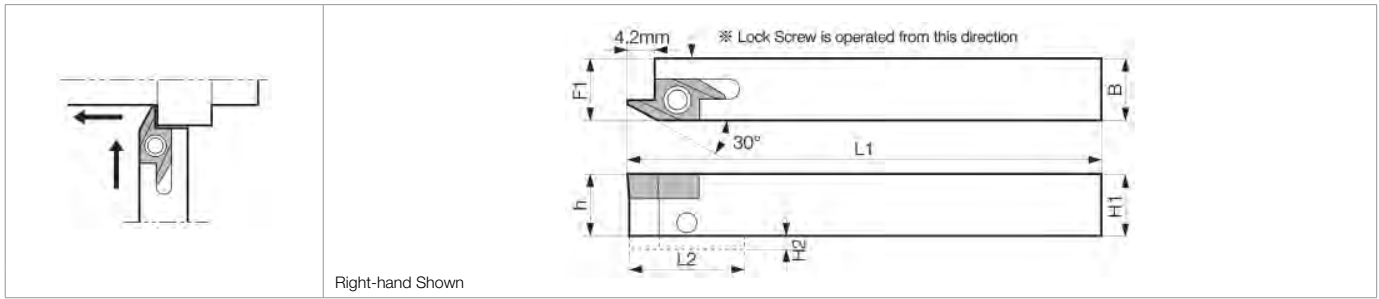
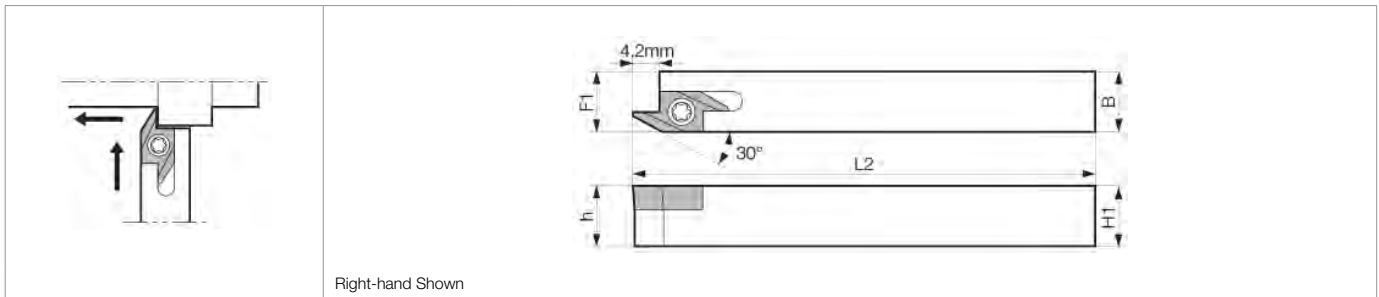


Fig.3 When TKF-NB installed

AABS (Screw Clamp 2.8mm • Depth 4.0mm MAX)



SABS (Screw Clamp 2.8mm • Depth 4.0mm MAX)

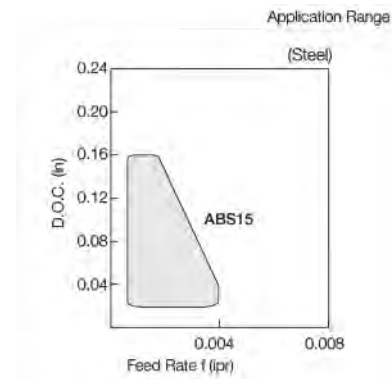


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions						Standard Corner-R(ε)	Spare Parts			
			H1=h	H2	B	L1	L2	F1		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABSR 6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	LPA-11	HSB4X8R	-	FH-2
8-15JXF	●		0.500	-	0.500	4.750	-	0.508	0.006	LPA-13			
10-15JXF	●		0.625	-	0.625	4.750	-	0.633	0.006	LPA-17			
AABSR 1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
1212JX-40F	○		12	-	12	120	-	12.2	0.15	LPA-13			
1616JX-40F	○		16	-	16	120	-	16.2	0.15	LPA-17			
SABSR 6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	-	-	SB-3080TR	FT-10
8-15JXF	●		0.500	-	0.500	4.750	-	0.508	0.006				
10-15JXF	●		0.625	-	0.625	4.750	-	0.633	0.006				
SABSR 1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	-	-	SB-3080TR	FT-10
1212JX-40F	○		12	-	12	120	-	12.2	0.15				
1616JX-40F	●		16	-	16	120	-	16.2	0.15				
SABSR 1212F-40F	○	mm	12	-	12	85	-	12.2	0.15	-	-	SB-3080TR	FT-10
2020K-40F	○		20	-	20	125	-	20.2	0.15				

Applicable Inserts

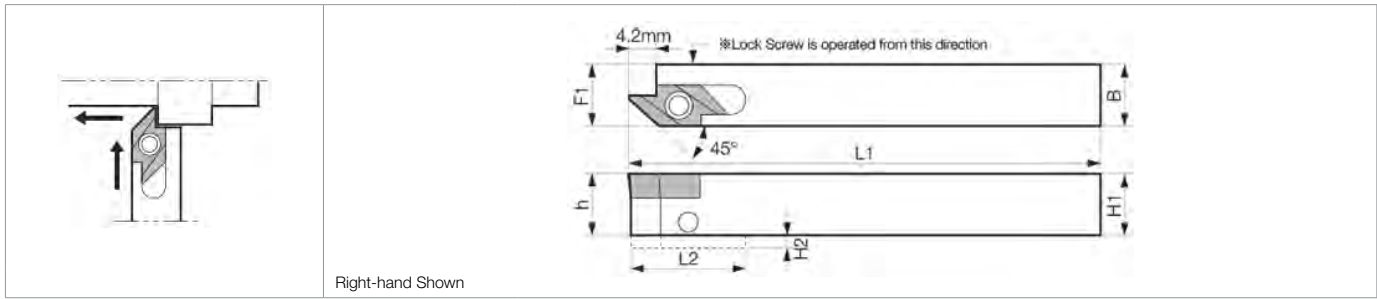
Shape	Part Number	Corner-R ε : mm (inch)	Reference Page
<p>Dimensions are in millimeters.</p>	ABS 15R4005	0.05 (0.002)	● B37
	15R4015	0.15 (0.006)	
	ABS 15R4005M	<0.05 (<0.002)	
	15R4015M	<0.15 (<0.006)	



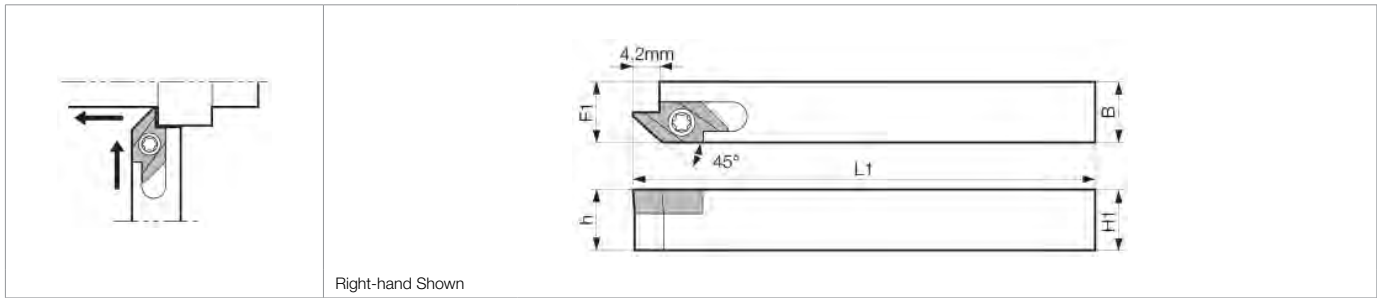
Recommended Cutting Conditions ● E45

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

■ AABW (Screw Clamp 4.7mm • Depth 4mm MAX)



■ SABW (Screw Clamp 4.7mm • Depth 4mm MAX)

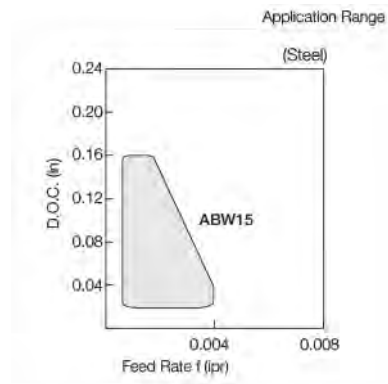


● Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Standard Corner-R (r)	Spare Parts			
			H1=h	H2	B	L1	L2	F1	Anchor Pin		Lock Screw	Clamp Screw	Wrench	
AABWR 6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	LPA-11	HSB4X8R	-	FH-2	
8-15JXF	●		0.500	-	0.500	4.750	-	0.508	0.006	LPA-13				
10-15JXF	●		0.625	-	0.625	4.750	-	0.633	0.006	LPA-17				
AABWR 1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	LPA-11	HSB4X8R	-	FH-2	
1212JX-50F	○		12	-	12	120	-	12.2	0.15	LPA-13				
1616JX-50F	●		16	-	16	120	-	16.2	0.15	LPA-17				
SABWR 6-15JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	-	-	SB-3080TR	FT-10	
8-15JXF	●		0.500	-	0.500	4.750	-	0.508	0.006					
10-15JXF	●		0.625	-	0.625	4.750	-	0.633	0.006					
SABWR 1010JX-40F	○	mm	10	-	10	120	-	10.2	0.15	-	-	SB-3080TR	FT-10	
1212JX-40F	○		12	-	12	120	-	12.2	0.15					
1616JX-40F	○		16	-	16	120	-	16.2	0.15					
SABWR 2020K-40F	○	mm	20	-	20	125	-	20.2	0.15	-	-	SB-3080TR	FT-10	

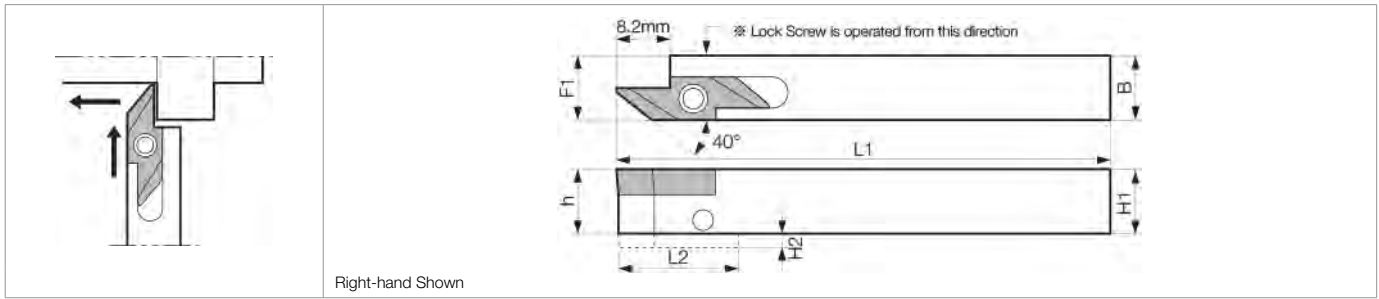
● Applicable Inserts

Shape	Part Number	Corner-R re : mm (inch)	Reference Page
<p>Dimensions are in millimeters.</p>	ABW 15R4005	0.05 (0.002)	● B37
	15R4015	0.15 (0.006)	
	ABW 15R4005M	<0.05 (<0.002)	
	15R4015M	<0.15 (<0.006)	

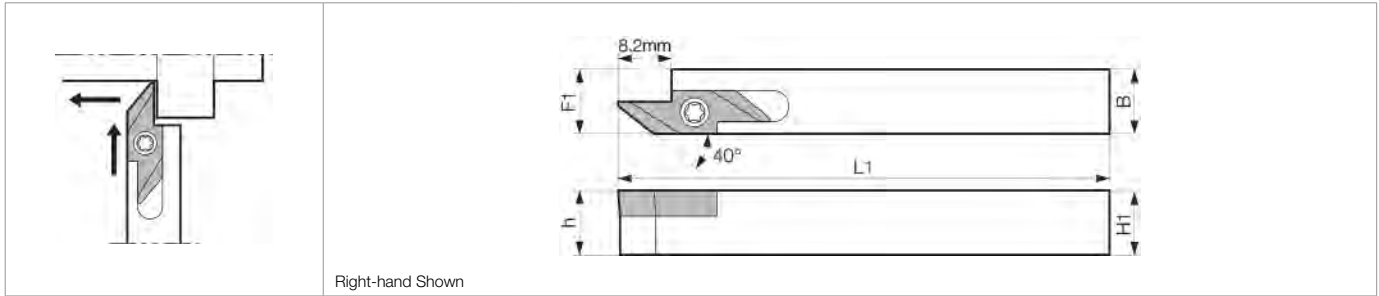


Recommended Cutting Conditions ● E45

AABW (Screw Clamp 4.7mm • Depth 5.0mm MAX)



SABW (Screw Clamp 4.7mm • Depth 5.0mm MAX)

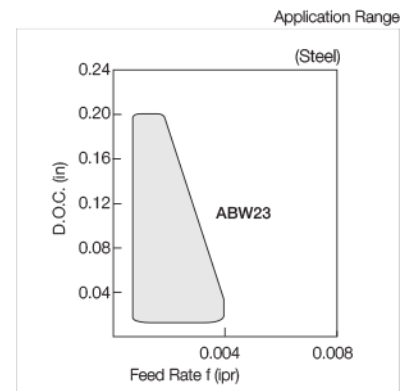


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions						Standard Corner-R(ε)	Spare Parts			
			H1=h	H2	B	L1	L2	F1		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AABWR 6-23JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	LPA-11	HSB4X8R	-	FH-2
8-23JXF	●		0.500	-	0.500	4.750	-	0.508	0.006	LPA-13			
10-23JXF	●		0.625	-	0.625	4.750	-	0.633	0.006	LPA-17			
AABWR 1010JX-50F	○	mm	10	-	10	120	-	10.2	0.15	LPA-11	HSB4X8R	-	FH-2
1212JX-50F	○		12	-	12	120	-	12.2	0.15	LPA-13			
1616JX-50F	●		16	-	16	120	-	16.2	0.15	LPA-17			
SABWR 6-23JXF	●	inch	0.375	-	0.375	4.750	-	0.383	0.006	-	-	SB-3080TR	FT-10
8-23JXF	●		0.500	-	0.500	4.750	-	0.508	0.006				
10-23JXF	●		0.625	-	0.625	4.750	-	0.633	0.006				
SABWR 1010JX-50F	○	mm	10	-	10	120	-	10.2	0.15	-	-	SB-3080TR	FT-10
1212JX-50F	○		12	-	12	120	-	12.2	0.15				
1616JX-50F	○		16	-	16	120	-	16.2	0.15				
SABWR 2020K-50F	○	mm	20	-	20	125	-	20.2	0.15	-	-	SB-3080TR	FT-10

Applicable Inserts

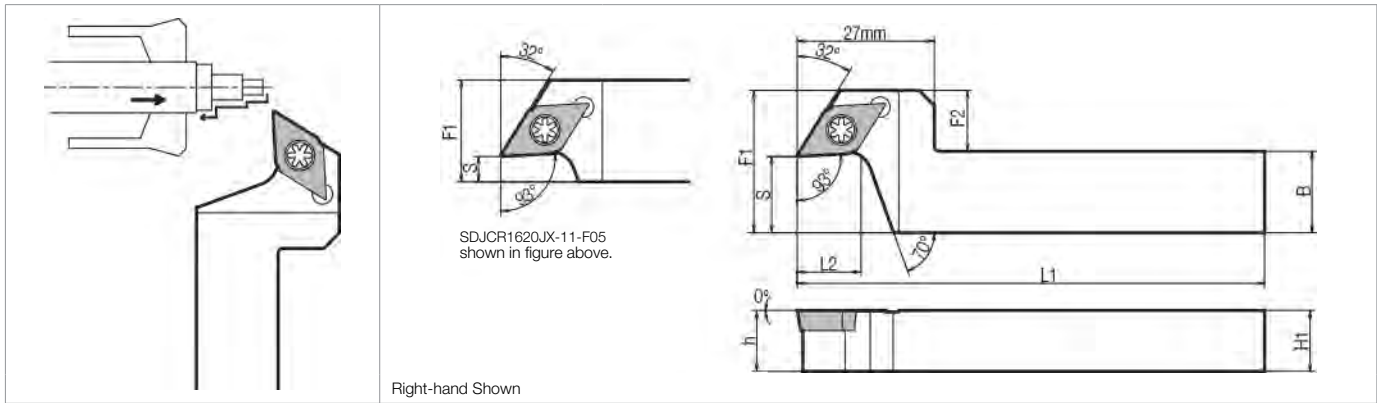
Shape	Part Number	Corner-R re : mm (inch)	Reference Page
<p>Dimensions are in millimeters.</p>	ABW 23R5005	0.05 (0.002)	B37
	23R5015	0.15 (0.006)	
	ABW 23R5005M	<0.05 (<0.002)	
	23R5015M	<0.15 (<0.006)	



Recommended Cutting Conditions E45

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

SDJC (External / Copying)



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions								Standard Corner-R(r)	Spare Parts	
			H1=h	B	L1	L2	F1	F2	S	Clamp Screw		Wrench	
SDJCR 52-3JX-F3 52-3JX-F9 62.5-3JX-F3 62.5-3JX-F9	●	inch	0.500	0.625	4.750	0.488	0.687	0.062	0.187	0.008	SB-4085TR	FT-15	
	●		0.500	0.625	4.750	0.488	1.125	0.500	0.562	0.008			
	●		0.625	0.750	4.750	0.488	0.750	-	0.187	0.008			
	●		0.625	0.750	4.750	0.488	1.125	0.375	0.562	0.008			
SDJCR 1216JX-11-F05 1216JX-11-F15 1620JX-11-F05 1620JX-11-F15	○	mm	12	16	120	12.6	18	2	5	0.2	SB-4085TR	FT-15	
	○		12	16	120	12.6	28	12	15	0.2			
	○		16	20	120	12.6	20	-	5	0.2			
	○		16	20	120	12.6	28	8	15	0.2			

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision	Low Feed
Ref. Page	● B15	● B15	● B16	● B16	● B16	● B18	● B18	● B20	● B19	● B20
Shape	CF	GF	PP	GK	GQ	R-F	R-FSF	(E/F) R-U	FR-USF	(E/F)R-J
Toolholder										
SDJCR...-3JX-F.. SDJCR...-11-F..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..	DCET325..	DC_T325..
Application	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	Hard materials	
Ref. Page	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5	
Shape	FR-JSF	XP	XQ	MQ	Without Chipbreaker	AH	R-A3	PCD	CBN	
Toolholder										
SDJCR...-3JX-F.. SDJCR...-11-F..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..	

Recommended Cutting Conditions ● E44

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

Solution 1

No breakage will occur because the burrs do not contact the guide bushing.

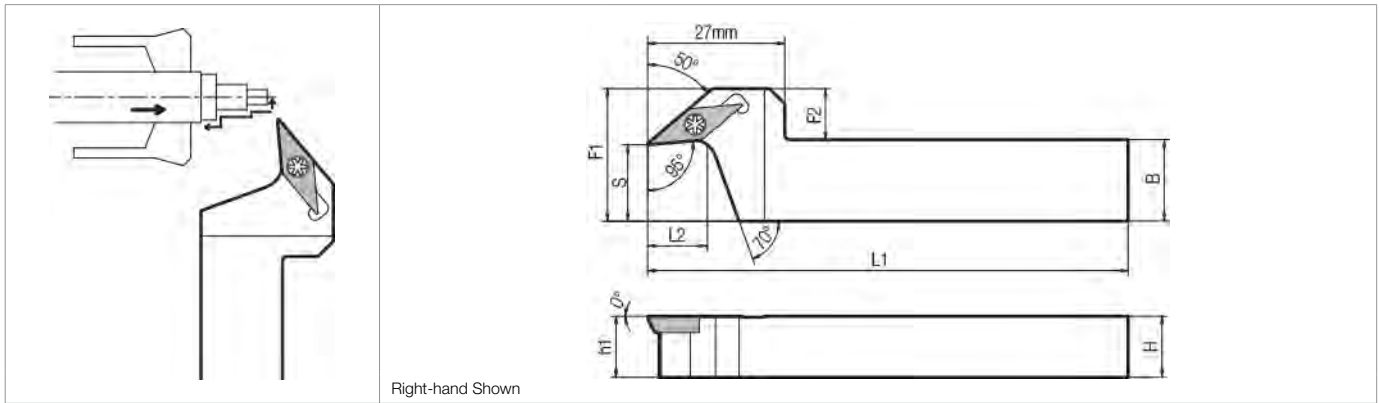
Solution 2

Longitudinal dimensions will be stable.
External diameter will be stable by multiple pass machining (roughing and finishing).

Solution 3

Large space for chip evacuation.
Smooth chip control.

SVLP (External / Copying)



Toolholder Dimensions

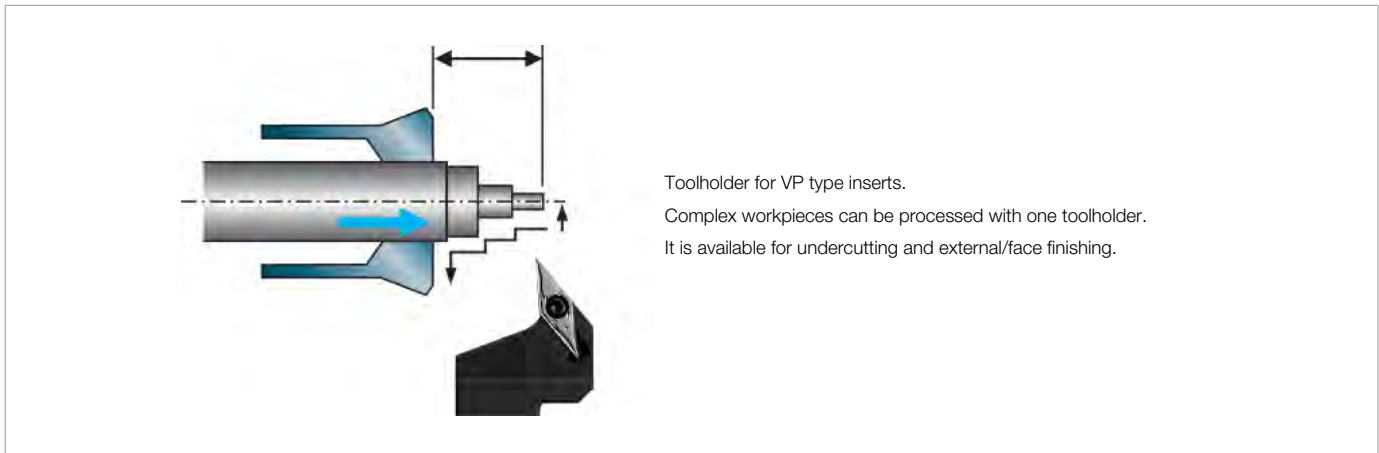
Part Number	Stock	Unit	Dimensions								Standard Corner-R(r)	Spare Parts	
			H1=h	B	L1	L2	F1	F2	S	Clamp Screw		Wrench	
SVLPR 52-2JX-F9	●	inch	0.500	0.625	4.750	0.472	1.000	0.375	0.562	0.008	SB-2570TR	FT-15	
62.5-2JX-F9	●		0.625	0.750	4.750	0.472	1.000	0.250	0.562	0.008			
SVLPR 1216JX-11-F15	○	mm	12	16	120	12	26	10	15	0.2	SB-2570TR	FT-8	
1620JX-11-F15	○		16	20	120	12	26	6	15	0.2			

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	➔ B31	➔ B31	➔ B31	➔ B32	➔ B32	➔ B32
Shape	CF	CK	GF	R-FSF	FR-U	FR-USF
Toolholder						
SVLPR..-2JX-F.. SDJCR..-11-F..	VPGT22..	VPGT22..	VPGT22..	VPET22..	VPET22..	VPET22..

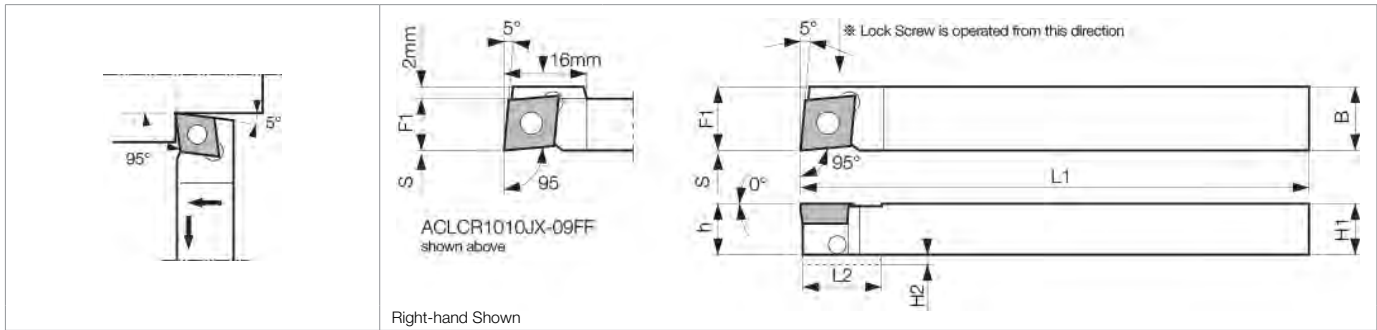
Recommended Cutting Conditions ➔ E44

One Toolholder for Complex Workpieces



GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GRINDING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

■ ACLC-FF (Without Offset • External / Facing)



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R(re)	Spare Parts		
	R	L		H1=h	H2	B	L1	L2	F1	S		Anchor Pin	Lock Screw	Wrench
ACLC% 6-2JXFF	●	●	inch	0.375	-	0.375	4.750	-	0.375	0	0.008	LPF-11	HSB4X8%	FH-2
6-3JXFF	●	●		0.375	0.097	0.375	4.750	0.630	0.375	0	0.008	LPF-13		
8-3JXFF	●	●		0.500	-	0.500	4.750	-	0.500	0	0.008	LPF-17		
10-3JXFF	●	●		0.625	-	0.625	4.750	-	0.625	0	0.008	LPF-17		
ACLC% 1010JX-06FF	○	○	mm	10	-	10	120	-	10	0	0.2	LPF-11	HSB4X8%	FH-2
1010JX-09FF	○	○		10	2	10	120	16	10	0	0.2	LPF-13		
1212JX-09FF	○	○		12	-	12	120	-	12	0	0.2	LPF-13		
1616JX-09FF	●	○		16	-	16	120	-	16	0	0.2	LPF-17		

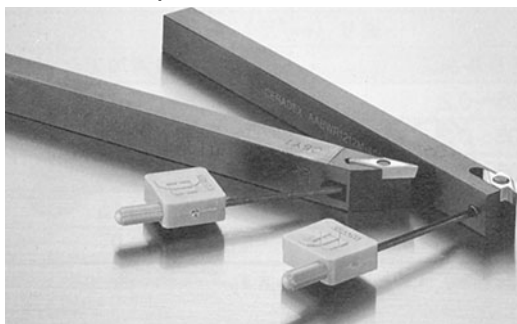
• Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder

● Applicable Inserts

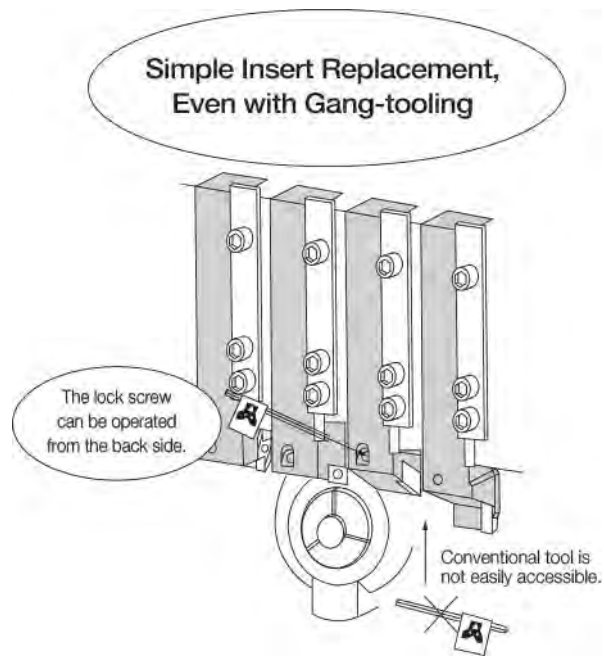
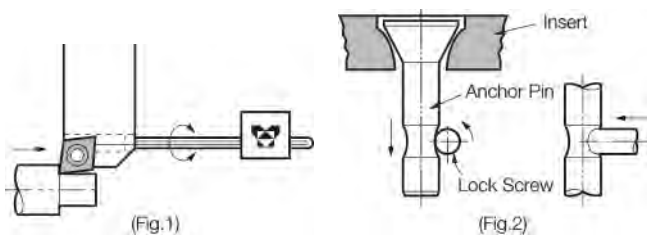
Application	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Material
Ref. Page	● B8	● B9	● B9	● B12	● B10	● B13	● B12	● B13	● C12	● C4
Shape	GF	GK	GQ	(E/F)%-U	MQ	Without Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
ACLC%...-2JXFF ACLC%...-06FF	COGT21..	CCMT21..	CCGT21..	CCGT21..	-	CCGW21..	-	-	CCMT21.. CCGW21..	CCMW21..
ACLC%...-3JXFF ACLC%...-09FF	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

Recommended Cutting Conditions ● E44

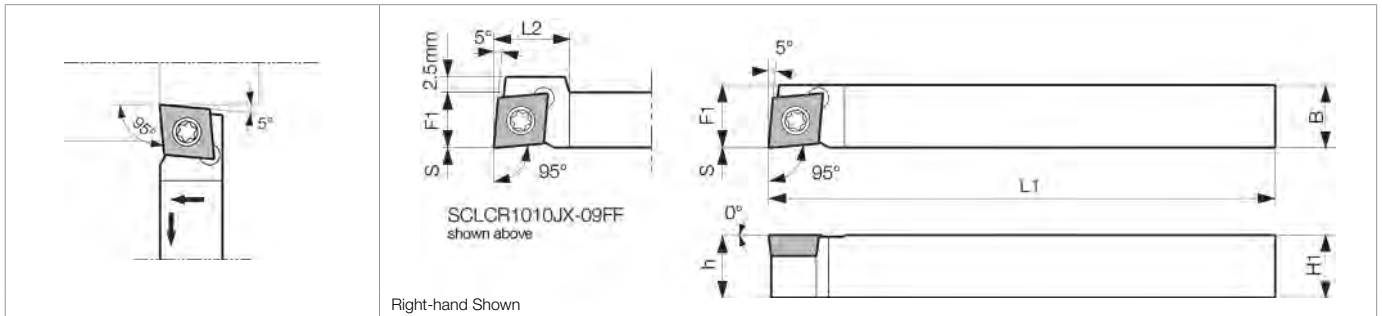
● Back Clamp Holders



1. The lock screw can be operated from the back side and allows simple insert replacement on Swiss automatic lathes. (Fig.1)
2. Simple insert replacement by slightly turning the wrench. (Fig.2)
3. Rigid clamping with anchor pin and lock screw. (Fig.2)



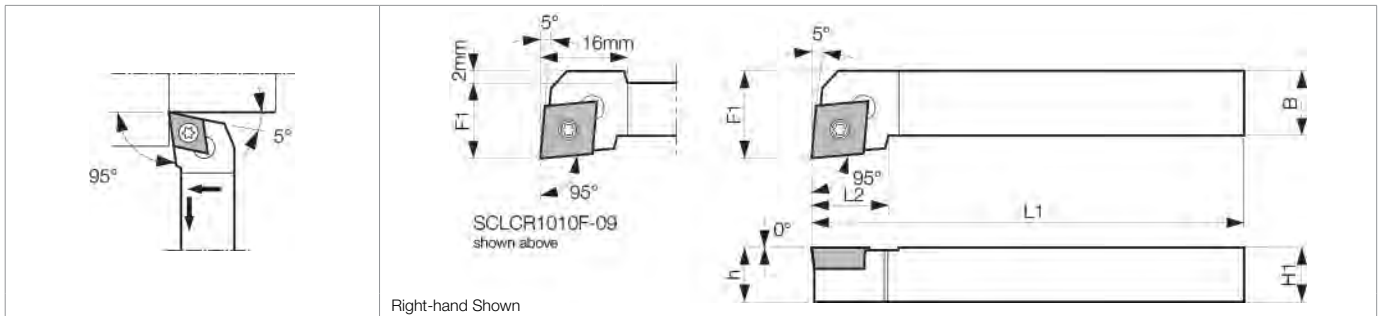
SCLC-FF (Without Offset • External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(re)	Spare Parts	
	R	L		H1=h	B	L1	L2	F1	S		Clamp Screw	Wrench
SCLC% 6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375	0	0.008	SB-2570TR	FT-8
6-3JXFF	●	●		0.375	0.375	4.750	0.590	0.375	0	0.008	SB-4085TR	FT-15
8-3JXFF	●	●		0.500	0.500	4.750	-	0.500	0	0.008		
10-3JXFF	●	●		0.625	0.625	4.750	-	0.625	0	0.008		
SCLC% 0808F-06FF	○	○	mm	8	8	85	-	8	0	0.2	SB-2570TR	FT-8
1212F-09FF	○	○		12	12	85	-	12	0	0.2	SB-4085TR	FT-15
SCLC% 1010JX-06FF	○	○		10	10	120	-	10	0	0.2	SB-2570TR	FT-8
1010JX-09FF	○	○		10	10	120	15	10	0	0.2	SB-4085TR	FT-15
1212JX-09FF	○	○		12	12	120	-	12	0	0.2		
1616JX-09FF	●	○		16	16	120	-	16	0	0.2		

SCLC (External / Facing)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R(re)	Spare Parts		
	R	L	H1=h	B	L1	L2	F1		Clamp Screw	Wrench	Wrench
SCLC% 1010F-06	○	○	10	10	80	9	12	0.2	SB-2570TR	FT-8	-
1010F-09	○	○	10	10	80	14	14	0.2	SB-4085TR	FT-15	-
1212H-09	○	○	12	12	100	14	16	0.2			
1616H-09	○	○	16	16	100	15	20	0.2			
2020K-09	○	○	20	20	125	20	25	0.2			
1616H-12	○	○	16	16	100	20	20	0.4	SB-5090TR	-	LTW-20
2020K-12	○	○	20	20	125	22	25	0.4			

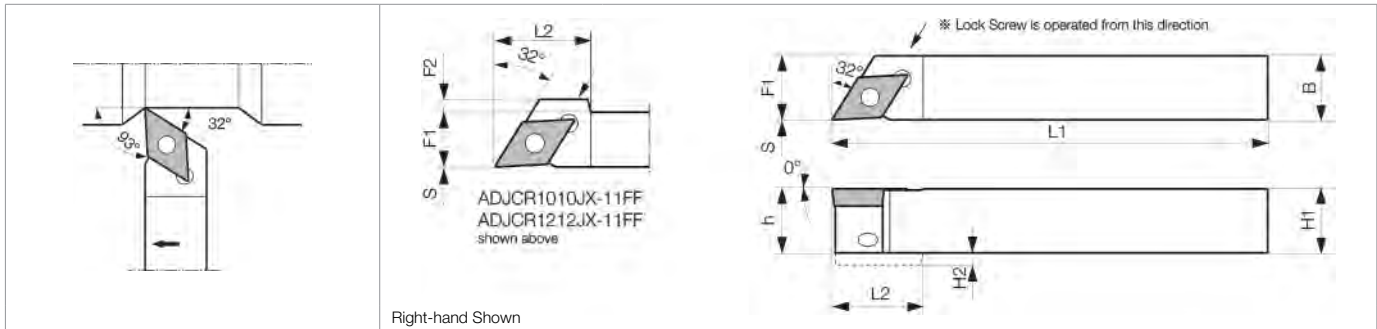
Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Material
Ref. Page	● B8	● B9	● B9	● B12	● B10	● B13	● B12	● B13	● C12	● C4
Shape	GF	GK	GO	(E/F)% -I1	MO	Without Chiobreaker	AH	% -A ²	PCD	CBN
Toolholder										
SCLC%...-2JXFF SCLC%...-06FF/-06	CCGT215..	CCMT215..	CCGT215..	CCGT215..	-	CCGW21..	-	-	CCMT215.. CCGW215..	CCMW215..
SCLC%...-3JXFF SCLC%...-09FF/-09	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..
SCLC%...-12	-	CCMT43..	-	-	-	-	-	CCGT43..	-	-

Recommended Cutting Conditions ● E44

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

ADJC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Standard Corner-R(rε)	Spare Parts		
	R	L		H1=h	H2	B	L1	L2	F1	F2	S		Anchor Pin	Lock Screw	Wrench
ADJC% 6-2JXFF	●	●	inch	0.375	-	0.375	4.750	-	0.375	-	0	0.008	LPF-11	HSB4X8%	FH-2
6-3JXFF	●	●		0.375	0.097	0.375	4.750	0.787	0.375	0.137	0	0.008	LPF-13		
8-3JXFF	●	●		0.500	-	0.500	4.750	-	0.500	-	0	0.008	LPF-17		
10-3JXFF	●	●		0.625	-	0.625	4.750	-	0.625	-	0	0.008	LPF-17		
ADJC% 1010JX-07FF	○	○	mm	10	-	10	120	-	10	-	0	0.2	LPF-11	HSB4X8%	FH-2
1010JX-11FF	○	○		10	2	10	120	20	10	3	0	0.2	LPF-13		
1212JX-11FF	○	○		12	-	12	120	20	12	1	0	0.2	LPF-13		
1616JX-11FF	●	○		16	-	16	120	-	16	-	0	0.2	LPF-17		

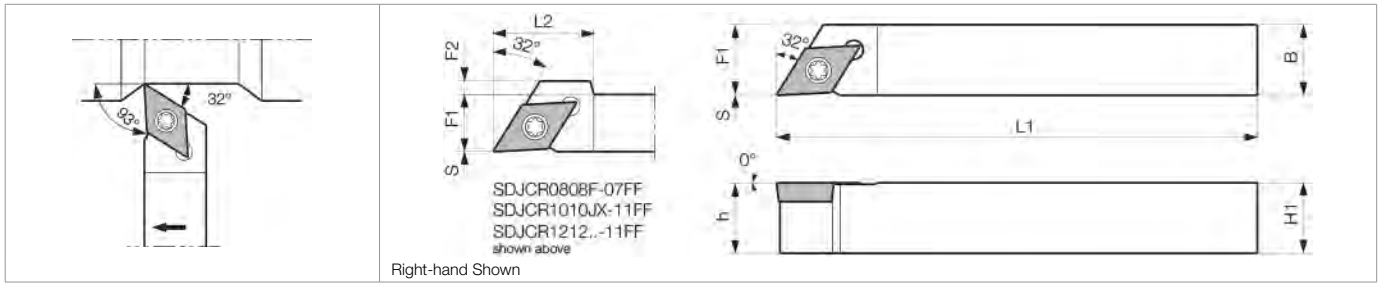
• Lock Screw : HSB4X8R for Right-hand Toolholder, HSB4X8L for Left-hand Toolholder

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	➔ B15	➔ B15	➔ B15, ➔ B16	➔ B16	➔ B16	➔ B16	➔ B18	➔ B18	➔ B20	➔ B19
Shape	CF	GF	CK	PP	GK	GQ	¾-F	¾-FSF	(E/F) ¾-U	F¾-USF
Toolholder										
ADJC%...-2JXFF ADJC%...-07FF	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
ADJC%...-3JXFF ADJC%...-11FF	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	Hard materials
Ref. Page	➔ B20	➔ B20	➔ B17	➔ B17	➔ B17	➔ B21	➔ B21	➔ B21	➔ C13	➔ C5
Shape	(E/F) ¾-J	F¾-JSF	XP	XQ	MQ	Without Chipbreaker AH	¾-A3	¾-A3	PCD	CBN
Toolholder										
ADJC%...-2JXFF ADJC%...-07FF	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
ADJC%...-3JXFF ADJC%...-11FF	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Recommended Cutting Conditions ➔ E44

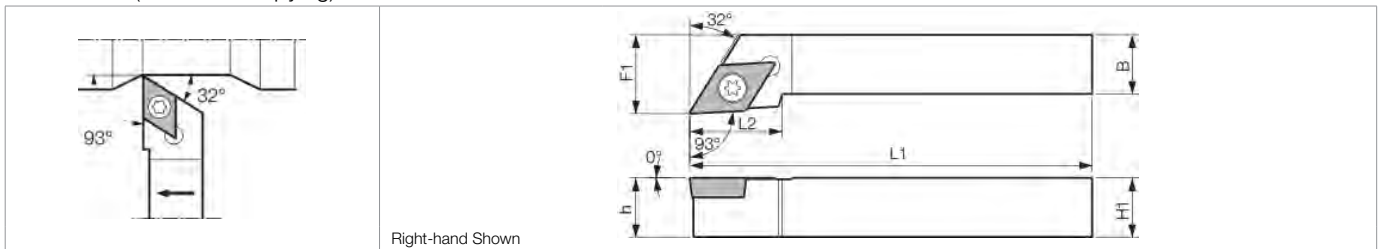
SDJC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R(°)	Spare Parts	
	R	L		H1=h	B	L1	L2	F1	F2	S		Clamp Screw	Wrench
SDJC% 6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375	-	0	0.008	SB-2570TR	FT-8
6-3JXFF	●	●		0.375	0.375	4.750	0.787	0.375	0.137	0	0.008	SB-4085TR	FT-15
8-3JXFF	●	●		0.500	0.500	4.750	-	0.500	-	0	0.008		
10-3JXFF	●	●		0.625	0.625	4.750	-	0.625	-	0	0.008		
SDJC% 0808F-07FF	○	○	mm	8	8	85	14	8	0.5	0	0.2	SB-2570TR	FT-8
1212F-11FF	○	○		12	12	85	20	12	1.0	0	0.2	SB-4085TR	FT-15
SDJC% 1010JX-07FF	○	○		10	10	120	-	10	-	0	0.2	SB-2570TR	FT-8
1010JX-11FF	○	○	10	10	120	20	10	3.0	0	0.2	SB-4085TR	FT-15	
1212JX-11FF	○	○	12	12	120	20	12	1.0	0	0.2			
1616JX-11FF	●	○	16	16	120	-	16	-	0	0.2			

SDJC (External / Copying)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R(°)	Spare Parts	
	R	L	H1=h	B	L1	L2	F1		Clamp Screw	Wrench
SDJC% 1010F-07	○	○	10	10	80	12	12	0.2	SB-2570TR	FT-8
SDJC% 1010F-11	○	○	10	10	80	18	12	0.2	SB-4085TR	FT-15
1212H-11	○	○	12	12	100	18	16	0.2		
1616H-11	○	○	16	16	100	18	20	0.2		
2020K-11	○	○	20	20	125	18	25	0.2		

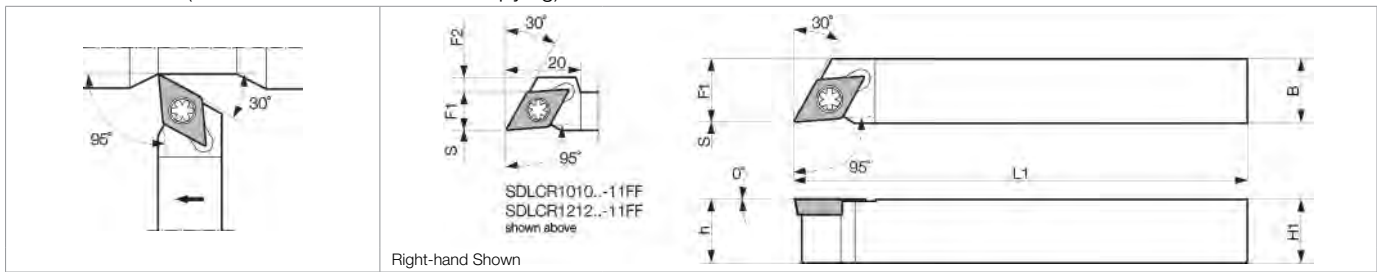
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	● B15	● B15	● B15, ● B16	● B16	● B16	● B16	● B18	● B18	● B20	● B19
Shape	CF	GF	CK	PP	GK	GQ	%-F	%-FSF	(E/F) %-U	F%-USF
Toolholder										
SDJC% ...-2JXFF	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDJC% ...-07FF/-07	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDJC% ...-3JXFF	DCGT325..	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCGT325..	DCGT325..	DCET325..	DCGT325..	DCET325..
SDJC% ...-11FF/-11	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	Hard materials
Ref. Page	● B20	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5
Shape	(E/F) %-J	F%-JSF	XP	XQ	MQ	Without Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
SDJC% ...-2JXFF	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDJC% ...-07FF/-07	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDJC% ...-3JXFF	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..
SDJC% ...-11FF/-11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Recommended Cutting Conditions ● E44

A
B
C
E
F
G
H
J
L
M
P
R
T

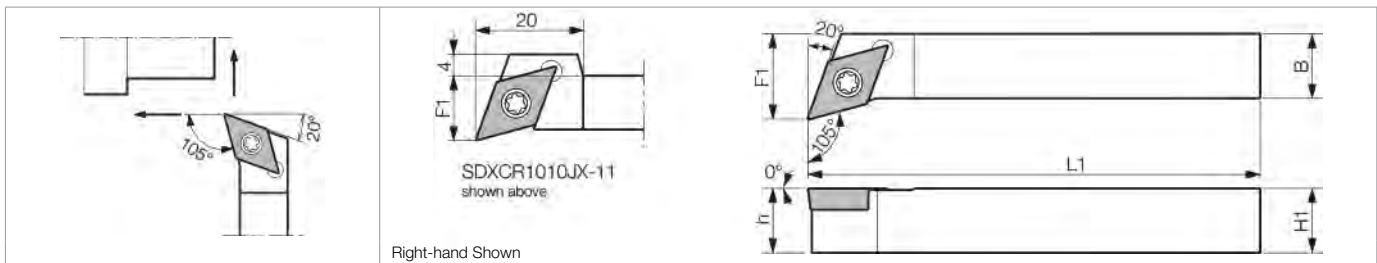
SDLC-FF (Without Offset • External / Copying)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(°)	Spare Parts	
	R	L		H1=h	B	L1	F1	F2	S		Clamp Screw	Wrench
SDLC% 6-2JXFF	●	●	inch	0.375	0.375	4.750	0.375	-	0	0.008	SB-2570TR	FT-8
6-3JXFF	●	●		0.375	0.375	4.750	0.375	0.176	0	0.008	SB-4085TR	FT-15
8-3JXFF	●	●		0.500	0.500	4.750	0.500	0.051	0	0.008		
10-3JXFF	●	●		0.625	0.625	4.750	0.625	-	0	0.008		
SDLC% 1010JX-07FF	○	○	mm	10	10	120	10	-	0	0.2	SB-2570TR	FT-8
1212JX-07FF	○	○		12	12	120	12	-	0	0.2		
1616JX-07FF	○	○		16	16	120	16	-	0	0.2		
SDLC% 1010JX-11FF	○	○		10	10	120	10	4	0	0.2	SB-4085TR	FT-15
1212JX-11FF	○	○		12	12	120	12	2	0	0.2		
1616JX-11FF	○	○		16	16	120	16	-	0	0.2		
SDLC% 1212F-07FF	○	○		12	12	85	12	-	0	0.2	SB-2570TR	FT-8
SDLC% 1010F-11FF	○	○		10	10	80	10	4	0	0.2	SB-4085TR	FT-15
1212F-11FF	○	○		12	12	85	12	2	0	0.2		
1616H-11FF	○	○	16	16	100	16	-	0	0.2			

SDXC (External / Facing / Copying)



Toolholder Dimensions

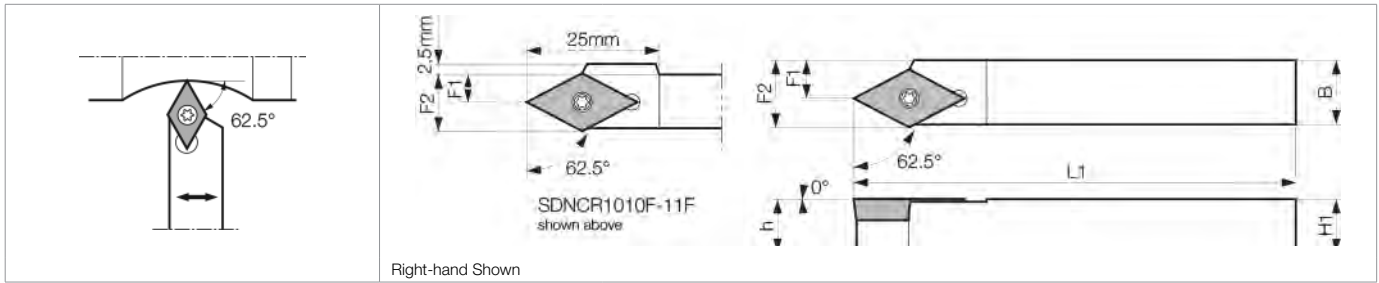
Part Number	Stock		Dimensions (mm)				Standard Corner-R(°)	Spare Parts	
	R	L	H1=h	B	L1	F1		Clamp Screw	Wrench
SDXC% 1010JX-07	○	○	10	10	120	12	0.2	SB-2570TR	FT-8
1010JX-11	○	○	10	10	120	12	0.2	SB-4085TR	FT-15
1212JX-11	○	○	12	12	120	16	0.2		
1616JX-11	○	○	16	16	120	20	0.2		

Applicable Inserts

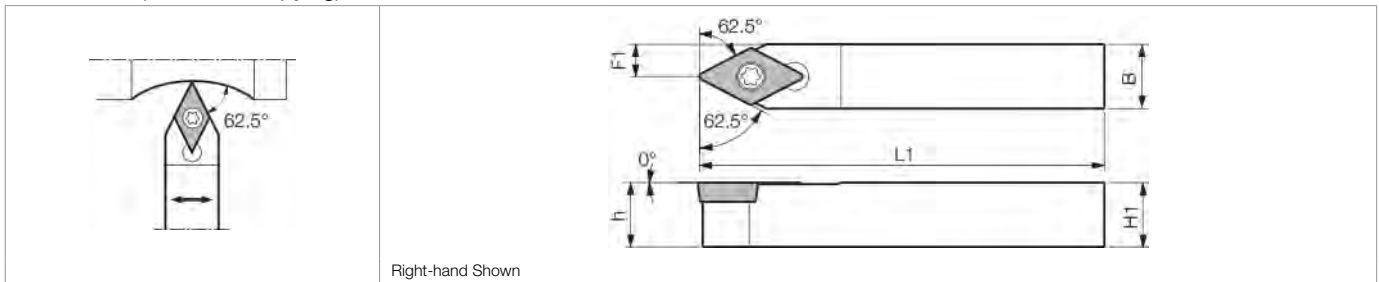
Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	● B15	● B15	● B15, ● B16	● B16	● B16	● B16	● B18	● B18	● B20	● B19
Shape	CF	GF	CK	PP	GK	GQ	%-F	%-FSF	(E/F) %-U	F%-USF
Toolholder										
SDLC%...-2JXFF / -07FF SDXC%...-07	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDLC%...-3JXFF / -11FF SDXC%...-11	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	Hard materials
Ref. Page	● B20	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5
Shape	(E/F) %-J	F%-JSF	XP	XQ	MQ	Without Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
SDLC%...-2JXFF / -07FF SDXC%...-07	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDLC%...-3JXFF / -11FF SDXC%...-11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Recommended Cutting Conditions ● E44

SDNC-F (External / Copying)



SDNC (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions					Standard Corner-R(rε)	Spare Parts	
	R	N	L		H1=h	B	L1	F1	F2		Clamp Screw	Wrench
SDNC% 6-2JXF	●		●	inch	0.375	0.375	4.750	0.257	0.395	0.008	SB-2570TR	FT-8
SDNC% 1010JX-07F	○		○	mm	10	10	120	7	10.5	0.2	SB-2570TR	FT-8
SDNCN 6-2JX		●		inch	0.375	0.375	4.750	0.187	-	0.008	SB-2570TR	FT-8
8-2JX		●			0.500	0.500	4.750	0.250	-	0.008		
6-3JX		●			0.375	0.375	4.750	0.187	-	0.008	SB-4085TR	FT-15
8-3JX		●			0.500	0.500	4.750	0.250	-	0.008		
10-3JX		●			0.625	0.625	4.750	0.312	-	0.008		
SDNCN 1010JX-07		○		mm	10	10	120	5	-	0.2	SB-2570TR	FT-8
1212JX-07		○			12	12	120	6	-	0.2		
1010JX-11		○			10	10	120	5	-	0.2	SB-4085TR	FT-15
1212JX-11		○			12	12	120	6	-	0.2		
1616JX-11		●			16	16	120	8	-	0.2		
SDNCN 0808F-07		○		mm	8	8	85	4	-	0.2	SB-2570TR	FT-8
SDNCN 1010F-11		○			10	10	80	5	-	0.2		
1212F-11		○			12	12	85	6	-	0.2	SB-4085TR	FT-15
1616H-11		○			16	16	100	8	-	0.2		

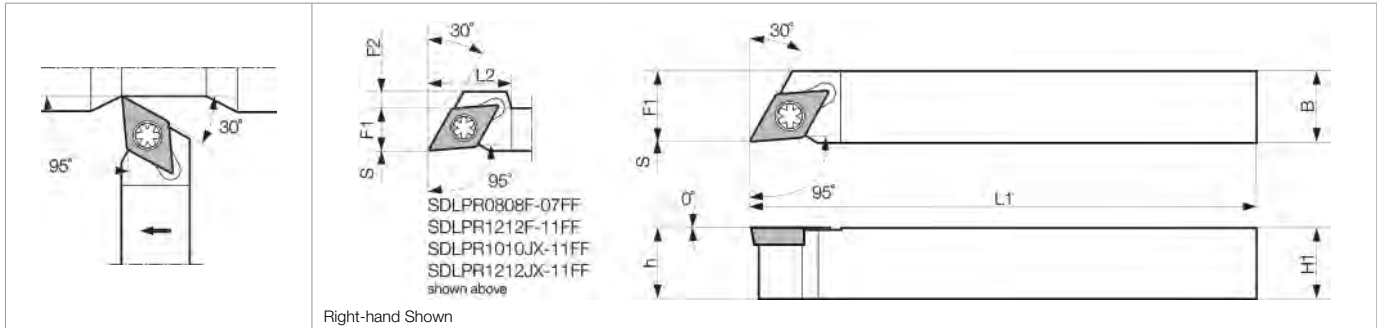
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	● B15	● B15	● B15, ● B16	● B16	● B16	● B16	● B18	● B18	● B20	● B19
Shape	CF	GF	CK	PP	GK	GQ	%-F	%-FSF	(E/F) %-U	F%-USF
Toolholder										
SDNC%...-2JXF / -07F SDNCN...-07	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
SDNCN...-3JX / -11	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	Hard materials
Ref. Page	● B20	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5
Shape	(E/F) %-J	F %-JSF	XP	XQ	MQ	Without Chipbreaker	AH	%-A3	PCD	CBN
Toolholder										
SDNC%...-2JXF / -07F SDNCN...-07	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
SDNCN...-3JX / -11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Recommended Cutting Conditions ● E44

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

SDLP-FF (Without Offset • External / Copying)



Toolholder Dimensions

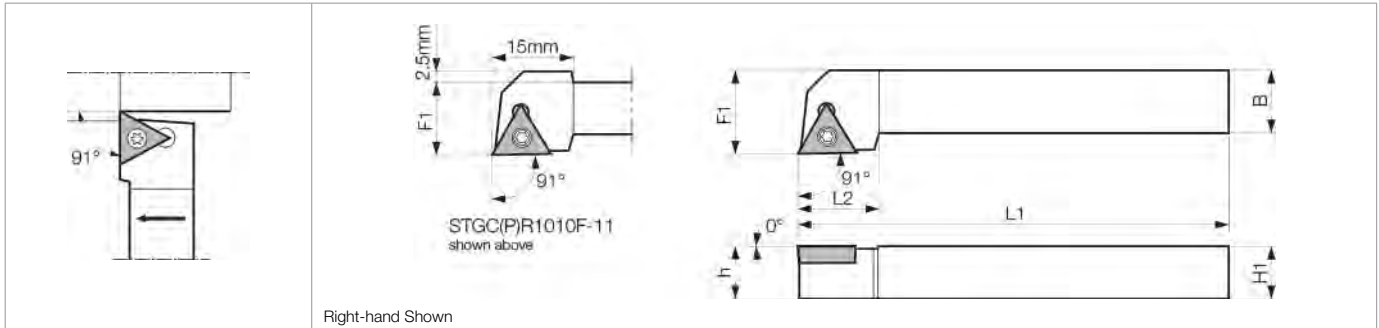
Part Number	Stock		Unit	Dimensions							Standard Corner-R(r/e)	Spare Parts	
	R	L		H1=h	B	L1	L2	F1	F2	S		Clamp Screw	Wrench
SDLP% 6-2JXFF	●	●	inch	0.375	0.375	4.750	-	0.375	-	0	0.008	SB-2570TR	FT-8
SDLP% 6-3JXFF	●	●		0.375	0.375	4.750	-	0.375	0.176	0	0.008	SB-4085TR	FT-15
SDLP% 8-3JXFF	●	●		0.500	0.500	4.750	0.375	0.500	0.051	0	0.008		
SDLP% 10-3JXFF	●	●		0.625	0.625	4.750	-	0.625	-	0	0.008		
SDLP% 0808F-07FF	○	○	mm	8	8	85	14	8	0.5	0	0.2	SB-2570TR	FT-8
SDLP% 1212F-11FF	○	○		12	12	85	20	12	2.0	0	0.2	SB-4085TR	FT-15
SDLP% 1010JX-07FF	○	○		10	10	120	-	10	-	0	0.2	SB-2570TR	FT-8
SDLP% 1010JX-11FF	○	○		10	10	120	20	10	4.0	0	0.2	SB-4085TR	FT-15
SDLP% 1212JX-11FF	○	○		12	12	120	20	12	2.0	0	0.2		
SDLP% 1616JX-11FF	○	○		16	16	120	-	16	-	0	0.2		

Applicable Inserts

Application	Finishing / Precision	Low Feed / Precision
Ref. Page	● B21	● B21
Shape	F% -FSF	F% -USF
Toolholder		
SDLP% ...-2JXFF SDLP% ...-07FF	DPET215..	DPET215..
SDLP% ...-3JXFF SDLP% ...-11FF	DPET325..	DPET325..

Recommended Cutting Conditions ● E44

STGC(P) (External / Copying)



Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R(r)	Spare Parts	
	R	L	H1=h	B	L1	L2	F1		Clamp Screw	Wrench
STGC% 0808E-08	○	○	8	8	70	12	10	0.2	SB-2050TR	FT-6
1010F-08	○	○	10	10	80	12	12	0.2		
STGC% 1010F-11	○	○	10	10	80	15	14	0.4	SB-2570TR	FT-8
1212H-11	○	○	12	12	100	15	16	0.4		
1616H-11	○	○	16	16	100	15	20	0.4		
2020K-11	○	○	20	20	125	15	25	0.4		
STGP% 0808E-08	○	○	8	8	70	12	10	0.2	SB-2050TR	FT-6
1010F-08	○	○	10	10	80	12	12	0.2		
STGP% 1010F-11	○	○	10	10	80	15	14	0.2	SB-3080TR	FT-10
1212H-11	○	○	12	12	100	15	16	0.2		
1616H-11	○	○	16	16	100	15	20	0.2		

Applicable Inserts (STGC)

Application	Low Feed	Low Feed / Precision	Cast Iron	Non-ferrous Metals	Non-ferrous Metals
Ref. Page	B24	B24	B25	B24	C14
Shape	(E/F) %-U	F%-USF	Without Chipbreaker	%-A3	PCD
Toolholder					
STGC%...-08	TCGT1515..	TCET1515..	TCGW1515..	-	TCMT1515..
STGC%...-11	TCGT22..	TCET22..	TCGW22..	TCGT22..	TCMT22.. TCGW22..

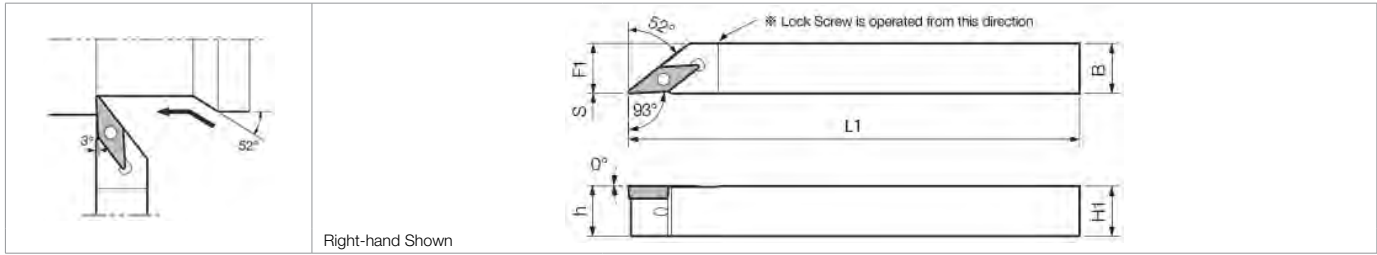
Applicable Inserts (STGP)

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	B25	B25	B25	B26	B27	B27	B27	B25	B26	B27
Shape	CF	PP	HQ	%	%-FSF	F%-USF	%-H	XP	XQ	Without Chipbreaker
Toolholder										
STGP%...-08	TPGT1515..	-	-	TPGH1515..	TPET1515..	TPET1515..	-	-	-	TPGB1515..
STGP%...-11	-	TPMT22..	TPMT22..	TPGH22..	TPET22..	TPET22..	TPGH22..	TPMT22..	TPMT22..	TPGB22..
Application	Non-ferrous Metals	Hard Materials								
Ref. Page	C14~C16	C6								
Shape	PCD	CBN								
Toolholder										
STGP%...-08	TPMH1515.. TPGB1515..	TPGB1515..								
STGP%...-11	TPMH22.. TPGB22..	TPGB22..								

Recommended Cutting Conditions E44

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

AVJB-FF / SVJB-FF (Without Offset • External / Copying)

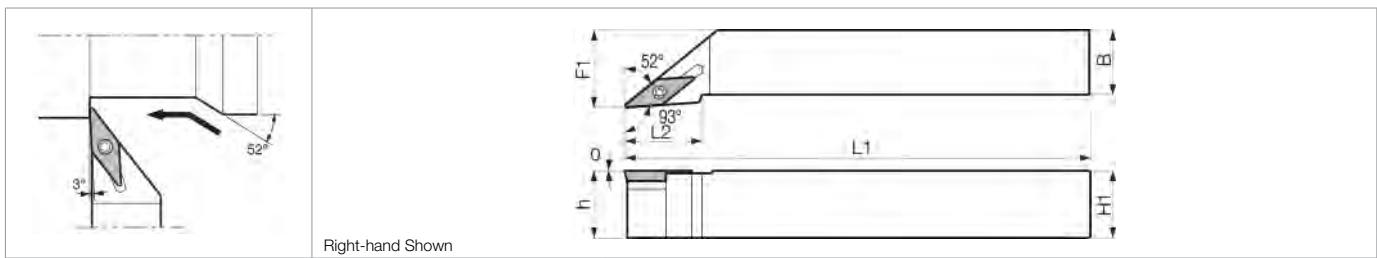


Toolholder Dimensions

Part Number	Stock		Unit	Dimensions					Standard Corner-R(rε)	Spare Parts			
	R	L		H1=h	B	L1	F1	S		Anchor Pin	Lock Screw	Clamp Screw	Wrench
AVJB% 6-2JXFF	●	●	inch	0.375	0.375	4.750	0.375	0	0.016	LPF-11	HSB4X8%	-	FH-2
8-2JXFF	●	●		0.500	0.500	4.750	0.500	0	0.016	LPF-1113			
10-2JXFF	●	●		0.625	0.625	4.750	0.625	0	0.016	LPF-1117			
AVJB% 1010JX-11FF	○	○	mm	10	10	120	10	0	0.4	LPF-11	HSB4X8%	-	FH-2
1212JX-11FF	●	○		12	12	120	12	0	0.4	LPF-1113			
1616JX-11FF	●	○		16	16	120	16	0	0.4	LPF-1117			
SVJB% 6-2JXFF	●	●	inch	0.375	0.375	4.750	0.375	0	0.016	-	-	SB-2570TR	FT-8
8-2JXFF	●	●		0.500	0.500	4.750	0.500	0	0.016				
10-2JXFF	●	●		0.625	0.625	4.750	0.625	0	0.016				
SVJB% 1010JX-11FF	●	○	mm	10	10	120	10	0	0.4	-	-	SB-2570TR	FT-8
1212JX-11FF	○	○		12	12	120	12	0	0.4				
1616JX-11FF	○	○		16	16	120	16	0	0.4				

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

SVJB (External / Copying)



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R(rε)	Spare Parts				
	R	L	H1=h	B	L1	L2	F1		Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVJB% 2020K-11	○	○	20	20	125	30	25	0.4	SB-2570TR	FT-8	-	-	-
2020K-16N	○	○	20	20	125	30	25	0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4

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

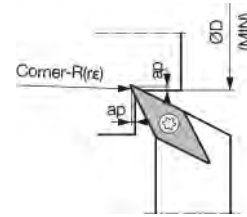
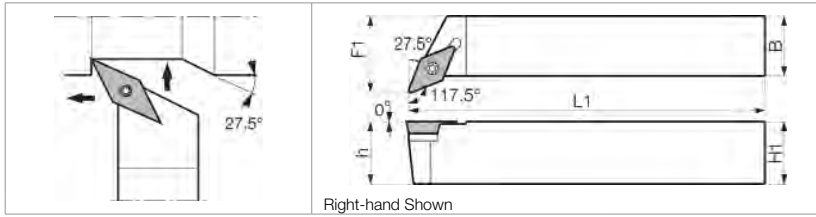
Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	➔ B28	➔ B28	➔ B28	➔ B29	➔ B28	➔ B29	➔ B30	➔ B30	➔ C16	➔ C7
Shape	GP	VF	HQ	%-F	%-FSF	%-Y	AH	%-A3	PCD	CBN
Toolholder										
☐ VJB%...-2JXFF ☐ VJB%...-11FF / -11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
SVJB%...-16N	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VBGT33..	VBGT33..	VBMT33..	VBGW33..

Recommended Cutting Conditions ➔ E44

SVPB (External / Facing / Copying / Undercutting)

Undercutting Diameter of SVPB

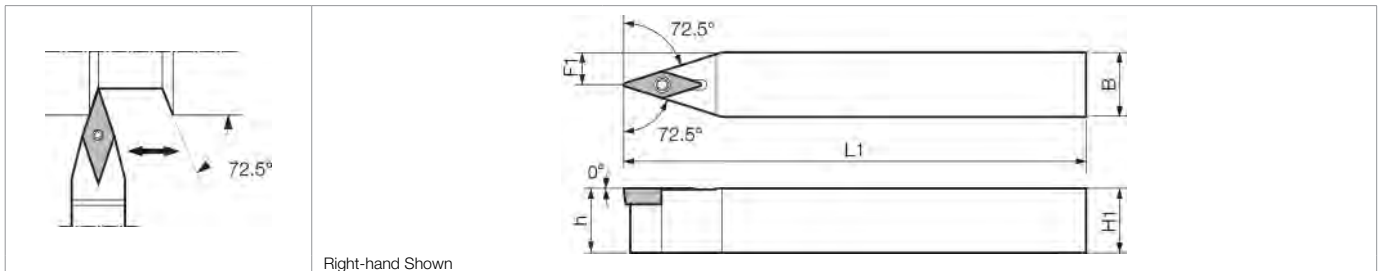


Corner-R (rε)	ap	ØD (MIN)
0.4	0.5	Ø25
	1.0	Ø30
0.8	0.5	Ø45
	1.0	Ø55

Toolholder Dimensions

Part Number	Stock		Dimensions (mm)					Standard Corner-R(rε)	Spare Parts				
	R	L	H1=h	B	L1	L2	F1		Clamp Screw	Wrench	Shim	Shim Screw	Wrench
SVPB% 1010JX-11	○	○	10	10	120	-	14.5	0.4	SB-2570TR	FT-8	-	-	-
1212JX-11	○	○	12	12	120	-	16.5	0.4					
1616JX-11	○	○	16	16	120	-	20.5	0.4					
SVPB% 2020K-11	○	○	20	20	125	-	25.0	0.4	SB-2570TR	FT-8	-	-	-
SVPB% 2020K-16N	○	○	20	20	125	-	25.0	0.8	SB-40125TRN	FT-15	SVN-32N	SS-4N	LW-4

SVVB (External / Copying)



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions					Standard Corner-R(rε)	Spare Parts				
			H1=h	B	L1	F1	Clamp Screw		Wrench	Shim	Shim Screw	Wrench	
SVB 6-2JX	●	inch	0.375	0.375	4.750	0.187	0.016	SB-2570TR	FT-8	-	-	-	
8-2JX	●		0.500	0.500	4.750	0.250	0.016						
10-2JX	●		0.625	0.625	4.750	0.312	0.016						
SVVB 1212F-11	○	mm	12	12	85	6.0	0.4	SB-2570TR	FT-8	-	-	-	
SVVB 1010JX-11	○		10	10	120	5.0	0.4	SB-2570TR	FT-8	-	-	-	
1212JX-11	○		12	12	120	6.0	0.4						
1616JX-11	○		16	16	120	8.0	0.4						
SVVB 1010F-11	○		10	10	80	5.0	0.4	SB-2570TR	FT-8	-	-	-	
1616H-11	○		16	16	100	8.0	0.4						
2020K-11	○		20	20	125	10.0	0.4						
SVVB 2020K-16N	○		20	20	125	10.0	0.8						SB-40125TRN

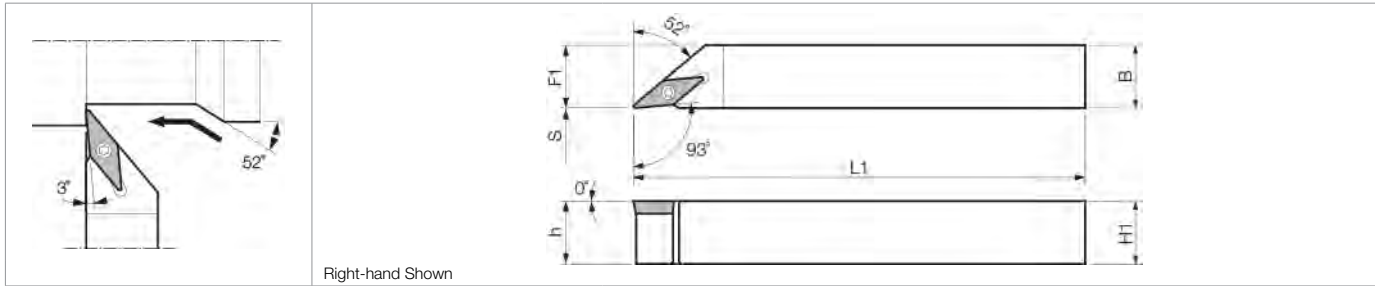
Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	● B28	● B28	● B28	● B29	● B28	● B29	● B30	● B30	● C16	● C7
Shape	GP	VF	HQ	%-F	%-FSF	%-Y	AH	%-A3	PCD	CBN
Toolholder										
SVPB%...-11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
SVVB...-2JXFF SVVB...-11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	-	-	VBMT22..	VBGW22..
SVPB%...-16N	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33..
SVVB...-16N	VBMT33..	VBMT33..	VBMT33..	-	-	VBGT33..	VCGT33..	VCGT33..	VBMT33..	VBGW33..

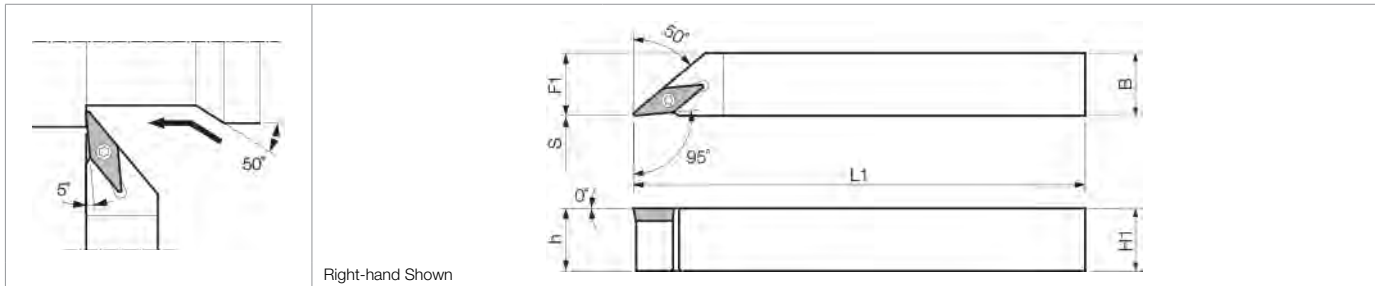
Recommended Cutting Conditions ● E44

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

SVJP-FF (Without Offset • External / Copying)



SVLP-FF (Without Offset • External / Copying)



Toolholder Dimensions

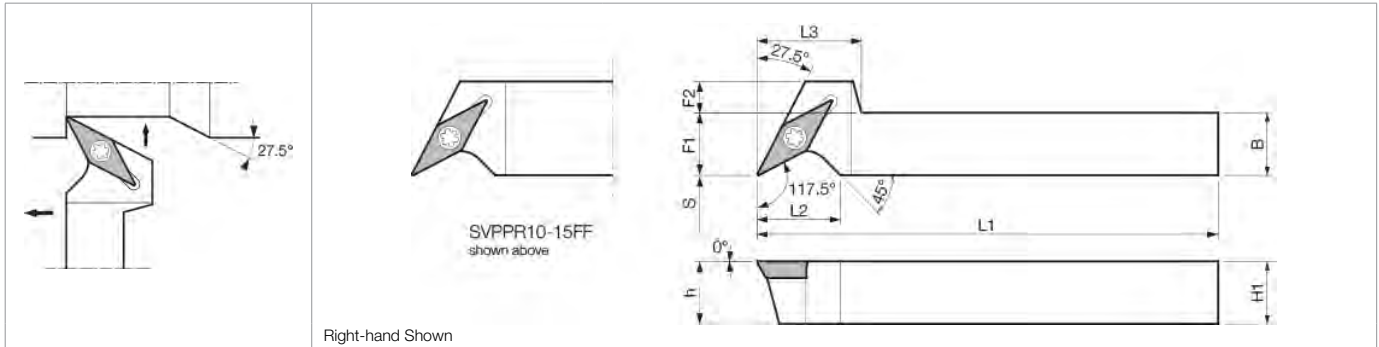
Part Number	Stock		Unit	Dimensions					Standard Corner-R(re)	Spare Parts	
	R	L		H1=h	B	L1	F1	S		Clamp Screw	Wrench
SVJP% 8-2JXFF	●	●	inch	0.500	0.500	4.750	0.500	0	0.008	SB-2570TR	FT-8
10-2JXFF	●	●		0.625	0.625	4.750	0.625	0	0.008		
SVJP% 1212F-11FF	○	○	mm	12	12	85	12	0	0.2	SB-2570TR	FT-8
1212JX-11FF	○	○		12	12	120	12	0	0.2		
1616JX-11FF	○	○		16	16	120	16	0	0.2		
SVLP% 6-15JXFF	●	●	inch	0.375	0.375	4.750	0.375	0	0.004	SB-2550TR	FT-6
8-15JXFF	●	●		0.500	0.500	4.750	0.500	0	0.004		
10-15JXFF	●	●		0.625	0.625	4.750	0.625	0	0.004		
8-2JXFF	●	●		0.500	0.500	4.750	0.500	0	0.008		
10-2JXFF	●	●		0.625	0.625	4.750	0.625	0	0.008		
SVLP% 1010JX-08FF	○	○	mm	10	10	120	10	0	0.1	SB-2050TR	FT-6
1212JX-08FF	○	○		12	12	120	12	0	0.1		
1616JX-08FF	○	○		16	16	120	16	0	0.1		
SVLP% 1212JX-11FF	○	○		12	12	120	12	0	0.2		
SVLP% 1616JX-11FF	○	○	mm	16	16	120	16	0	0.2	SB-2570TR	FT-8
SVLP% 1212F-08FF	○	○		12	12	85	12	0	0.1		
1212F-11FF	○	○		12	12	85	12	0	0.2		

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B31	● B31	● B31	● B32	● B32	● B32
Shape	CF	CK	GF	%-FSF	F%-U	F%-USF
Toolholder						
SVLP% ...-15JXFF SVLP% ...-08FF	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SV□P% ...-2JXFF SV□P% ...-11FF	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPET220..	VPET220..

Recommended Cutting Conditions ● E44

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



Toolholder Dimensions

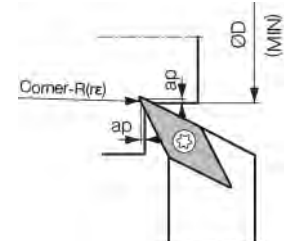
Part Number	Stock	Unit	Dimensions								Standard Corner-R(re)	Spare Parts	
			H1=h	B	L1	L2	L3	F1	F2	S		Clamp Screw	Wrench
SVPPR 6-15JXFF	●	inch	0.375	0.375	4.750	0.472	0.630	0.375	0.176	0	0.004	SB-2050TR	FT-6
8-15JXFF	●		0.500	0.500	4.750	0.551	0.630	0.500	0.051	0	0.004		
10-15JXFF	●		0.625	0.625	4.750	0.787	-	0.625	-	0	0.004		
6-2JXFF	●		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	4.750	0.630	0.787	0.500	0.209	0	0.008		
10-2JXFF	●		0.625	0.625	4.750	0.787	0.787	0.625	0.084	0	0.008		
SVPPR 1010JX-08FF	○		mm	10	10	120	12	16	10.0	4	0	0.1	SB-2050TR
1212JX-08FF	○	12		12	120	12	16	12.0	2	0	0.1		
1616JX-08FF	○	16		16	120	12	-	16.0	-	0	0.1		
SVPPR 1010JX-11FF	○	10		10	120	16	20	10.0	8	0	0.2	SB-2570TR	FT-8
1212JX-11FF	○	12		12	120	16	20	12.0	6	0	0.2		
1616JX-11FF	○	16		16	120	16	20	16.0	2	0	0.2		
SVPPR 1212F-08FF	○	12	12	85	12	16	12.0	2	0	0.1	SB-2050TR	FT-6	
1212F-11FF	○	12	12	85	16	20	12.0	6	0	0.2	SB-2570TR	FT-8	

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision
Ref. Page	● B31	● B31	● B31	● B32	● B32	● B32
Shape	CF	CK	GF	%-FSF	F%-U	F%-USF
Toolholder						
SVPPR...-15JXFF SVPPR...-08FF	-	VPGT1515..	-	VPET1515..	-	VPET1515..
SVPPR...-2JXFF SVPPR...-11FF	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPET220..	VPET220..
SVPP%...-11	VPGT220..	VPGT220..	VPGT220..	VPET220..	VPET220..	VPET220..

Recommended Cutting Conditions ● E44

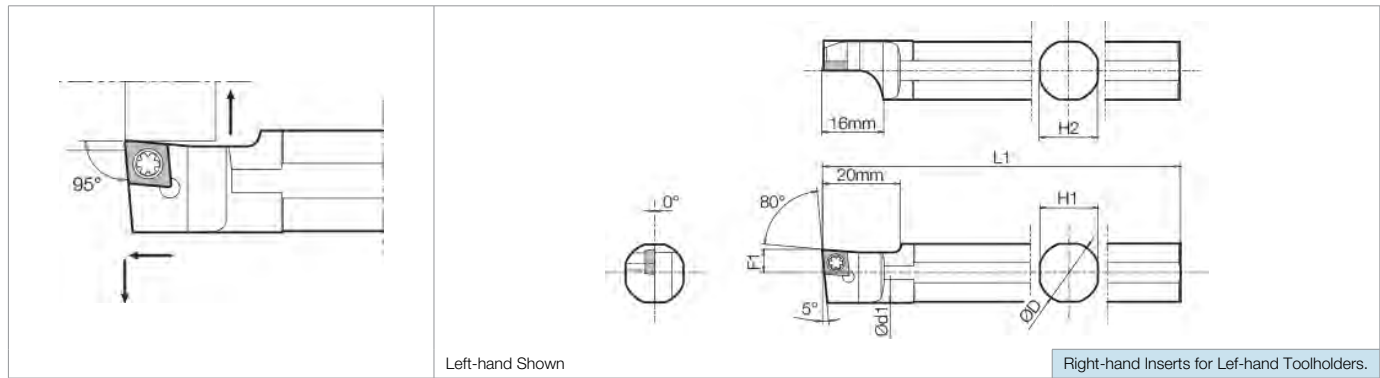
Undercutting Dia. of SVPP-FF



Corner-R(re)	ap	ØD (MIN)
0.2	0.5	Ø20
	1.0	Ø25

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

S...SCLC (External / Facing)



Toolholder Dimensions

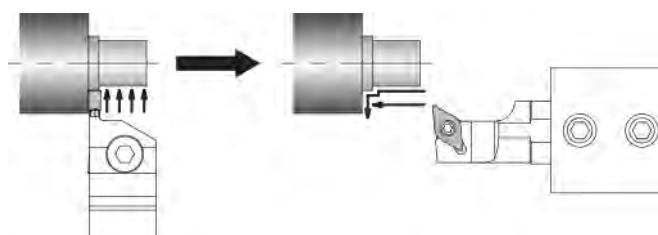
Part Number	Stock	Unit	Dimensions					Standard Corner-R(r)	Spare Parts	
			ØD	L1	F1	Ød1	H1=H2		Clamp Screw	Wrench
S15F -SCLCL06	●	inch	0.625	3.346	0.236	0.606	0.590	0.016	SB-2570TR	FT-8
S19G -SCLCL06	○		0.750	3.543	0.236	0.724	0.669	0.016		
S19K -SCLCL06	○		0.750	4.724	0.236	0.724	0.669	0.016		
S19G -SCLCL09	●	inch	0.750	3.543	0.393	0.724	0.669	0.016	SB-4065TR	FT-5
S19K -SCLCL09	○		0.750	4.724	0.393	0.724	0.669	0.016		
S25K -SCLCL09	●	mm	1.000	4.724	0.393	0.976	0.905	0.016	SB-2560TR	FT-8
S12F -SCLCL06	○		12	80	6	13.4	11	0.4		
S14H -SCLCL06	○		14	100	6	13.4	13	0.4		
S16F -SCLCL06	○		16	85	6	15.4	15	0.4		
S20G -SCLCL06	○		20	90	6	19.4	18	0.4		
S20K -SCLCL06	○		20	120	6	19.4	18	0.4		
S20G -SCLCL09	○		20	90	10	19.4	18	0.4		
S20K -SCLCL09	○		20	120	10	19.4	18	0.4		
S25.0H -SCLCL09	○		25	100	10	24.4	23	0.4		
S25.0H -SCLCL09	○		25	100	10	24.4	23	0.4		

Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing-Medium	Low Feed	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials
Ref. Page	● B8	● B9	● B8	● B12	● B10	● B13	● B12	● B13	● C12	● C4
Shape	GF	GK	GQ	(E/F)R-U	MQ	Without Chipbreaker	AH	R-A3	PCD	CBN
Toolholder										
S...SCLCL06	CCGT215..	CCMT215..	CCGT215..	CCGT215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..
S...SCLCL09	CCGT325..	CCMT325..	CCGT325..	CCGT325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..

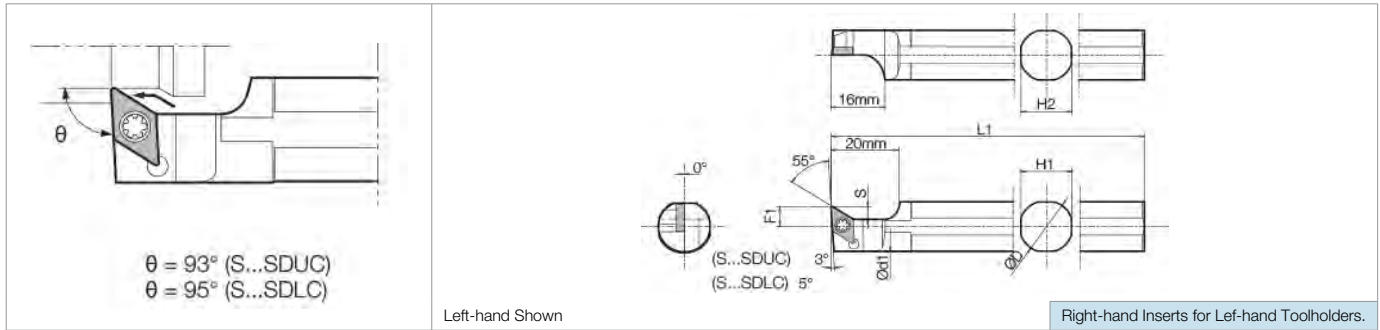
Recommended Cutting Conditions ● E44

Finishing by Sleeve Holder



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

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



Toolholder Dimensions

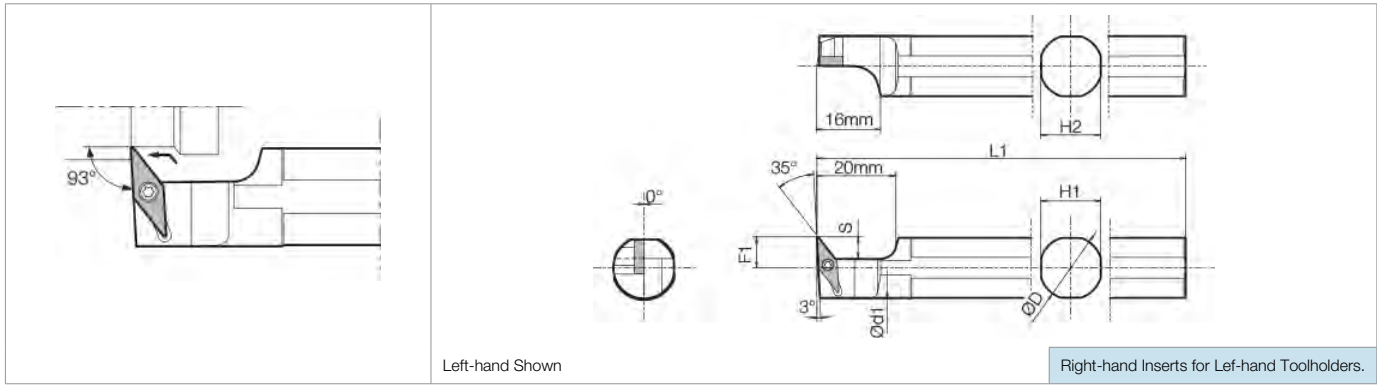
Part Number	Stock	Unit	Dimensions							Standard Corner-R(r)	Spare Parts			
			ØD	L1	F1	Ød1	H1=H2	S	Clamp Screw		Wrench			
S15F -SDUCL07	●	inch	0.625	3.346	0.236	0.606	0.590	0.150	0.016	SB-2560TR	FT-8			
S19G -SDUCL07	●		0.750	3.543	0.236	0.724	0.669	0.150	0.016					
S19K -SDUCL07	○		0.750	4.724	0.236	0.724	0.669	0.150	0.016					
S19G -SDUCL11	●		0.750	3.543	0.393	0.724	0.669	0.228	0.016			SB-4085TR	FT-15	
S19K -SDUCL11	○		0.750	4.724	0.393	0.724	0.669	0.228	0.016					
S25K -SDUCL11	●		1.000	4.724	0.393	0.976	0.905	0.228	0.016					
S15F -SDLCL07	●		mm	0.625	3.346	0.236	0.606	0.590	0.150	0.016	SB-2560TR	FT-8		
S19G -SDLCL07	●			0.750	3.543	0.236	0.724	0.669	0.150	0.016				
S19K -SDLCL07	○			0.750	4.724	0.236	0.724	0.669	0.150	0.016				
S19G -SDLCL11	●			0.750	3.543	0.393	0.724	0.669	0.228	0.016			SB-4085TR	FT-15
S19K -SDLCL11	○			0.750	4.724	0.393	0.724	0.669	0.228	0.016				
S25K -SDLCL11	●			1.000	4.724	0.393	0.976	0.905	0.228	0.016				
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	0.4				
S20K -SDUCL07	○			20	120	6	19.4	18	3.8	0.4				
S20G -SDUCL11	○			20	90	10	19.4	18	5.8	0.4			SB-4085TR	FT-15
S20K -SDUCL11	○			20	120	10	19.4	18	5.8	0.4				
S22K -SDUCL11	●			22	120	10	21.4	20	5.8	0.4				
S25.0H -SDUCL11	○		25	100	10	24.4	23	5.8	0.4	SB-2560TR	FT-8			
S12F -SDLCL07	○		12	80	6	13.4	11	3.8	0.4					
S14H -SDLCL07	○		14	100	6	13.4	13	3.8	0.4					
S16F -SDLCL07	○		16	85	6	15.4	15	3.8	0.4					
S20G -SDLCL07	○		20	90	6	19.4	18	3.8	0.4					
S20K -SDLCL07	○		20	120	6	19.4	18	3.8	0.4					
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	0.4					
S22K -SDLCL11	●		22	120	10	21.4	20	5.8	0.4					
S25.0H -SDLCL11	○		25	100	10	24.4	23	5.8	0.4					

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	Finishing / Precision
Ref. Page	● B15	● B15	● B15, ● B16	● B16	● B16	● B16	● B18	● B18	● B20	● B19
Toolholder	CF	GF	CK	PP	GK	GQ	R-F	R-FSF	(E/F)R-U	FR-USF
S...SD□CL07	DCGT215..	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..
S...SD□CL11	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	Hard materials
Ref. Page	● B20	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5
Toolholder	(E/F)R-J	FR-JSF	XP	XQ	MQ	Without Chipbreaker	AH	R-A3	PCD	CBN
S...SD□CL07	DCET215..	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..
S...SD□CL11	DC_T325..	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..

Recommended Cutting Conditions ● E44

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



Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Standard Corner-R(re)	Spare Parts	
			ØD	L1	F1	Ød1	H1=H2	S	Clamp Screw		Wrench	
S15F -SVUCL08	●	inch	0.625	3.346	0.315	0.606	0.591	0.217	0.016	SB-2050TR	FT-6	
S19G -SVUBL11	●		0.750	3.543	0.413	0.724	0.669	0.315	0.016			
S19K -SVUBL11	○		0.750	4.724	0.413	0.724	0.669	0.315	0.016			
S25K -SVUBL11	●	mm	1.000	4.724	0.413	0.976	0.906	0.315	0.016	SB-2050TR	FT-6	
S12F -SVUCL08	○		12	80	7.5	13.4	11	5.5	0.4			
S14H -SVUCL08	○		14	100	7.5	13.4	13	5.5	0.4			
S16F -SVUCL08	○		16	85	8	15.4	15	5.5	0.4			
S20G -SVUBL11	○		20	90	10.5	19.4	18	8	0.4			
S20K -SVUBL11	○		20	120	10.5	19.4	18	8	0.4			
S25.0H -SVUBL11	○		25	100	10.5	24.4	23	8	0.4			

Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Hard Materials
Ref. Page	➔ B28	➔ B28, ➔ B30	➔ B28, ➔ B30	➔ B29	➔ B28	➔ B29	➔ C16	➔ C7
Shape	GP	VF	HQ	R-F	R-FSF	R-Y	PCD	CBN
Toolholder								
S...SVUCL08	-	VCMT1515..	VCMT1515..	-	-	-	VCMT1515..	VCGW1515..
S...SVUBL11	VBMT22..	VBMT22..	VBMT22..	VBGT22..	VBET22..	VBGT22..	VBMT22..	VBGW22..

Recommended Cutting Conditions ➔ E44

Toolholders for Small Double Sided Tooling (Screw Clamp, Without offset)

Specially designed negative inserts (double-sided) for small workpieces enable sharp cutting equivalent to positive inserts, achieving high productivity due to economical double-edge inserts



Double-sided Inserts for small part precision cutting

TNGU18...



Small Negative Insert

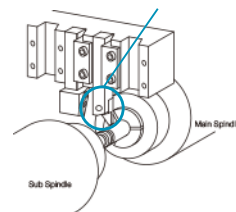
TNGG33...



Conventional Negative Insert

No constraint of tool position against tool post in the newly designed small double-sided insert.

The conventional toolholders for negative insert can interfere with sub spindle.



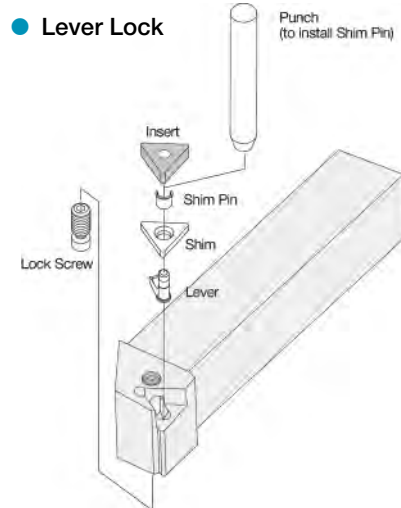
No interference with sub spindle

Toolholders for Small Double Sided Tooling (Screw Clamp, Without offset)

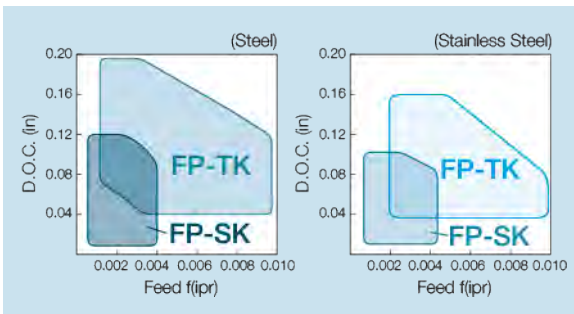
For medium to high feed rates with automatic lathes (when cutting workpieces of medium to large dia.)



Sharp cutting oriented FP-SK/TK Chipbreaker with polished and sharp edge preparation.



● Applicable Chipbreaker Range

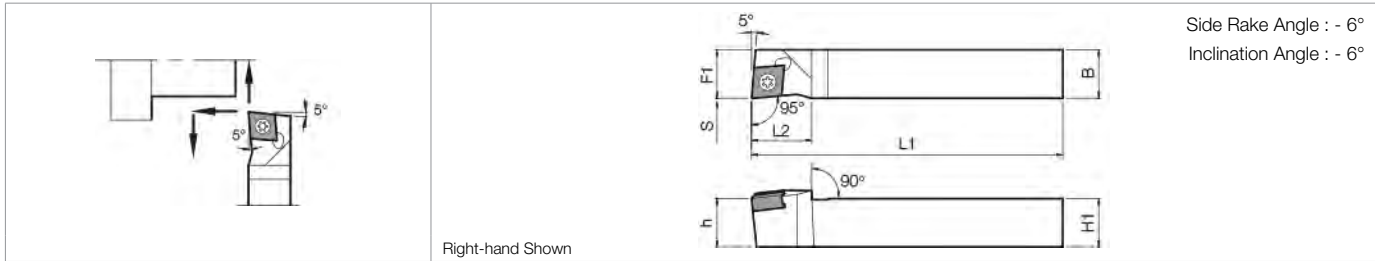


● Chipbreaker Shape & Advantages

	Design	Advantages
FP-SK		Polished chipbreaker. Smooth chip control and less adhesion. (for finishing-medium)
FP-TK		Polished chipbreaker. Smooth chip control and less adhesion. (when cutting medium to large diameter workpieces)
		Sharp Cutting Edge

- A GRADES
- B INSERTS
- C CN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

SCLN (Without Offset • External / Facing)



Toolholder Dimensions

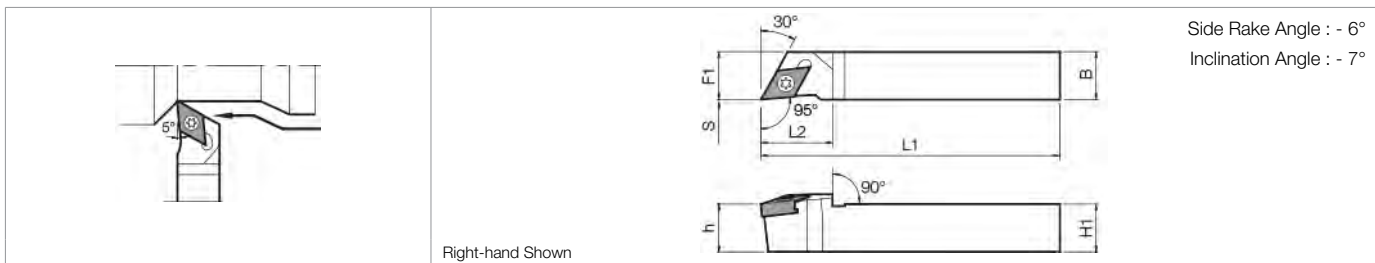
Part Number	Stock	Unit	Dimensions							Standard Corner-R(°)	Spare Parts		Applicable Inserts
			H1=h	B	L1	L2	F1	S	Clamp Screw		Wrench		
SCLNR 6-2.4FF	●	inch	0.375	0.375	6.00	0.590	0.375	0	0.008	SB-3080TR	LTW-10SS	CNGU242.. CNMU242..	
8-2.4DF	●		0.500	0.500	6.00	0.590	0.500	0	0.008				
10-2.4CF	●		0.625	0.625	5.00	0.590	0.625	0	0.008				
SCLNR 1010K-07FF	●	mm	10	10	120	15	10	0	0.2	SB-3080TR	LTW-10SS	CNGU242.. CNMU242..	
1212F-07FF	●		12	12	85	15	12	0	0.2				
1212K-07FF	●		12	12	120	15	12	0	0.2				
1616K-07FF	●		16	16	120	15	16	0	0.2				

Applicable Inserts

Application	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	● B38	● B38	● B38	● B38
Shape	SK	GK	FR-F	(F/E)R-U
Toolholder				
SCLNR...-2.4... SCLNR...-07FF	CNGU24..	CNMU24..	CNGU24..	CNGU24..

Recommended Cutting Conditions ● E39

SDLN (Without Offset • External / Copying)



Toolholder Dimensions

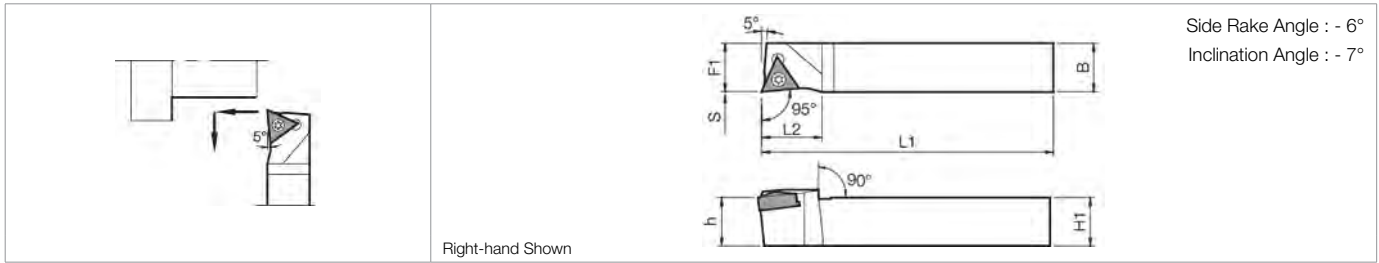
Part Number	Stock	Unit	Dimensions							Standard Corner-R(°)	Spare Parts		Applicable Inserts
			H1=h	B	L1	L2	F1	S	Clamp Screw		Wrench		
SDLNR 6-2.2FF	●	inch	0.375	0.375	6.00	0.708	0.375	0	0.008	SB-3080TR	LTW-10SS	DNGU222.. DNMU222..	
8-2.2DF	●		0.500	0.500	6.00	0.708	0.500	0	0.008				
10-2.2CF	●		0.625	0.625	5.00	0.708	0.625	0	0.008				
SDLNR 1010K-08FF	●	mm	10	10	120	18	10	0	0.2	SB-3080TR	LTW-10SS	DNGU222.. DNMU222..	
1212F-08FF	●		12	12	85	18	12	0	0.2				
1212K-08FF	●		12	12	120	18	12	0	0.2				
1616K-08FF	●		16	16	120	18	16	0	0.2				

Applicable Inserts

Application	Finishing-Medium	Medium-Roughing	Finishing	Low Feed
Ref. Page	● B39	● B39	● B39	● B39
Shape	SK	GK	FR-F	(F/E)R-U
Toolholder				
SDLNR...-2.2... SDLNR...-07FF	DNGU22..	DNMU22..	DNGU22..	DNGU22..

Recommended Cutting Conditions ● E39

STLN (Without Offset • External / Up Facing)



Toolholder Dimensions

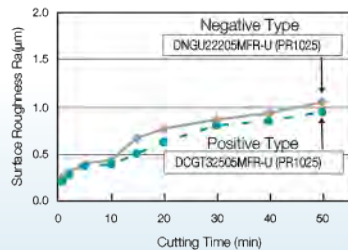
Part Number	Stock	Unit	Dimensions							Standard Corner-R(rε)	Spare Parts		Applicable Inserts
			H1=h	B	L1	L2	F1	S	Clamp Screw		Wrench		
STLNR 6-1.8FF	●	inch	0.375	0.375	6.00	0.590	0.375	0	0.008	SB-2570TR	LTW-8SS	TNGU182..	
8-1.8DF	●		0.500	0.500	6.00	0.590	0.500	0	0.008				
10-1.8CF	●		0.625	0.625	5.00	0.590	0.625	0	0.008				
STLNR 1010K-09FF	●	mm	10	10	120	15	10	0	0.2				
1212F-09FF	●		12	12	85	15	12	0	0.2				
1212K-09FF	●		12	12	120	15	12	0	0.2				
1616K-09FF	●		16	16	120	15	16	0	0.2				

Applicable Inserts

Application	Finishing	Low Feed
Ref. Page	● B40	● B40
Shape	FR-F	(E)FR-U
Toolholder		
STLNR...1.8... STLNR...09FF	TNGU18..	TNGU18..

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)



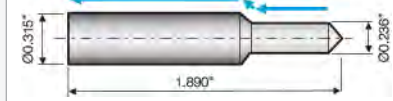
<Cutting Conditions>
Workpiece Material : 1045 Steel Vc=325sfm, D.O.C.=0.059", f=0.0012ipr, Wet

(Internal Evaluation)

Case Studies

303 Stainless Steel

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

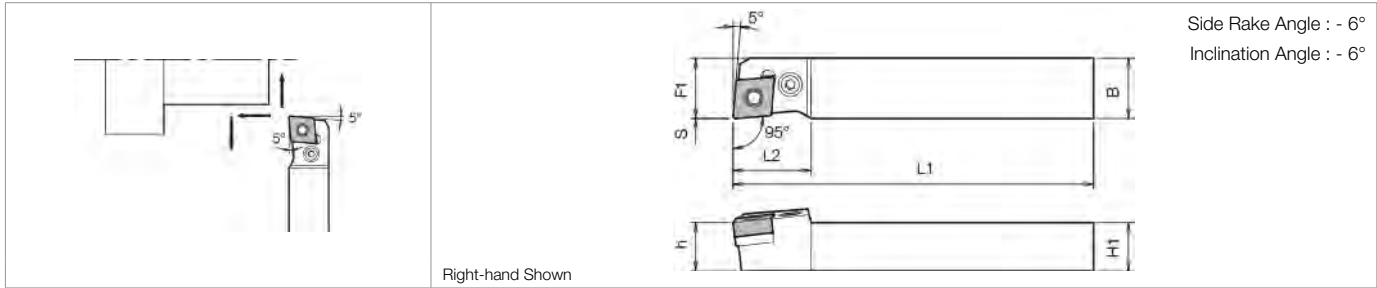
(User Evaluation)

Recommended Cutting Conditions

Workpiece Material	Grades			
	PR1005	PR1025	PR1225	PR1425
Free-Cutting Steel	● Vc=325sfm (200~500)	-	-	-
Carbon Steel / Alloy Steel	○ Vc=325sfm (200~500)	○ Vc=325sfm (200~500)	○ Vc=325sfm (200~500)	● Vc=400sfm (200~650)
Stainless Steel	-	○ Vc=325sfm (200~500)	● Vc=250sfm (175~500)	○ Vc=325sfm (250~500)

- : Light Interruption / Continuous / 1st Recommendation
- : Light Interruption / Continuous / 2nd Recommendation
- : Continuous / 1st Recommendation
- : Continuous / 2nd Recommendation

PCLN-FF (Without Offset • External / Facing)



● Toolholder Dimensions

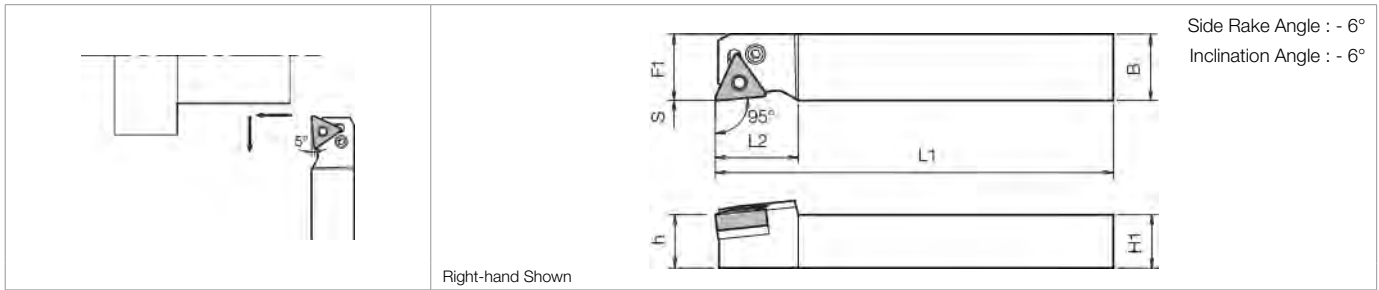
Part Number	Stock	Dimensions (mm)							Standard Corner-R(re)	Spare Parts					
		H1=h	B	L1	L2	F1	S	Lever		Lock Screw	Shim	Shim Pin	Punch	Wrench	
PCLNR 1620JX-12FF	○	16	20	120	26	20	0	0.8							
2020JX-12FF	○	20	20	120	26	20	0	0.8	LL-2N	LS-2N	LC-42N	LSP-2	PC-2	LW-3	

● Applicable Inserts (1st Recommendation)

Application	Finishing-Medium	Medium-Roughing
Ref. Page	● B41	● B41
Shape	FP-SK	FP-TK
Toolholder		
PCLNR...-12FF	CNGG43..	CNGG43..

Recommended Cutting Conditions ● E39

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



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Standard Corner-R(r)	Spare Parts					
		H1=h	B	L1	L2	F1	S	Lever		Lock Screw	Shim	Shim Pin	Punch	Wrench	
PTLNR 1620JX-16FF	○	16	20	120	24	20	0	0.8							
2020JX-16FF	○	20	20	120	24	20	0	0.8	LL-1N	LS-1N	LT-32N *LT-32N-20	LSP-1	PC-1	FH-2.5	

※ When using inserts whose corner R(r) 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
Ref. Page	B41	B41
Shape		
Toolholder		
PTLNR...-16FF	TNGG33..	TNGG33..

Recommended Cutting Conditions E39

GRADES **A**

INSERTS **B**

CBN & PCD **C**

TURNING E

BORING **F**

GRINDING **G**

CUT-OFF **H**

THREADING **J**

SOLID END MILLS **L**

MILLING **M**

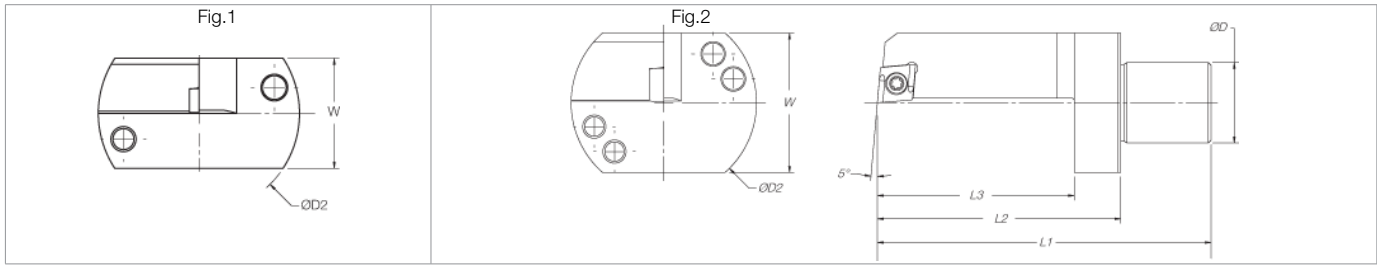
SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

SUB-SPINDLE TOOLS FOR STAR™ MACHINES

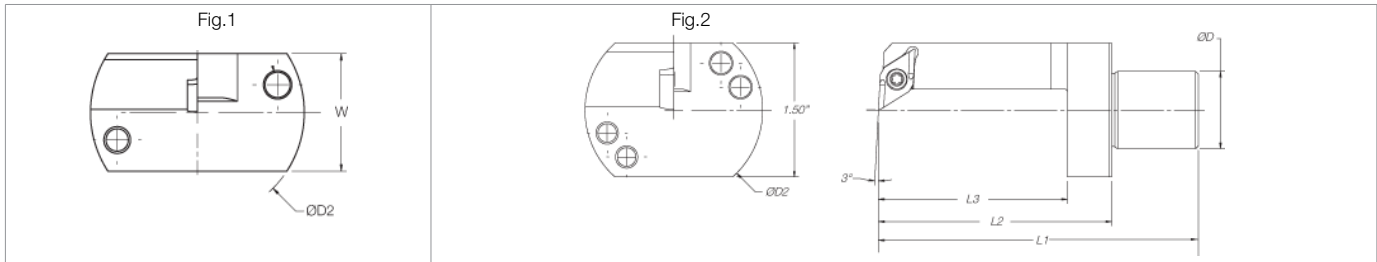
KSTB...CCET



Toolholder Dimensions

Part Number	Stock	Applicable Inserts	Dimensions (inch)							Spare Parts		Fig.	Reference Machine
			ØD	L1	L2	L3	W	ØD2	Clamp Screw	Wrench			
KSTB SR16/20 CCET215	●	CCET CCGT	21.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-2560TR	FT-8	1	SR16, SR20
KSTB SR16/20 CCET325	●		32.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-4085TR	FT-15	1	SR16, SR20
KSTB SR32J CCET325	●		32.5	0.866	3.605	2.625	2.125	1.5	2.0	SB-4085TR	FT-15	2	SR32J

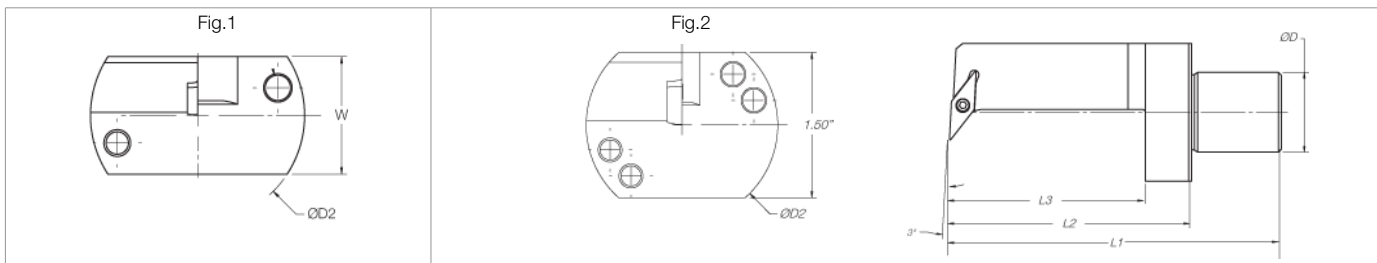
KSTB...DCET



Toolholder Dimensions

Part Number	Stock	Applicable Inserts	Dimensions (inch)							Spare Parts		Fig.	Reference Machine
			ØD	L1	L2	L3	W	ØD2	Clamp Screw	Wrench			
KSTB SR16/20 DCET215	●	DCET DCGT	21.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-2560TR	FT-8	1	SR16, SR20
KSTB SR16/20 DCET325	●		32.5	0.866	3.323	2.250	1.875	1.1	2.0	SB-4085TR	FT-15	1	SR16, SR20
KSTB SR32J DCET325	●		32.5	0.866	3.605	2.625	2.125	1.5	2.0	SB-4085TR	FT-15	2	SR32J

KSTB...VBET



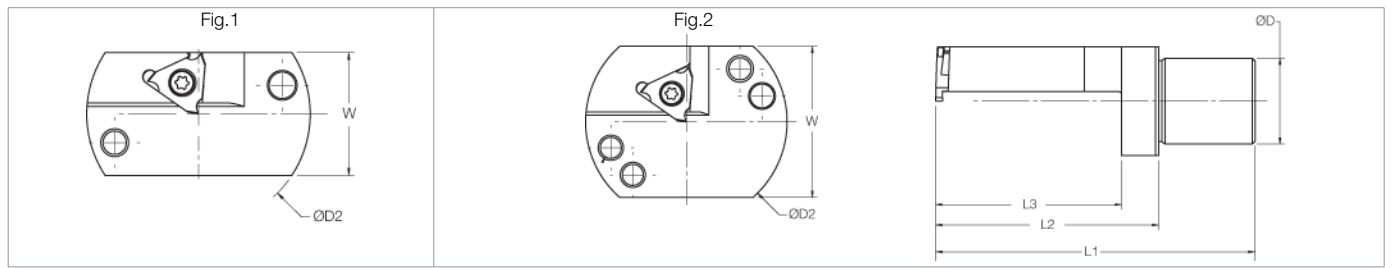
Toolholder Dimensions

Part Number	Stock	Applicable Inserts	Dimensions (inch)							Spare Parts		Fig.	Reference Machine
			ØD	L1	L2	L3	W	ØD2	Clamp Screw	Wrench			
KSTB SR16/20 VBET22	●	VBET	22	0.866	3.323	2.250	1.875	1.1	2.0	SB-2570TR	FT-8	1	SR16, SR20
KSTB SR32J VBET22	●		22	0.866	3.605	2.625	2.125	1.5	2.0	SB-2570TR	FT-8	2	SR32J



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

SUB-SPINDLE TOOLS FOR STAR™ MACHINES

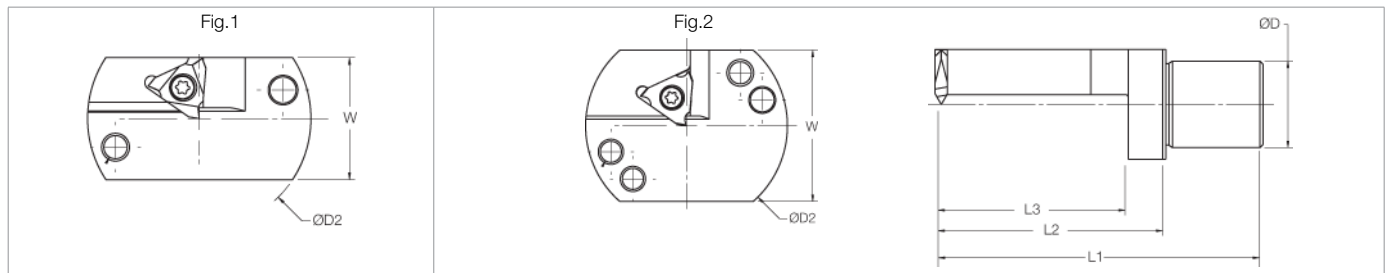
KSTB...TGF





Toolholder Dimensions

Part Number	Stock	Applicable Inserts	Dimensions (inch)						Spare Parts		Fig.	Reference Machine
			ØD	L1	L2	L3	W	ØD2	Clamp Screw	Wrench		
KSTB SR16/20 TGF32	●	TGF32L_	0.866	3.323	2.250	1.875	1.1	2.0			1	SR16, SR20
KSTB SR32J TGF32	●		0.866	3.605	2.625	2.125	1.5	2.0	SB-4070TRS	FT-10	2	SR32J

KSTB...TT



Toolholder Dimensions

Part Number	Stock	Applicable Inserts	Dimensions (inch)						Spare Parts		Fig.	Reference Machine
			ØD	L1	L2	L3	W	ØD2	Clamp Screw	Wrench		
KSTB SR16/20 TT32	●	TT32_	0.866	3.323	2.250	1.875	1.1	2.0			1	SR16, SR20
KSTB SR32J TT32	●		0.866	3.605	2.625	2.125	1.5	2.0	SB-4070TRS	FT-10	2	SR32J

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

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

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - Recommendation - Upper Limit			
								Vc (sfm)	D.O.C. (in)	Feed Rate f(ipr)	
*P	Low-carbon Steel Low-carbon Alloy 1010, 4115, 5115 etc.	HB 100 300	Precision Finishing	Continuous	F	PR1425	0.002	325 - 500 - 650	0.002 -0.003 - 0.006	0.001 -0.002 - 0.004	
				Interrupted		PR1425	0.008	250 - 400 - 525	0.002 -0.004 - 0.008	0.001 -0.004 - 0.006	
			Precision Finishing (Molded Chipbreaker)		Continuous	CF	PR1425	0.008	325 - 500 - 650	0.001 -0.002 - 0.004	0.001 -0.002 - 0.005
			Finishing	Continuous	GF	PR1425	0.008	325 - 450 - 600	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
				Interrupted		PR1425	0.016	250 - 400 - 525	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
			Finishing-Medium		Continuous	GQ	PR1425	0.008	250 - 400 - 525	0.031 -0.118 - 0.197	0.001 -0.002 - 0.004
					Interrupted		PR1425	0.016	200 - 325 - 450	0.031 -0.079 - 0.118	0.001 -0.002 - 0.004
			Low Feed & Large D.O.C.		Continuous	J , U	PR1425	0.008	250 - 325 - 450	0.020 -0.079 - 0.138	0.001 -0.002 - 0.004
	Medium-carbon Steel Medium-carbon Alloy 1045, 4137 etc.	HB 100 330	Precision Finishing	Continuous	F	PR1425	0.002	325 - 500 - 650	0.002 -0.003 - 0.006	0.001 -0.002 - 0.004	
				Interrupted		PR1425	0.008	250 - 400 - 525	0.002 -0.004 - 0.008	0.001 -0.004 - 0.006	
			Precision Finishing (Molded Chipbreaker)		Continuous	CF	PR1425	0.008	325 - 500 - 650	0.001 -0.002 - 0.004	0.001 -0.002 - 0.005
			Finishing	Continuous	GF	PR1425	0.008	325 - 450 - 600	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
				Interrupted		PR1425	0.016	250 - 400 - 525	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
			Finishing-Medium		Continuous	GQ	PR1425	0.008	250 - 400 - 525	0.031 -0.118 - 0.197	0.001 -0.002 - 0.004
					Interrupted		PR1425	0.016	200 - 325 - 450	0.031 -0.079 - 0.118	0.001 -0.002 - 0.004
			Low Feed & Large D.O.C.		Continuous	J , U	PR1425	0.008	250 - 325 - 450	0.020 -0.079 - 0.138	0.001 -0.002 - 0.004
	High-carbon Alloy D2, H13 etc.	HB 100 280	Precision Finishing	Continuous	F	PR1425	0.002	325 - 500 - 650	0.002 -0.003 - 0.006	0.001 -0.002 - 0.004	
				Interrupted		PR1425	0.008	250 - 400 - 525	0.002 -0.004 - 0.008	0.001 -0.004 - 0.006	
			Precision Finishing (Molded Chipbreaker)		Continuous	CF	PR1425	0.008	325 - 500 - 650	0.001 -0.002 - 0.004	0.001 -0.002 - 0.005
			Finishing	Continuous	GF	PR1425	0.008	325 - 450 - 600	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
				Interrupted		PR1425	0.016	250 - 400 - 525	0.008 -0.020 - 0.039	0.002 -0.004 - 0.008	
			Finishing-Medium		Continuous	GQ	PR1425	0.008	250 - 400 - 525	0.012 -0.059 - 0.118	0.001 -0.002 - 0.004
					Interrupted		PR1425	0.016	200 - 325 - 450	0.012 -0.039 - 0.079	0.001 -0.002 - 0.004
			Low Feed & Large D.O.C.		Continuous	J , U	PR1425	0.008	250 - 325 - 450	0.020 -0.079 - 0.138	0.001 -0.002 - 0.004
M	Stainless Steel 303, 304, 316, 420 etc.	HB 100 220	Finishing	Continuous	GF	PR1225	0.008	250 - 325 - 400	0.004 -0.012 - 0.020	0.001 -0.002 - 0.004	
				Interrupted		PR1225	0.016	200 - 250 - 325	0.012 -0.020 - 0.039	0.002 -0.004 - 0.006	
			Medium		Continuous	GQ	PR1225	0.008	250 - 325 - 400	0.020 -0.059 - 0.118	0.001 -0.003 - 0.005
					Interrupted		PR1225	0.016	200 - 250 - 325	0.020 -0.039 - 0.079	0.002 -0.004 - 0.006
	Stainless Steel S17400 etc.	HB 100 300	Finishing	Continuous	GF	PR1225	0.008	125 - 200 - 250	0.004 -0.012 - 0.020	0.001 -0.002 - 0.004	
				Interrupted		PR1225	0.016	100 - 175 - 225	0.012 -0.020 - 0.039	0.002 -0.004 - 0.006	
			Medium		Continuous	GQ	PR1225	0.008	125 - 200 - 250	0.020 -0.039 - 0.079	0.001 -0.003 - 0.005
					Interrupted		PR1225	0.016	100 - 175 - 225	0.020 -0.039 - 0.059	0.002 -0.004 - 0.006
K	Gray Cast Iron NO.35 NO.45 NO.50 etc.	HB 100 250	Finishing	Continuous	Conventional	CA4505	0.016	325 - 400 - 500	0.008 -0.020 - 0.039	0.004 -0.006 - 0.008	
				Interrupted		CA4505	0.016	250 - 325 - 400	0.008 -0.020 - 0.039	0.002 -0.004 - 0.006	
			Medium		Continuous	Conventional	CA4505	0.016	325 - 400 - 500	0.020 -0.039 - 0.079	0.004 -0.006 - 0.008
					Interrupted		CA4505	0.031	250 - 325 - 400	0.020 -0.039 - 0.079	0.002 -0.004 - 0.006
	Nodular Cast Iron 65-45-12 80-60-03 etc.	HB 100 270	Finishing	Continuous	Conventional	CA4515	0.016	250 - 325 - 400	0.008 -0.020 - 0.039	0.004 -0.006 - 0.008	
				Interrupted		CA4515	0.016	200 - 250 - 325	0.008 -0.020 - 0.039	0.002 -0.004 - 0.006	
			Medium		Continuous	Conventional	CA4515	0.016	250 - 325 - 400	0.020 -0.039 - 0.079	0.004 -0.006 - 0.008
					Interrupted		CA4515	0.031	200 - 250 - 325	0.020 -0.039 - 0.079	0.002 -0.004 - 0.006
N	Non-ferrous Metals Copper Alloy Aluminum Alloy (Si 10% Under) etc.	HB 100 100	High Speed Finishing (Rainbow Colored Finish)		Without Chipbreaker	KPD001	0.008	500 - 825 - 1150	0.002 -0.004 - 0.012	0.002 -0.004 - 0.006	
			Finishing	Continuous	F , FSF	KW10	0.008	325 - 500 - 650	0.002 -0.012 - 0.020	0.001 -0.003 - 0.004	
				Interrupted		KW10	0.016	325 - 500 - 650	0.002 -0.012 - 0.020	0.001 -0.003 - 0.004	
			Medium		Continuous	U , USF	KW10	0.008	325 - 500 - 650	0.008 -0.020 - 0.059	0.001 -0.004 - 0.008
					Interrupted		KW10	0.016	325 - 500 - 650	0.008 -0.020 - 0.059	0.001 -0.004 - 0.008
			S	Titanium Alloy Ti-6Al-4V etc.	HB 100 400	Precision Finishing (Rainbow Colored Finish)		Without Chipbreaker	KPD001	0.008	325 - 400 - 500
Medium	Continuous	FSF , USF				PR1005	0.016	100 - 175 - 225	0.004 -0.020 - 0.039	0.001 -0.004 - 0.008	
	Interrupted					PR1005	0.016	100 - 175 - 225	0.004 -0.020 - 0.039	0.001 -0.004 - 0.008	
Heat-resistant Alloys Inconel 625 Inconel 718	HB 100 350	Finishing		Continuous	F , U Without Chipbreaker	PR1005	0.016	25 - 100 - 175	0.004 -0.012 - 0.020	0.001 -0.002 - 0.004	
				Interrupted		PR1005	0.031	25 - 100 - 175	0.008 -0.020 - 0.028	0.001 -0.002 - 0.004	
		Finishing		Continuous	MQ	PR1310	0.016	125 - 200 - 250	0.004 -0.012 - 0.020	0.001 -0.002 - 0.004	
		Interrupted		PR1310	0.031	125 - 200 - 250	0.004 -0.012 - 0.020	0.001 -0.002 - 0.004			
H	Hardened Steel Hard Materials D2, H13 etc.	40 ~ 50 HRC	Finishing	Continuous	GK	PR1425	0.008	125 - 200 - 250	0.004 -0.012 - 0.020	0.001 -0.003 - 0.004	
				Interrupted		PR1425	0.016	125 - 200 - 250	0.004 -0.012 - 0.020	0.001 -0.003 - 0.004	
		50 ~ 68 HRC	Finishing	Continuous	ME MET	KBN05M	0.008	250 - 400 - 500	0.004 -0.012 - 0.020	0.001 -0.003 - 0.004	
				Interrupted		KBN05M	0.016	200 - 325 - 400	0.004 -0.012 - 0.020	0.001 -0.003 - 0.004	

* 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		MEGACOAT		Remarks	
		PR1425		PR1225			
		Grooving	Turning	Grooving	Turning		
Carbon steel / Alloy Steel (1045, etc.)	Vc (sfm)	★ 250 ~ 650		☆ 200 ~ 500		Wet	
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	0.0004 ~ 0.0012	0.0008 ~ 0.0059		
Stainless Steel (304 etc.)	Vc (sfm)	☆ 200 ~ 500		★ 200 ~ 425			
	Feed (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	0.0004 ~ 0.0008	0.0008 ~ 0.0039		
Cast Iron (Gray, Nodular etc.)	Vc (sfm)	-	-	-	-		
	Feed (ipr)	-	-	-	-		
Aluminum	Vc (sfm)	-	-	-	-		
	Feed (ipr)	-	-	-	-		
Brass	Vc (sfm)	-	-	-	-		
	Feed (ipr)	-	-	-	-		

Workpiece Material		PVD Coated Carbide		Carbide		PCD		Remarks
		PR1025		KW10		KPD001		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon steel / Alloy Steel (1045, etc.)	Vc (sfm)	☆ 200 ~ 500		-		-		Wet
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0059	-	-	-	-	
Stainless Steel (304 etc.)	Vc (sfm)	☆ 175 ~ 400		-		-		
	Feed (ipr)	0.0004 ~ 0.0008	0.0008 ~ 0.0039	-	-	-	-	
Cast Iron (Gray, Nodular etc.)	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	

★ : 1st Recommendation
☆ : 2nd Recommendation

KTKF (GQ Chipbreaker) E12

Workpiece Material		MEGACOAT NANO		MEGACOAT		Remarks
		PR1425		PR1225		
		Grooving	Turning	Grooving	Turning	
Carbon steel / Alloy Steel (1045, etc.)	Vc (sfm)	★ 250 ~ 650		☆ 200 ~ 500		Wet
	Feed (ipr)	0.0004 ~ 0.0015	0.0008 ~ 0.0059	0.0004 ~ 0.0015	0.0008 ~ 0.0059	
Stainless Steel (304 etc.)	Vc (sfm)	☆ 200 ~ 500		★ 200 ~ 425		
	Feed (ipr)	0.0004 ~ 0.0012	0.0008 ~ 0.0039	0.0004 ~ 0.0012	0.0008 ~ 0.0039	

★ : 1st Recommendation
☆ : 2nd Recommendation

ABS15, ABW15, ABW23 E17-E19

Workpiece Material		MEGACOAT NANO		MEGACOAT		PVD Coated Carbide		Remarks
		PR1425		PR1225		PR1025		
		Grooving	Turning	Grooving	Turning	Grooving	Turning	
Carbon steel / Alloy Steel (1045, etc.)	Vc (sfm)	★ 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	
Stainless Steel (304 etc.)	Vc (sfm)	☆ 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	
Aluminum	Vc (sfm)	-	-	-	-	-	-	
	Feed (ipr)	-	-	-	-	-	-	
Brass	Vc (sfm)	-	-	-	-	-	-	
	Feed (ipr)	-	-	-	-	-	-	

Workpiece Material		Carbide		Remarks
		KW10		
		Grooving	Turning	
Carbon steel / Alloy Steel (1045, etc.)	Vc (sfm)	-		Wet
	Feed (ipr)	-		
Stainless Steel (304 etc.)	Vc (sfm)	-		
	Feed (ipr)	-		
Aluminum	Vc (sfm)	★ 500 ~ 650		
	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

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
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RECOMMENDED CUTTING CONDITIONS F71 - F72

EZ Bar

Kyocera's Original EZ Adjust Structure

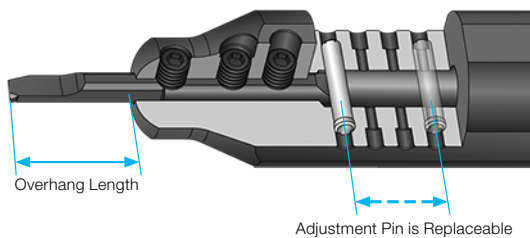
- Easy adjustment and high precision
- EZ Bar minimizes deviation with high rigidity clamping

MEGACOAT PR1225

for Stable Cutting and Extended Tool Life



Tool Preparation Time is Reduced



Easy adjustment and high precision after bar changes due to adjustable overhang lengths.

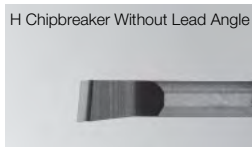
High Precision Cutting with High Repeatability



• Comparison of Repetitive Accuracy
Y = Cutting Edge Height

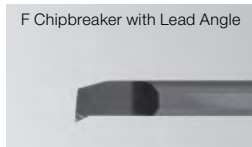


Boring Insert Lineup



Tough Edge (General Purpose)

Recommended D.O.C. More than 0.008"



Sharp Cutting (for Finishing)

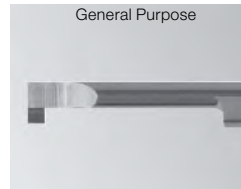
Recommended D.O.C. Less than 0.008"



No Chipbreaker (for Brass and Non-ferrous Materials)

PCD • CBN Inserts Available

Grooving Insert Lineup



Applicable for Various Applications



Low Cutting Force and Anti-chattering

- New EZVB for internal profiling
- New EZ Bar Plus lineup added



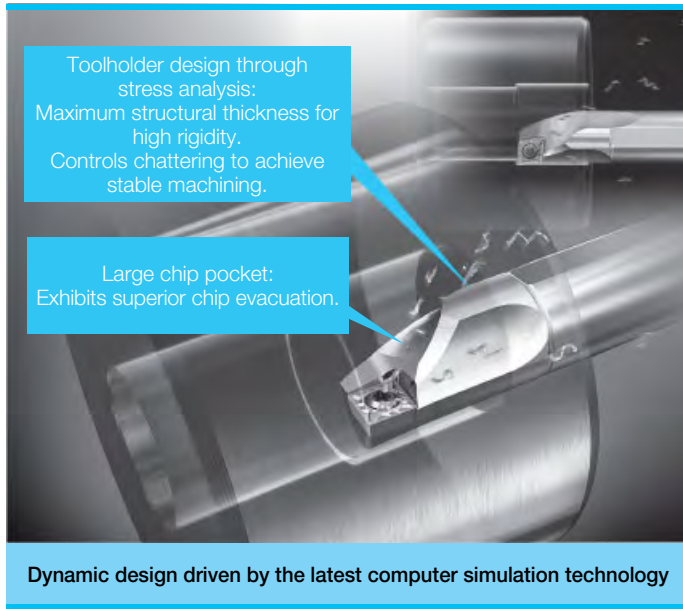
Micro Boring Double-Sided Micro-Bars

- Cost efficient 2-edge inserts.
- Minimum bore diameter 2.0mm.
- Adjustable overhang length.
- Integral shank is adopted to enable installation to standard sleeves.
- Sleeves are applicable to various machine manufacturers' specifications.

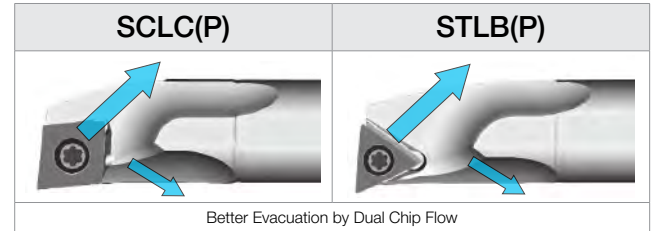


Boring	Back Boring	Grooving	Face Grooving	Threading
HPB ⚙️ F28	HPBT ⚙️ F28	HPG ⚙️ G36	HPFG ⚙️ G47	HPT ⚙️ J14

New Dynamic Bar



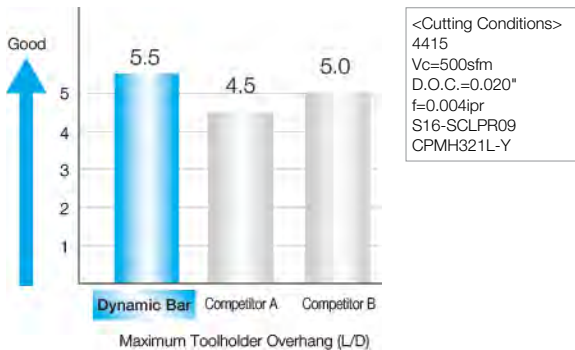
Chip Evacuation Direction



Superior Chip Evacuation (External Coolant)

	Dynamic Bar	Competitor A	Competitor B
Inside the Work-piece			
In Competitor A and B's products chips remain inside the workpiece, but chips from Dynamic Bar are all evacuated from the workpiece.			

Anti-chatter Vibration Performance



Surface Finish Comparison

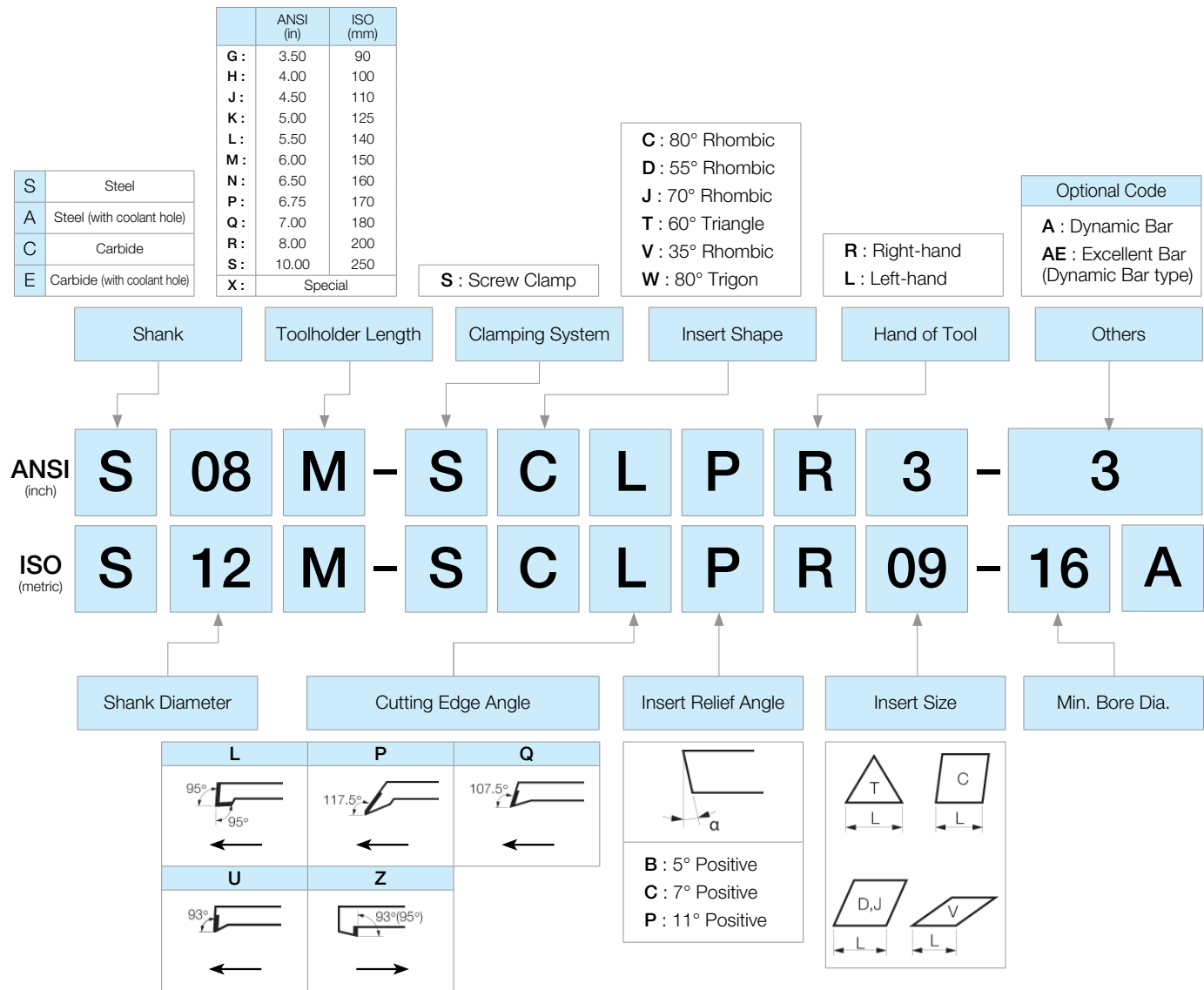
	Dynamic Bar	Competitor A	Competitor B
Surface Wall			
Surface Roughness	 Ra=0.4µm Rz=2.3µm	 Ra=0.6µm Rz=3.6µm	 Ra=3.4µm Rz=14.0µm
Oscillatory Waveform			

<Cutting Conditions>
4415
Vc=700sfm
D.O.C.=0.020"
f=0.004ipr
A16Q-SCLPR09-18
CPMH321XP(PV7020)
L/D=4
External Coolant

Direction of Vibration Measurement

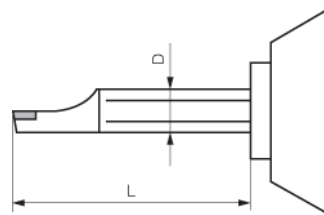
GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

Boring Bar Identification System (Round Shank)



Guidelines for Overhang Length of Boring Bar (Workpiece Material 1045)

Shank Material	L/D	Example
Steel (Dynamic Bar)	4.0	S...SCLP-A
Excellent Bar (Dynamic Bar)	5.5	A...SCLP-AE
Carbide	7.0	C(E)...SCLP



Carbide Shank Bar

Short Shank Series

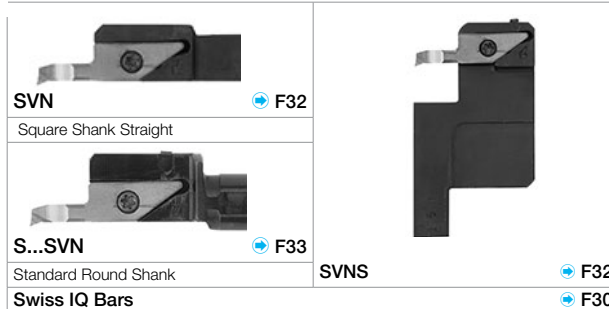
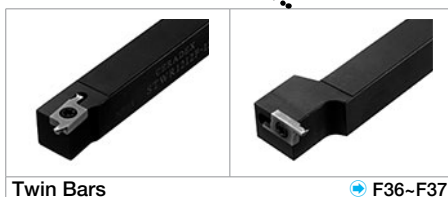
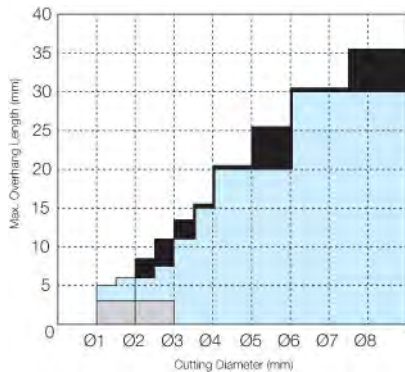
Short Shank Types with length of 1/2 and 2/3 of standard type are available. (1/2 or 2/3 is shown at the end of the description)



Solid Bars

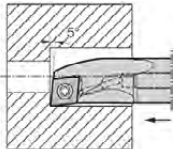
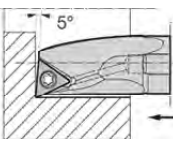
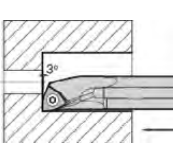
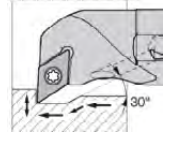
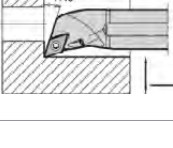
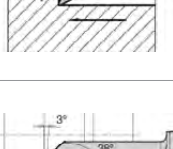
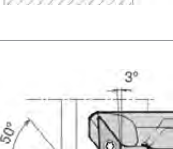





Application	Solid Bars	Shape	Shank Type Max. Overhang Length L/D	Min. Bore Dia. ØA (mm)													Toolholder / Sleeve Ref. Page	Application	
				1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0			7.5
Boring	EZB-HP EZ Bar ➔ F14		Solid L/D~5			●	●	●	●	●	●	●	●	●	●			● F20~ ● F25	
	EZB-ST EZ Bar ➔ F15		Solid L/D~5			●	●	●	●	●	●	●	●	●	●	●			
	EZB-NB EZ Bar ➔ F16		Solid L/D~5			●	●	●	●	●	●	●	●	●	●	●	●		
	EZB-NB EZ Bar PCD Diamond ➔ F16		Solid L/D~5					●	●	●	●	●	●	●	●	●		● F24~ ● F25	
	HPB Double-Sided Micro-Bars ➔ F28		Solid L/D~5			●	●	●	●	●	●	●	●	●	●	●			
	VNB-S Swiss IQ Bars ➔ F30		Solid	●	●	●	●	●	●	●	●	●	●	●	●	●		● F32, ● F33	
	VNB Swiss IQ Bars ➔ F30		Solid			●	●	●	●	●	●	●	●	●	●	●			
	VNBX-S Swiss IQ Bars ➔ F34		Solid	●	●	●	●	●	●	●	●	●	●	●	●	●		● F35	
	TWB Twin Bars ➔ F36		Solid	●	●	●	●	●	●	●	●	●	●	●	●	●			
	TWBT Twin Bars ➔ F37		Solid	●	●	●	●	●	●	●	●	●	●	●	●	●		● F36	
Back Boring	HPBT Double-Sided Micro-Bars ➔ F28		Solid L/D~5							●	●	●	●	●	●		● F24~ ● F25		
	VNBT Double-Sided Micro-Bars ➔ F30		Solid								●	●	●	●	●	●		● F32, ● F33	
Internal Profiling	EZVB EZ Bar NEW ➔ F19		Solid							●	●	●	●	●	●		● F21~ ● F25		

Usage Classification (Solid Bar type: Minimum Cutting Dia. 1mm)



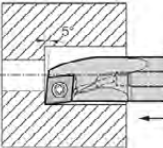
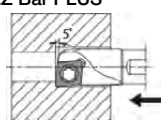
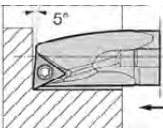

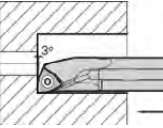
PRODUCT LINEUP

Dynamic Bar (inch)

A GRADES	Application	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. ØA (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	0.630		0.700
B INSERTS	Boring / Internal Facing		A...SCLC-AE	Excellent L/D=-5.5	●									● (0.600)			● F38	
			E...SCLC-A	Carbide L/D=-7.0	●										● (0.600)			
C CBN & PCD	Boring / Internal Facing		A...SCLP-AE	Excellent L/D=-5.5	●				●		●			●		●	● F40	
			A...STLB(P)-AE	Excellent L/D=-5.5	●				●		●				●		●	● F52
E TURNING	Boring / Internal Facing		S...STLB-AE	Excellent L/D=-5.5		○			●									
			A...SWUB(P)-AE	Excellent L/D=-5.5	●										● (0.472)		●	● F64
F BORING	Boring		S...SWUB-AE	Excellent L/D=-5.5		○		●	●									
			A...SDUC-AE	Excellent L/D=-5.5	●										●		●	● F44
G GROOVING	Boring		E...SDUC-A	Carbide L/D=-7.0	●									●		●	● F44	
			A...SDQC-AE	Excellent L/D=-5.5	●										●		●	● F46
H CUT-OFF	Copying		A...SVPB(C)-AE	Excellent L/D=-5.5	●											●	● F60	
			A...SVUB(C)-AE	Excellent L/D=-5.5	●												●	
J THREADING	Copying		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62
L SOLID END MILLS	Copying		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62
M MILLING	Back Boring		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62
P SPARE PARTS	Back Boring		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62
R TECHNICAL	Back Boring		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62
T INDEX	Back Boring		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	● F62	
			A...SVZB(C)-AE	Excellent L/D=-5.5	●												●	● F62

Min. Bore Dia. ØA is indicated by the figure under ● depending on the boring bar size.

Dynamic Bar (metric)

Application	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. ØA (mm)													Toolholder / Sleeve Ref. Page	
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23		
																				
Boring / Internal Facing		A...SCLC-AE	Excellent L/D=-5.5	●						●	●		●	●				F38		
		S...SCLC-AE	Excellent L/D=-5.5		○	●	●	●	●											
		S...SCLC-A	Steel L/D=-4.0		○						●	●		●	●					
		C...SCLC-A	Carbide L/D=-7.0		○	●	●	●	●											
		E...SCLC-A	Carbide L/D=-7.0	●							●	●		●	●					
		A...SCLP-AE	Excellent L/D=-5.5	●								●		●	●	●				F40
		S...SCLP-A	Steel L/D=-4.0		○							●		●	●	●				
		E...SCLP-A	Carbide L/D=-7.0	●								●		●	●					
		EZ Bar PLUS	S...SCLC-EZ	Steel L/D=-3.0		○														
	C...SCLC-EZ		Carbide L/D=-5.0		○															
			E...STLP-A	Carbide L/D=-7.0	●							●	●		●	●			F52	
			C...STLB-A			○				●										
			A...STLP-AE	Excellent L/D=-5.5	●							●	●		●	●				
			S...STLB-AE			○				●										
		S...STLB(P)-A	Steel L/D=-4.0		○					●	●	●		●	●			F51		
A...STLC-AE		Excellent L/D=-5.5	●							●	●		●	●						
S...STLC-A		Steel L/D=-4.0		○						●	●		●	●						
Boring		S...SWUB(P)-A	Steel L/D=-4.0		○		●	●	●	●	●		●	●				F64		
		S...SWUB-AE	Excellent L/D=-5.5		○		●	●	●											
		A...SWUB(P)-AE	Excellent L/D=-5.5	●							●	●		●	●					
		C...SWUB-A	Carbide L/D=-7.0		○		●	●	●											
		E...SWUB(P)-A	Carbide L/D=-7.0	●								●	●		●	●				

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Dynamic Bar (metric)

Application	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. ØA (mm)													Toolholder / Sleeve Ref. Page	
				Yes	No	5	6	7	8	10	12	13	14	16	18	20	22	23		
B		A...SDUC-AE	Excellent L/D=-5.5	●										●	●		●	●	F44	
		S...SDUC-A	Steel L/D=-4.0		○									●	●		●	●		
		E...SDUC-A	Carbide L/D=-7.0	●										●	●		●	●		
E		A...SDQC-AE	Excellent L/D=-5.5	●										●	●		●	●	F46	
		S...SDQC-A	Steel L/D=-4.0		○									●	●		●	●		
		E...SDQC-A	Carbide L/D=-7.0	●										●	●		●	●		
G		A...SVJC-AE	Excellent L/D=-5.5	●											●	●			F58	
		A...SVJP-AE		●											●	●				
		S...SVJC-A	Steel L/D=-4.0		○										●	●		●		
		S...SVJP-A		○											●	●				
J		A...SVPB(C)-AE	Excellent L/D=-5.5	●										●	●		●	●	F60	
		S...SVPB(C)-A	Steel L/D=-4.0		○										●	●		●		●
		E...SVPB(C)-A	Carbide L/D=-7.0	●											●	●		●		●
M		A...SVUB(C)-AE	Excellent L/D=-5.5	●											●	●		●	●	F62
		S...SVUB(C)-A	Steel L/D=-4.0		○										●	●		●	●	
		E...SVUB(C)-A	Carbide L/D=-7.0	●												●	●			
R		A...SDZC-AE	Excellent L/D=-5.5	●											●	●		●	●	F47
		S...SDZC-A	Steel L/D=-4.0		○										●	●		●	●	
		E...SDZC-A	Carbide L/D=-7.0	●											●	●		●	●	
T		A...SVZB(C)-AE	Excellent L/D=-5.5	●											●	●		●	●	F62
		S...SVZB(C)-A	Steel L/D=-4.0		○										●	●		●	●	

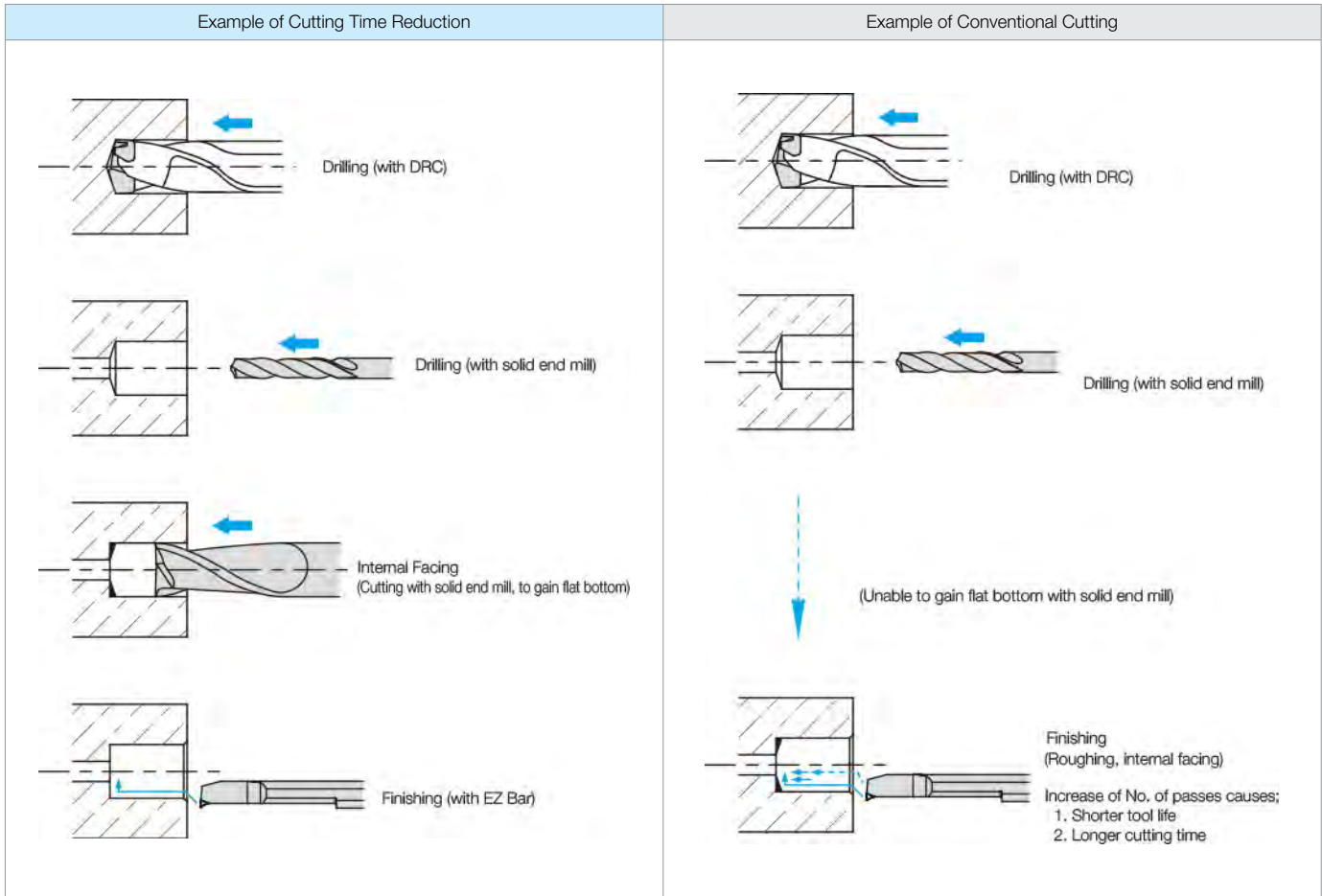
Boring Bar for General Purpose

Application	Overview Shape	Boring Bar Type	Shank Type Max. Overhang Length L/D	Coolant Hole		Min. Bore Dia. ØA (in)											Toolholder / Sleeve Ref. Page	
				Yes	No	0.240	0.312	0.392	0.415	0.472	0.480	0.512	0.564	0.600	0.630	0.700		
Boring		S...STUP(B)	Steel L/D≈-3.0		○		●	● (0.392)		●						●		→ F54
		S...CTUP	Steel L/D≈-3.0		○										● (0.625)			→ F55
		C...SWUB	Carbide L/D≈-7.0		○	●	●											→ F66
		S...SWUB	Steel L/D≈-3.0		○	●	●											→ F67
Boring / Internal Facing		S...SCLP(C)	Steel L/D≈-3.0		○			●		●					●	●		→ F42
		A...SCLC	Steel L/D≈-3.0	●					●		●				●			
		C...SCLP(C)	Carbide L/D≈-3.0		○	● (0.197)		●		●	●					●		
		C...SJLC	Carbide L/D≈-7.0		○	● (5.5mm)												→ F50
		C...STXP(B)	Carbide L/D≈-7.0		○	● (7.5mm)	● (9mm)		● (11mm)									→ F56
Copying		S...STWP	Steel L/D≈-3.0		○					● (0.476)						●		→ F54
		S...SDUC	Steel L/D≈-3.0		○									●				→ F48
Back Boring		S...SDZC	Steel L/D≈-3.0		○									● (0.596)	●			→ F49
		C...SJZC	Carbide L/D≈-7.0		○	● (6.5mm)												→ F50
		C...STZB	Carbide L/D≈-7.0		○		● (8.5mm)											→ F56

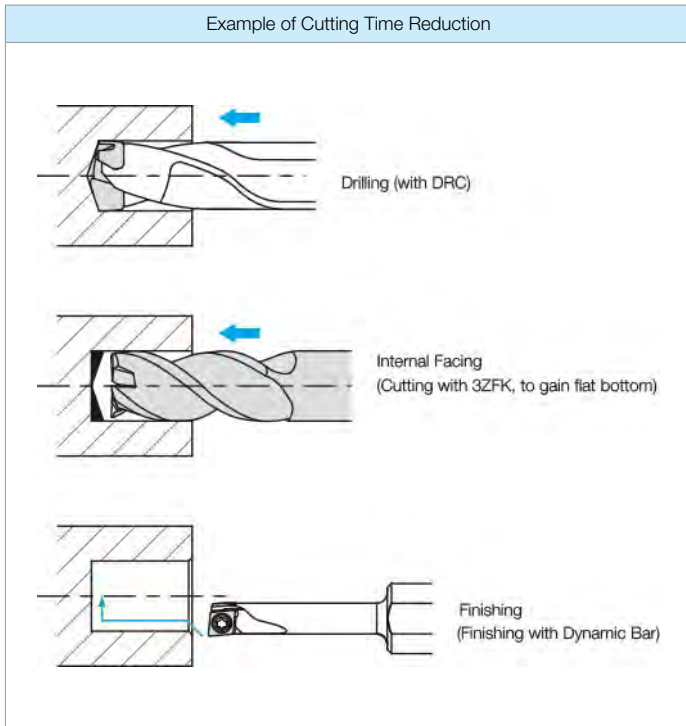
GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Min. Bore Dia. ØA is indicated by the figure under ● depending on the boring bar size.

Boring Example ①



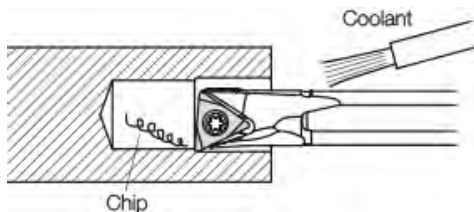
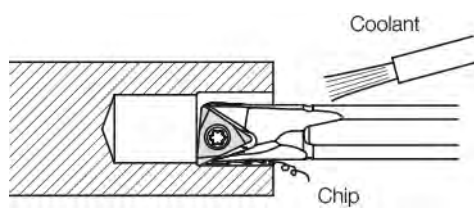

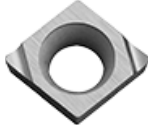
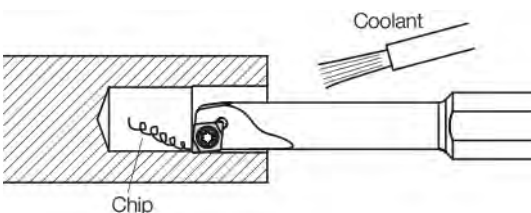
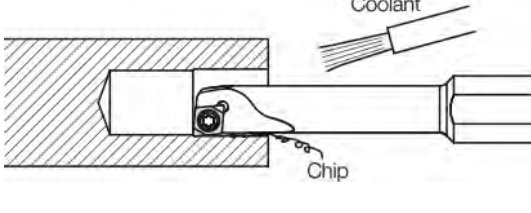


Boring Example ②



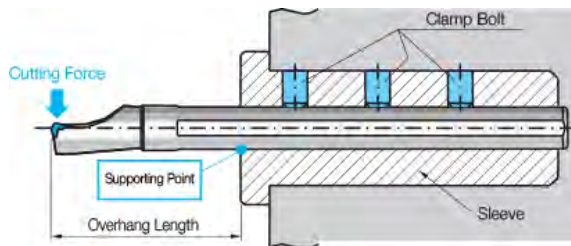
How to Select Ground Chipbreakers (for Internal Finishing in Automatic Lathes)

Choose a ground insert with an appropriate hand, in order to evacuate chips to the outside of the workpiece.

General Combinations			Combination for chip evacuation toward the exit of hole		
Boring Bar	Right-hand (R)		Boring Bar	Right-hand (R)	
Insert	Left-hand (L)		Insert	Right-hand (R)	
					
Boring Bar	Right-hand (R)		Boring Bar	Right-hand (R)	
Insert	Left-hand (L)		Insert	Right-hand (R)	
					

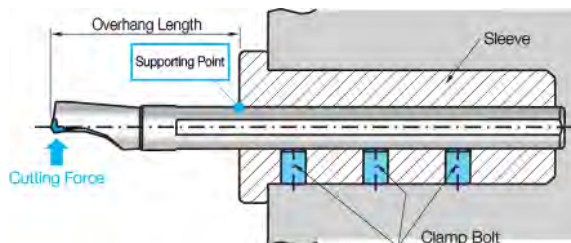
Toolholder Attachment to Reduce Chattering

① Normal Mounting

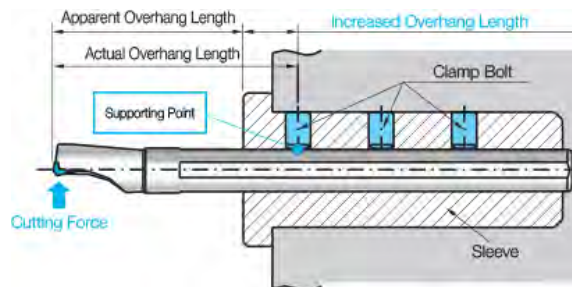


- When clamping rigidity is low, chattering tends to occur. Tighten the toolholder firmly with at least two clamp bolts.
- If the entrance of the sleeve is deformed or loosened, actual overhang length becomes longer and chattering can occur

② Reverse Mounting



③ Bad Attachment



- When the supporting point lies on the front of the clamp bolt, the actual overhang length becomes longer and it can cause chattering. The edge height can also be changed.

Tighten the clamp bolts from the insert mounting side

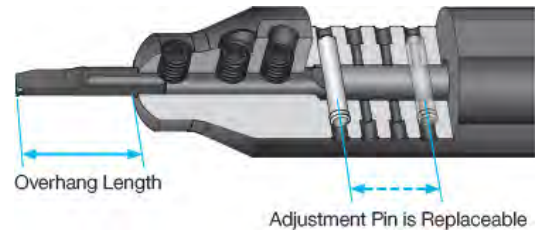
※ Edge height can be affected by which side the clamping bolts are tightened from.

EZ Bar

Kyocera's Original EZ Adjust Structure

- Easy adjustment and high precision
- EZ Bar minimizes deviation with high rigidity clamping

Easy Adjustment / High Precision



MEGACOAT PR1225

for Stable Cutting and Extended Tool Life

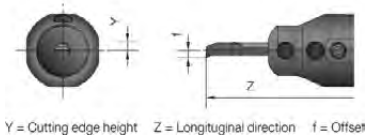
How to Select Bars

HP for high precision and ST for cost reduction (Tolerances are different.)

HP Precision-oriented



ST Cost-oriented



	Insert Tolerance	Offset	Longitudinal direction	Cutting edge height	Min. Bore Dia.
HP Precision-oriented		±0.025mm	±0.05mm	+0.05mm/0mm	Same as Shank Dia.
ST Cost-oriented		±0.060mm	±0.10mm	+0.06mm/0mm	Not same as shank dia.

* See "Dimensions" page for details.

How to Select Sleeves

New indexable boring bar added
EZ Bar Plus



NEW CT with coolant hole

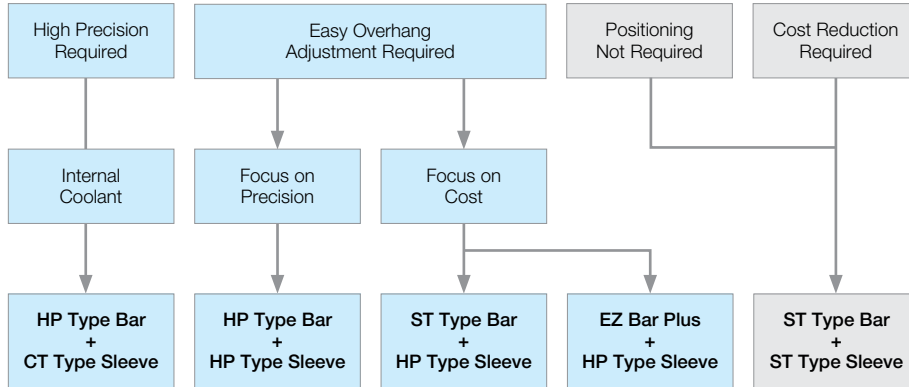
HP with EZ adjust structure

ST for cost oriented cutting

CT and HP can adjust overhang length by EZ adjust structure

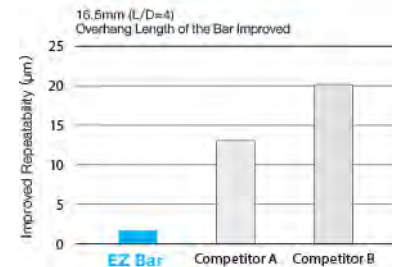
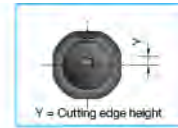


How to Select Bars and Sleeves for Each Application



HP Type Bar + CT/HP Type Sleeve

Excellent repeatability and drastic tool change time reduction

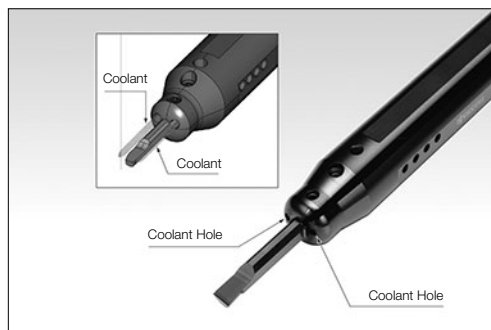


EZH-CT (High precision with coolant hole)

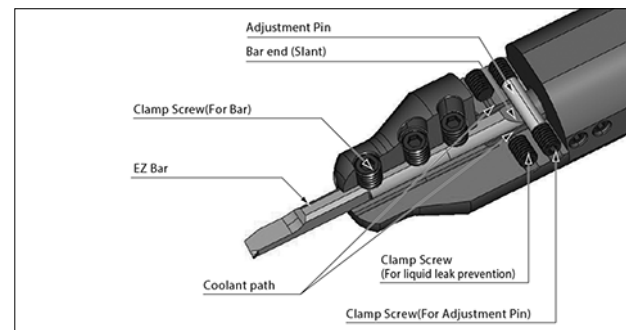
Now added in the **EZH** sleeve Lineup!

Kyocera's unique EZ adjust structure and internal coolant system improve dimensional accuracy and surface roughness!

EZH-CT Applicable Sleeve



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 slant 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.)

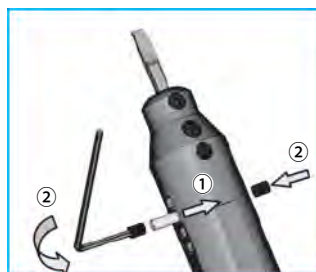


Fig.1 How to use the adjustment pin

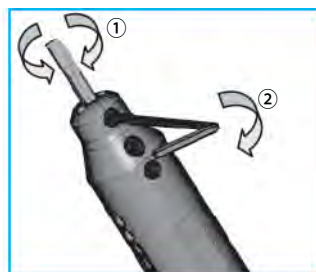


Fig.2 How to secure the bar

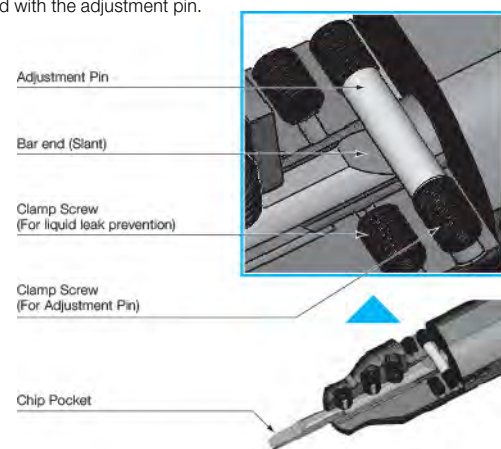
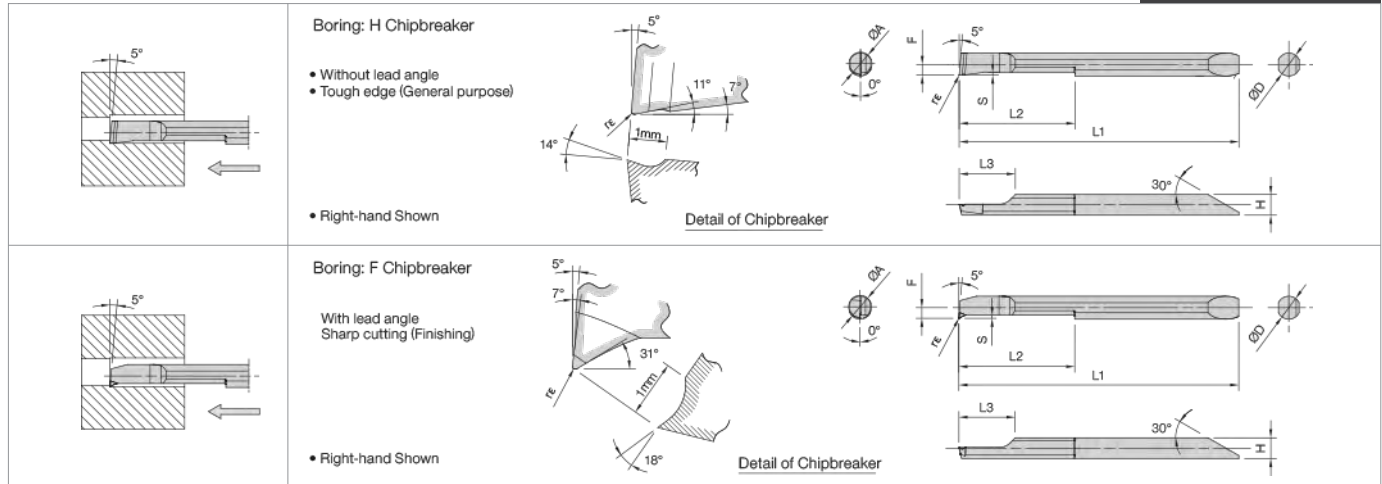


Fig.3 Clamped bar

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZB-HP (Boring)



EZ Bar Dimensions (metric)

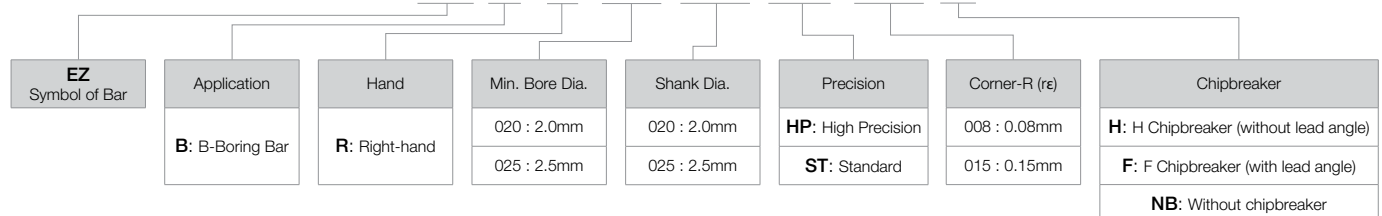
Part Number	Min. Bore Dia.	Dimensions (mm)								Grade		Applicable Sleeve
		ØA	ØD	H	L1	L2	L3	F	S	rε	PR1225	
EZBR 020020HP-008H	2.0	2.0	1.8	32.0	8.0	4.9	0.85	0.25	0.08 ±0.015	●	○	EZH020...
025025HP-008H	2.5	2.5	2.3	35.0	10.5	4.9	1.10	0.25	0.08 ±0.015	●		EZH025...
025025HP-015H	2.5	2.5	2.3	35.0	10.5	4.9	1.10	0.25	0.15 ±0.02	●		
030030HP-008H	3.0	3.0	2.7	38.9	13.0	6.9	1.35	0.30	0.08 ±0.015	●	○	EZH030...
030030HP-015H	3.0	3.0	2.7	38.9	13.0	6.9	1.35	0.30	0.15 ±0.02	●		
035035HP-008H	3.5	3.5	3.2	41.9	15.0	6.9	1.60	0.40	0.08 ±0.015	●		EZH035...
035035HP-015H	3.5	3.5	3.2	41.9	15.0	6.9	1.60	0.40	0.15 ±0.02	●		
040040HP-008H	4.0	4.0	3.6	48.8	20.0	9.8	1.85	0.40	0.08 ±0.015	●	○	EZH040...
040040HP-015H	4.0	4.0	3.6	48.8	20.0	9.8	1.85	0.40	0.15 ±0.02	●		
050050HP-008H	5.0	5.0	4.6	58.1	25.0	9.8	2.35	0.50	0.08 ±0.015	●	○	EZH050...
050050HP-015H	5.0	5.0	4.6	58.1	25.0	9.8	2.35	0.50	0.15 ±0.02	●		
060060HP-008H	6.0	6.0	5.6	66.1	30.0	11.8	2.85	0.60	0.08 ±0.015	●	○	EZH060...
060060HP-015H	6.0	6.0	5.6	66.1	30.0	11.8	2.85	0.60	0.15 ±0.02	●		
EZBR 020020HP-005F	2.0	2.0	1.8	32.0	8.0	4.9	0.85	0.25	0.05 ±0.01	●		EZH020...
025025HP-005F	2.5	2.5	2.3	35.0	10.5	4.9	1.10	0.30	0.05 ±0.01	●		EZH025...
025025HP-015F	2.5	2.5	2.3	35.0	10.5	4.9	1.10	0.30	0.15 ±0.02	●		
030030HP-005F	3.0	3.0	2.7	38.9	13.0	6.9	1.35	0.40	0.05 ±0.01	●		EZH030...
030030HP-015F	3.0	3.0	2.7	38.9	13.0	6.9	1.35	0.40	0.15 ±0.02	●		
035035HP-005F	3.5	3.5	3.2	41.9	15.0	6.9	1.60	0.50	0.05 ±0.01	●		EZH035...
035035HP-015F	3.5	3.5	3.2	41.9	15.0	6.9	1.60	0.50	0.15 ±0.02	●		
040040HP-005F	4.0	4.0	3.6	48.8	20.0	9.8	1.85	0.50	0.05 ±0.01	●		EZH040...
040040HP-015F	4.0	4.0	3.6	48.8	20.0	9.8	1.85	0.50	0.15 ±0.02	●		
050050HP-005F	5.0	5.0	4.6	58.1	25.0	9.8	2.35	0.70	0.05 ±0.01	●		EZH050...
050050HP-015F	5.0	5.0	4.6	58.1	25.0	9.8	2.35	0.70	0.15 ±0.02	●		
060060HP-005F	6.0	6.0	5.6	66.1	30.0	11.8	2.85	0.90	0.05 ±0.01	●		EZH060...
060060HP-015F	6.0	6.0	5.6	66.1	30.0	11.8	2.85	0.90	0.15 ±0.02	●		

Tolerance: Offset ±0.025mm (of the reference pin), overall length ±0.05mm, edge height +0.05/0mm

Recommended Cutting Conditions **F17**

EZ Bar Identification System

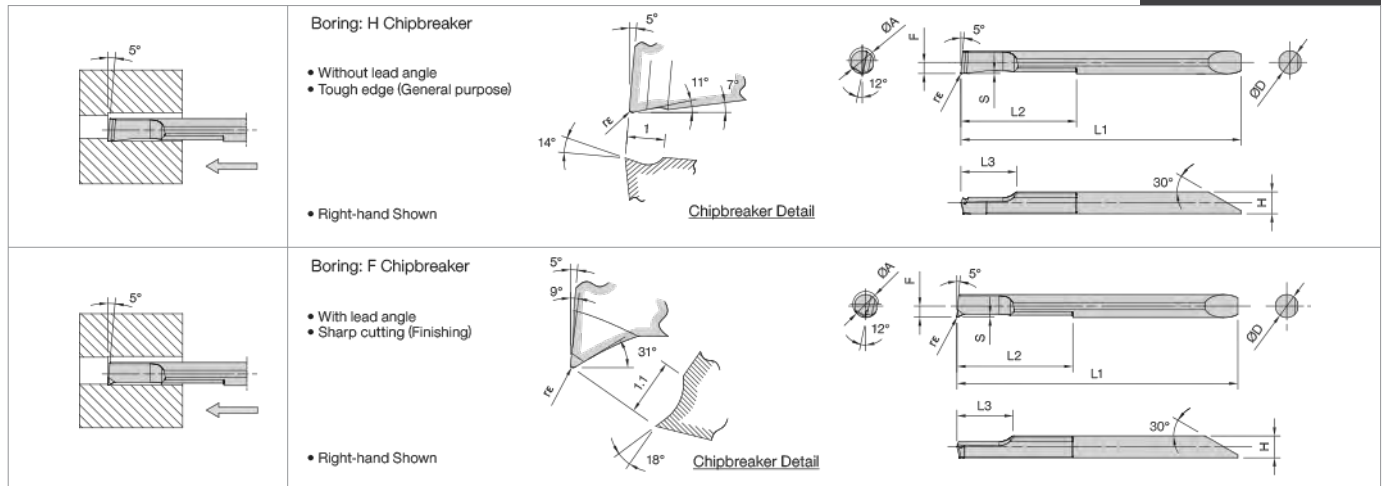
EZ B R 020 020 HP - 008 H



EZ Bars are sold in 1 piece boxes.

EZB-ST (Boring)

Cost Reduction



EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)								Grade	Applicable Sleeve F20~ F25	
		ØA	ØD	H	L1	L2	L3	F	S			rε
EZBR	020017ST-008H	2.0	1.7	1.5	27.3	7.0	4.7	0.79	0.19	0.08 ±0.015	●	EZH017...
	025020ST-008H	2.5	2.0	1.82	32.0	8.0	4.8	0.94	0.16	0.08 ±0.015	●	EZH020...
	025020ST-015H									0.15 ±0.02	●	EZH025...
	030025ST-008H	3.0	2.5	2.3	35.0	10.5	4.8	1.19	0.15	0.08 ±0.015	●	EZH030...
	030025ST-015H									0.15 ±0.02	●	EZH035...
	035030ST-008H	3.5	3.0	2.8	39.0	13.0	6.8	1.44	0.18	0.08 ±0.015	●	EZH040...
	035030ST-015H									0.15 ±0.02	●	EZH045...
	040035ST-008H	4.0	3.5	3.3	42.0	15.0	6.7	1.69	0.24	0.08 ±0.015	●	EZH050...
	040035ST-015H									0.15 ±0.02	●	EZH055...
	045040ST-008H	4.5	4.0	3.8	49.0	20.0	9.7	1.94	0.27	0.08 ±0.015	●	EZH060...
	045040ST-015H									0.15 ±0.02	●	EZH065...
	055050ST-008H	5.5	5.0	4.8	58.2	25.0	9.7	2.44	0.33	0.08 ±0.015	●	EZH070...
	055050ST-015H									0.15 ±0.02	●	EZH075...
	065060ST-008H	6.5	6.0	5.8	66.2	30.0	11.8	2.94	0.38	0.08 ±0.015	●	EZH080...
065060ST-015H	0.15 ±0.02									●	EZH085...	
075070ST-008H	7.5	7.0	6.8	74.2	35.0	11.7	3.44	0.44	0.08 ±0.015	●	EZH090...	
075070ST-015H									0.15 ±0.02	●	EZH095...	
EZBR	020017ST-005F	2.0	1.7	1.5	27.3	7.0	4.7	0.79	0.20	0.05 ±0.01	●	EZH017...
	025020ST-005F	2.5	2.0	1.82	32.0	8.0	4.8	0.94	0.16	0.05 ±0.01	●	EZH020...
	025020ST-015F									0.15 ±0.02	●	EZH025...
	030025ST-005F	3.0	2.5	2.3	35.0	10.5	4.8	1.19	0.20	0.05 ±0.01	●	EZH030...
	030025ST-015F									0.15 ±0.02	●	EZH035...
	035030ST-005F	3.5	3.0	2.8	39.0	13.0	6.8	1.44	0.26	0.05 ±0.01	●	EZH040...
	035030ST-015F									0.15 ±0.02	●	EZH045...
	040035ST-005F	4.0	3.5	3.3	42.0	15.0	6.7	1.69	0.33	0.05 ±0.01	●	EZH050...
	040035ST-015F									0.15 ±0.02	●	EZH055...
	045040ST-005F	4.5	4.0	3.8	49.0	20.0	9.7	1.94	0.31	0.05 ±0.01	●	EZH060...
	045040ST-015F									0.15 ±0.02	●	EZH065...
	055050ST-005F	5.5	5.0	4.8	58.2	25.0	9.7	2.44	0.45	0.05 ±0.01	●	EZH070...
	055050ST-015F									0.15 ±0.02	●	EZH075...
	065060ST-005F	6.5	6.0	5.8	66.2	30.0	11.7	2.94	0.59	0.05 ±0.01	●	EZH080...
065060ST-015F	0.15 ±0.02									●	EZH085...	
075070ST-005F	7.5	7.0	6.8	74.2	35.0	11.7	3.44	0.65	0.05 ±0.01	●	EZH090...	
075070ST-015F									0.15 ±0.02	●	EZH095...	

Tolerance: Offset ±0.06mm (of the reference pin), overall length ±0.1mm, edge height +0.06/0mm

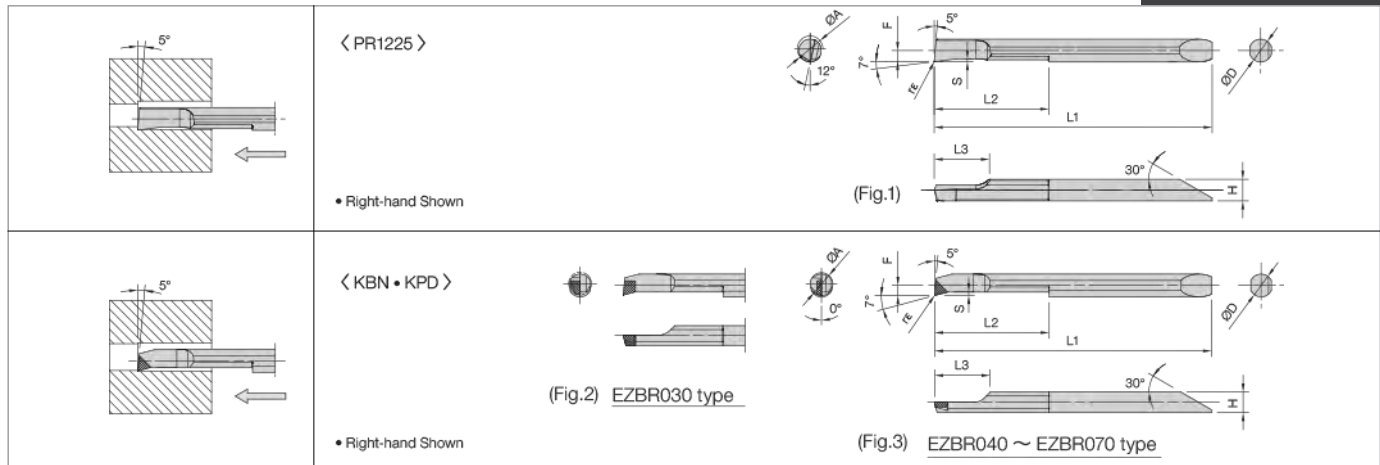
Recommended Cutting Conditions F17

EZ Bars are sold in 1 piece boxes.

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

EZB-NB (Boring)

Without Chipbreaker



EZ Bar Dimensions (metric)

Part Number	Min. Bore Dia.	Dimensions (mm)								Shape	Grade			Applicable Sleeve F20 ~ F25	
		ØA	ØD	H	L1	L2	L3	F	S		re	MEGACOAT	CBN		PCD
												PR1225	KBN05M		KPD001
EZBR 020017-005NB 025020-005NB 030025-005NB 035030-005NB 040035-005NB 045040-005NB 055050-005NB 065060-005NB 075070-005NB	2.0	1.7	1.50	27.3	7.0	4.7	0.79	0.20	±0.015	Fig.1	○			EZH017...	
	2.5	2.0	1.82	32.0	8.0	4.8	0.94	0.16		Fig.1	○			EZH020...	
	3.0	2.5	2.30	35.0	10.5	4.8	1.19	0.16		Fig.1	○			EZH025...	
	3.5	3.0	2.80	39.0	13.0	6.8	1.44	0.19		Fig.1	○			EZH030...	
	4.0	3.5	3.30	42.0	15.0	6.7	1.69	0.25		Fig.1	○			EZH035...	
	4.5	4.0	3.80	49.0	20.0	9.7	1.94	0.28		Fig.1	○			EZH040...	
	5.5	5.0	4.80	58.2	25.0	9.7	2.44	0.33		Fig.1	○			EZH050...	
	6.5	6.0	5.80	66.2	30.0	11.7	2.94	0.39		Fig.1	○			EZH060...	
EZBR 030030-003NB 040040-003NB 050050-003NB 060060-003NB 070070-003NB	3.0	3.0	2.60	38.8	13.0	6.8	1.25	0.30	±0.015	Fig.2		○		EZH030...	
	4.0	4.0	3.60	48.8	20.0	9.8	1.75	0.50		Fig.3		○		EZH040...	
	5.0	5.0	4.60	58.1	25.0	9.8	2.25	0.50		Fig.3		○		EZH050...	
	6.0	6.0	5.60	66.1	30.0	11.8	2.75	0.50		Fig.3		○		EZH060...	
	7.0	7.0	6.60	74.1	35.0	11.8	3.25	0.50		Fig.3		○		EZH070...	
EZBR 040040-003NB 050050-003NB 060060-003NB 070070-003NB	4.0	4.0	3.60	48.8	20.0	9.8	1.75	0.50	±0.015	Fig.3			○	EZH040...	
	5.0	5.0	4.60	58.1	25.0	9.8	2.25	0.50		Fig.3			○	EZH050...	
	6.0	6.0	5.60	66.1	30.0	11.8	2.75	0.50		Fig.3			○	EZH060...	
	7.0	7.0	6.60	74.1	35.0	11.8	3.25	0.50		Fig.3			○	EZH070...	

Edge Preparation

Grade	Edge Preparation	Remarks
PR1225	Sharp Edge	-
KBN05M	0.08mm×15° Chamfered Cutting Edge	T00815
KPD001	Sharp Edge	-

Recommended Cutting Conditions **F17**

EZ Bars are sold in 1 piece boxes.

◆ Recommended Cutting Conditions

● H Chipbreaker (EZB-HP...H Type EZB-ST...H Type)

Workpiece Material	Insert Grade (Vc:sfm)		EZB020/025		EZB030/035		EZB040/045		EZB050/055/ 060/065/075		Remarks
	MEGACOAT	Carbide	Depth of Cut: D.O.C.(in), 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 (1045)	100~325	-	~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel (304)	100~250	-	~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Material	-	~325	~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0039	~0.0197	~0.0059	

● F Chipbreaker (EZB-HP...F Type EZB-ST...F Type)

Workpiece Material	Insert Grade (Vc:sfm)		EZB020/025		EZB030/035		EZB040/045		EZB050/055/ 060/065/075		Remarks
	MEGACOAT		Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR1225		D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel (1045)	100~325		~0.0079	~0.0012	~0.0079	~0.0020	~0.0118	~0.0028	~0.0118	~0.0028	Wet
Stainless Steel	100~250		~0.0079	~0.0008	~0.0079	~0.0012	~0.0098	~0.0020	~0.0098	~0.0020	

● NB Chipbreaker (Without Chipbreaker)

Workpiece Material	Insert Grade (Vc:sfm)		EZB020/025		EZB030/035		EZB040/045		EZB055/065/075		Remarks
	MEGACOAT		Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR1225		D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	100~325		~0.0118	~0.0012	~0.0157	~0.0016	~0.0177	~0.0028	~0.0197	~0.0039	Wet
Stainless Steel	100~250		~0.0079	~0.0008	~0.0118	~0.0012	~0.0138	~0.0020	~0.0157	~0.0028	
Non-ferrous Material	200~325		~0.0118	~0.0020	~0.0157	~0.0024	~0.0177	~0.0028	~0.0197	~0.0039	

Workpiece Material	Insert Grade (Vc:sfm)		EZB030		EZB040/045		EZB050/060/070		Remarks
	MEGACOAT	Diamond	Depth of Cut: D.O.C.(in), Feed: f(ipr)						
	KBN05M	KPD001	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Non-ferrous Material	-	~975	-	-	~0.0177	~0.0039	~0.0197	~0.0059	Wet
Hard Materials (including heat-treated steel)	~325	-	~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...(Conventional)	*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.

GRADES
A

INSERTS
B

CBN & PCD
C

TURNING
E

BORING
F

GRINDING
G

CUT-OFF
H

THREADING
J

SOLID END MILLS
L

MILLING
M

SPARE PARTS
P

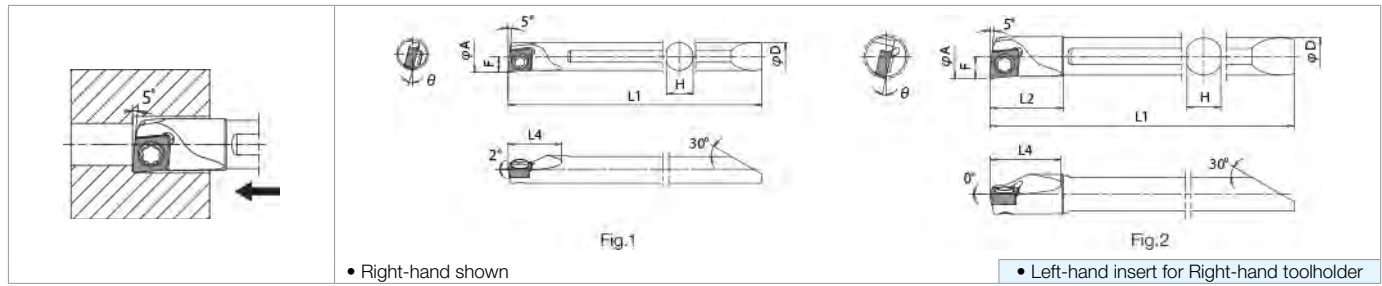
TECHNICAL
R

INDEX
T

EZ BAR - PLUS

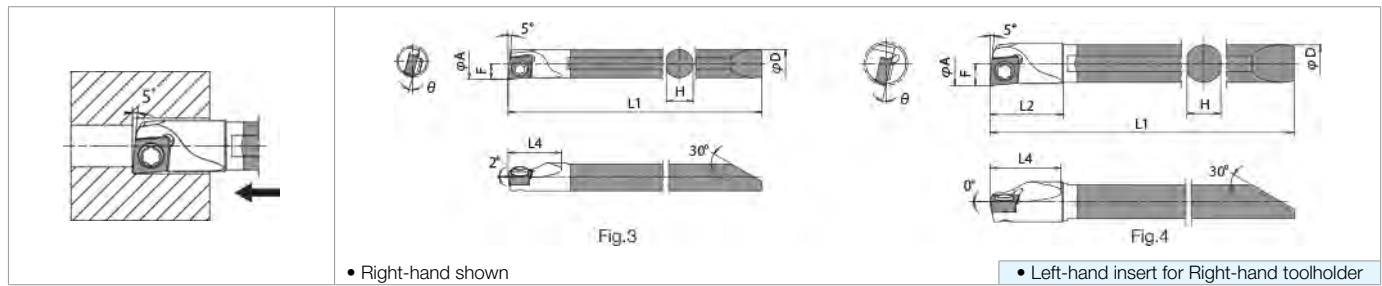
S-SCLC-EZ Type NEW

Maximum overhand length - L/D = -3



C-SCLC-EZ Type NEW

Maximum overhand length - L/D = -5



● Toolholder Dimensions

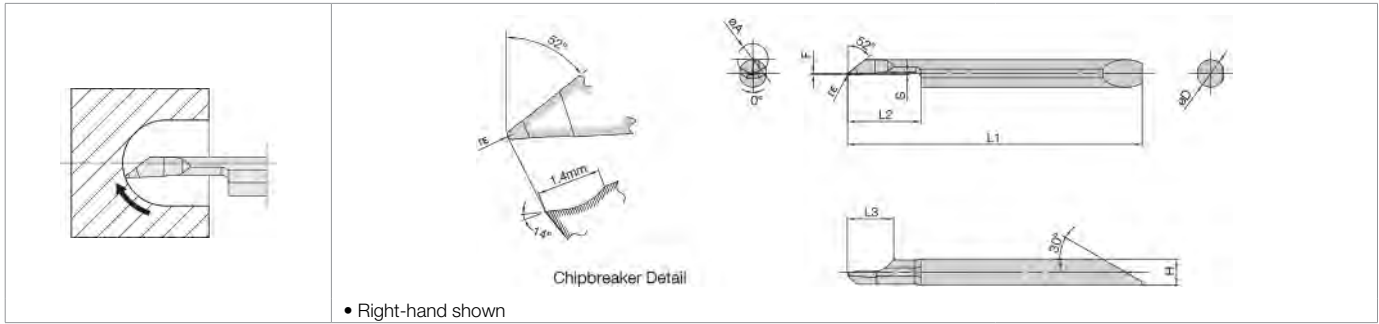
Part Number	Stock (R)	Min. Bore Dia.	Dimensions (mm)							θ	Std. Corner-R (re)	Coolant Hole	Drawing	Spare Parts		Applicable Sleeve ● F20~ ● F25
			ØA	ØD	H	L1	L2	L3	L4					F	Clamp Screw	
Steel	●	5	4.5	4.3	42.4	-	-	8.5	2.5	15°	0.2	No	Fig.1	SB-1635-TR	FT-6	EZH045...
	●	7	6.0	5.4	53.9	11.8	-	11.5	3.5	13°	0.2	No	Fig.2	SB-2035TR		EZH060...
Carbide	●	5	4.5	4.3	51.4	-	-	8.5	2.5	15°	0.2	No	Fig.3	SB-1635TR		EZH045...
	●	7	6.0	5.4	65.9	11.8	-	11.5	3.5	13°	0.2	No	Fig.4	SB-2035TR		EZH060...

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing / Precision	Non-ferrous Metals	Hard Material
Ref. Page	● B8	● B11	● B10	● C12	● C4
Shape	CF	L-F	L-FSF	PCD	CBN
Toolholder					
...SCLC%03...	CCGT1109..	CCGT1109..	CCET1109..	-	CCMW1109..
...SCLC%04...	CCGT1411..	CCGT1411..	CCET1411..	CCGW1411..	CCMW1411..

Recommended Cutting Conditions ● F63~ ● F64

EZVB Type (Boring / Internal Facing / Internal Profiling) NEW



Toolholder Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								Grade	Applicable Sleeve ➔ F20~ ➔ F25
		MEGACOAT									
		ØA	ØD	H	L1	L2	L3	F	S		
EZVBR 035030-010	3.5	3	2.8	38.0	8	5.8	0.17	0.22	±0.015 0.10	●	EZH030...
045040-010	4.5	4	3.8	43.0	10	6.8	0.17	0.26		●	EZH040...
055050-010	5.5	5	4.8	50.2	12	7.7	0.17	0.29		●	EZH050...
065060-010	6.5	6	5.8	55.2	14	8.6	0.17	0.32		●	EZH060...

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc:sfm)	EZB020/025		EZB030/035		EZB040/045		Remarks		
		MEGACOAT								
		Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR1225	D.O.C.	f	D.O.C.	f	D.O.C.	f			
Carbon Steel / Alloy Steel (1045)	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			

EZVB Type (Boring / Internal Facing / Internal Profiling)

Stable Machining with Better Chip Control



EZVBR045040-010

D.O.C.	f	0.0004ipr	0.0012ipr	0.0020ipr
0.0028"				
0.0020"				
0.0.0012"				

Competitor

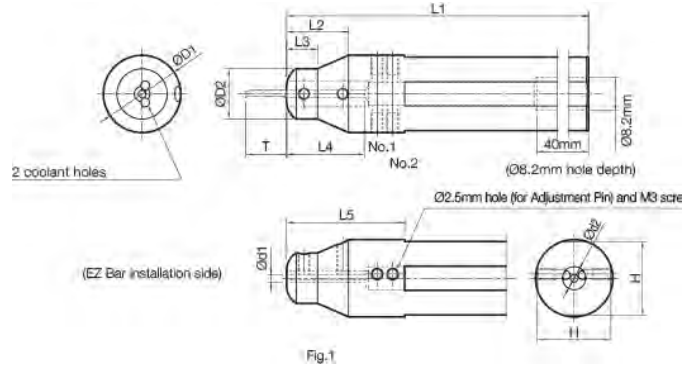
D.O.C.	f	0.0004ipr	0.0012ipr	0.0020ipr
0.0028"				
0.0020"				
0.0.0012"				

Vc = 330sfm Workpiece: Stainless Steel (Wet)

GRADES A
INSERTS B
CBN & PCO C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

EZH-CT (Applicable Sleeve) NEW

With coolant hole and EZ adjust structure

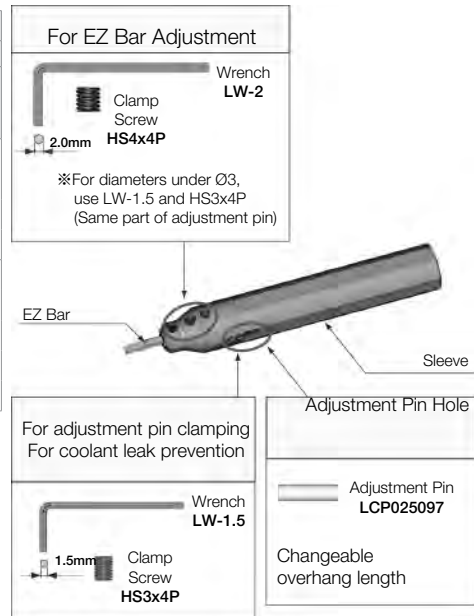


Part Number	Stock	Dimensions (mm)										T (mm) Overhang Length of Bar #2				Drawing	Applicable EZ Bar ● F14~ ● F16 ● F28 ● J10		
		Ød1	ØD1	ØD2	Ød2	H	L1	L2	L3	*1L4	L5	Adjustment Pin Setting							
												No1	No2	No3	No4				
EZH 01719CT-120	●	1.7	0.75*	13	6	18.0	120											Fig.1	EZBR...017...
01720CT-120	○	1.7	20	13	6	19.0	120				30.5								
01722CT-135	○	1.7	22	13	6	21.0	135	16	8	16	41.5	7.5	3.5	-	-				
01725.0CT-135	○	1.7	25	13	6	24.0	135				30.5								
01725.4CT-120	●	1.7	1.00*	13	6	24.4	120												
EZH 02019CT-120	●	2.0	0.75*	13	6	18.0	120										Fig.1	EZBR...020... *2 HPB% 0202...	
02020CT-120	○	2.0	20	13	6	19.0	120				30.5								
02022CT-135	○	2.0	22	13	6	21.0	135	16	8	20	41.5	8.5	4.5	-	-				
02025.0CT-135	○	2.0	25	13	6	24.0	135				30.5								
02025.4CT-120	●	2.0	1.00*	13	6	24.4	120												
EZH 02519CT-120	●	2.5	0.75*	13	6	18.0	120										Fig.1	EZBR...025... EZTR...025...	
02520CT-120	○	2.5	20	13	6	19.0	120				30.5								
02522CT-135	○	2.5	22	13	6	21.0	135	16	8	20	41.5	11.0	7.0	-	-				
02525.0CT-135	○	2.5	25	13	6	24.0	135				30.5								
02525.4CT-120	●	2.5	1.00*	13	6	24.4	120												

*1: L4 shows Ød1 length
 *2: Dimension T shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhang length of EZ Bar PLUS.
 *3: HP type bars are not adjustable.
 • Choose sleeves (Ød1) to meet with ØD dimension of bar.

● Spare Parts (for EZH-CT Sleeves)

Part Number	Spare Parts				
	Clamp Screw	Wrench	Clamp Screw	Wrench	Adjustment Pin
EZH 017...CT-.. 020...CT-.. 025...CT-.. 030...CT-..	HS3x4P <small>(for adjustment pin, coolant leak prevention and bar)</small>	LW-1.5 <small>1N • m Tightening Torque</small>	-	-	LCP025097
EZH 035...CT-.. 040...CT-.. 050...CT-.. 060...CT-.. 070...CT-..	HS3x4P <small>(for adjustment pin, coolant leak prevention and bar)</small>	LW-1.5 <small>1N • m Tightening Torque</small>	HS4x4P <small>(for bar)</small>	LW-2 <small>2N • m Tightening Torque</small>	LCP025097

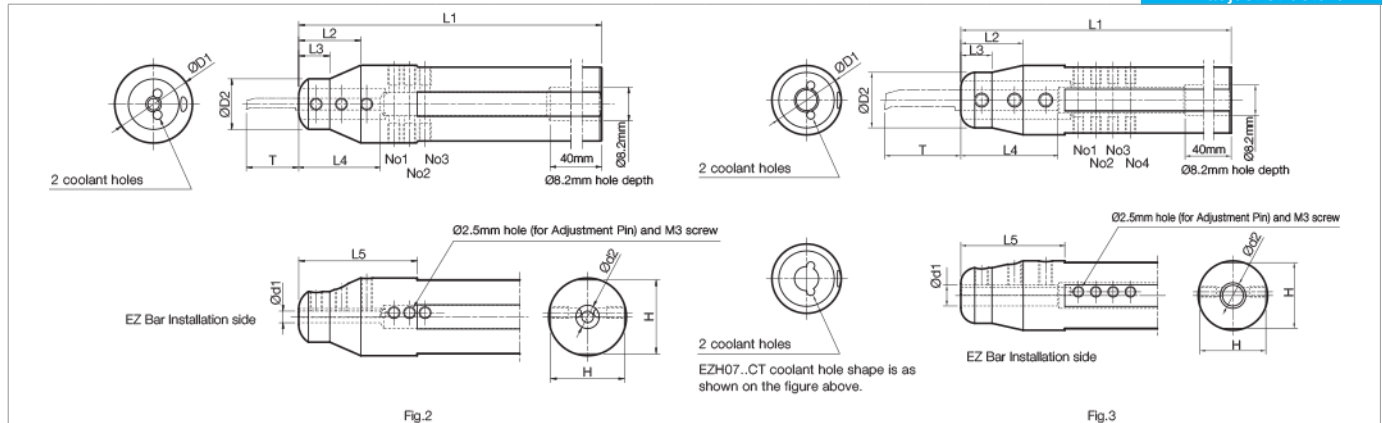


1) If shank dia. is Ø2.5mm or less, use 6 clamp screws (HS3x4P), distributed as follows:
 For adjustment pin.....2 pcs
 For coolant leak prevention.....2 pcs
 For bar.....2 pcs

2) If shank dia. is Ø3.0mm, use 9 clamp screws (HS3x4P), distributed as follows:
 For adjustment pin.....2 pcs
 For coolant leak prevention.....4 pcs
 For bar.....3 pcs

EZH-CT (Applicable Sleeve) **NEW**

With coolant hole and EZ adjust structure



Part Number	Stock	Dimensions (mm)										T (mm) Overhang Length of Bar ^{*2}				Drawing	Applicable EZ Bar or EZ Bar PLUS F14~ F16 F18, F19, F28 G34, G45 J10			
		Ød1	ØD1	ØD2	Ød2	H	L1	L2	L3	*L4	L5	Adjustment Pin Setting								
		No1	No2	No3	No4															
EZH 03019CT-120	●	3.0	0.75"	13	6.0	18.0	120												Fig. 2	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... ^{*2} HP%0303-...
03020CT-120	○	3.0	20	13	6.0	19.0	120					30.5								
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	○	3.0	25	13	6.0	24.0	135					30.5								
03025.4CT-120	●	3.0	1.00"	13	6.0	24.4	120					30.5								
EZH 03519CT-120	●	3.5	0.75"	13	6.0	18.0	120											Fig. 2	EZBR...035... EZTR...035-...	
03520CT-120	○	3.5	20	13	6.0	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	○	3.5	25	13	6.0	24.0	135					31.1								
03525.4CT-120	●	3.5	1.00"	13	6.0	24.4	120					31.1								
EZH 04019CT-120	●	4.0	0.75"	13	6.0	18.0	120											Fig. 3	EZBR...040... EZVBR045040-... EZGR...040-... EZFG...040-... EZTR...040-... ^{*2} HP...04-...	
04020CT-120	○	4.0	20	13	6.0	19.0	120					30.5								
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	○	4.0	25	13	6.0	24.0	135					30.5								
04025.4CT-120	●	4.0	1.00"	13	6.0	24.4	120					30.5								
EZH 05019CT-120	●	5.0	0.75"	16	6.0	18.0	120											Fig. 3	EZBR...050... EZVBR055050-... EZGR...050-... EZFG...050-... EZTR...050-... ^{*2} HP...05-...	
05020CT-120	○	5.0	20	16	6.0	19.0	120					30.0								
05022CT-135	○	5.0	22	16	6.0	21.0	135	18	9	22		44.0	25.5	20.5	15.5	10.5				
05025.0CT-135	○	5.0	25	16	6.0	24.0	135					30.0								
05025.4CT-120	●	5.0	1.00"	16	6.0	24.4	120					30.0								
EZH 06019CT-120	●	6.0	0.75"	16	7.4	18.0	120											Fig. 3	EZBR...060... EZVBR065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ ^{*2} HP...0606-...	
06020CT-120	○	6.0	20	16	7.4	19.0	120					30.0								
06022CT-135	○	6.0	22	16	7.4	21.0	135	18	9	22		41.5	30.5	25.5	20.5	15.5				
06025.0CT-135	○	6.0	25	16	7.4	24.0	135					30.0								
06025.4CT-120	●	6.0	1.00"	16	7.4	24.4	120					30.0								
EZH 07019CT-120	●	7.0	0.75"	16	7.4	18.0	120											Fig. 3	EZBR...070... EZGR...070-... EZFG...070-... EZTR...070-... ^{*2} HP...07-...	
07020CT-120	○	7.0	20	16	7.4	19.0	120					30.0								
07022CT-135	○	7.0	22	16	7.4	21.0	135	18	9	22		44.0	35.5	30.5	25.5	20.5				
07025.0CT-135	○	7.0	25	16	7.4	24.0	135					30.0								
07025.4CT-120	●	7.0	1.00"	16	7.4	24.4	120					30.0								

*1: L4 shows Ød1 length
 *2: Dimension T shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhand length of EZ Bar PLUS.
 *3: HP type bars are not adjustable.
 • Choose sleeves (Ød1) to meet with ØD dimension of bar.

◆ EZ Bar Mounting Procedure ➔ F23

● : U.S. Stock Standard
 ○ : World Express (Shipping: 7-10 Business Days)

- A GRADES
- B INSERTS
- C CBN & POD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

EZH-HP (Applicable Sleeve)

Adjustable

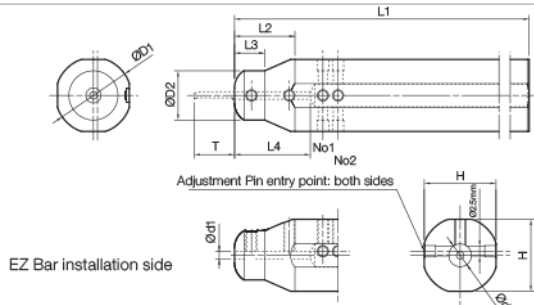


Fig.1

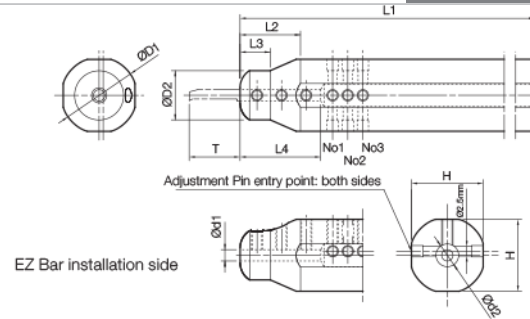


Fig.2

Part Number	Stock	Dimensions (mm)										T (mm) Overhang Length of Bar *2				Drawing	Applicable EZ Bar or EZ Bar PLUS ● F14~ F16 ● F19, F28 ● G34, G45 ● J10	
		Ød1	ØD1	ØD2	Ød2	H	L1	L2	L3	*L4	Adjustment Pin Setting							
		No1	No2	No3	No4													
EZH 01716HP-100	○	1.7	16	13	6	15.0	100											
01719HP-120	●	1.7	0.75"	13	6	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	○	1.7	22	13	6	21.0	135											
01725.0HP-135	○	1.7	25	13	6	24.0	135											
01725.4HP-120	●	1.7	1.00"	13	6	24.4	120											
EZH 02016HP-100	○	2.0	16	13	6	15.0	100											
02019HP-120	●	2.0	0.75"	13	6	18.0	120											
02020HP-120	○	2.0	20	13	6	19.0	120	16	8	20	8.5	4.5	-	-	Fig.1	EZBR...020... *2 HPB% 0202-...		
02022HP-135	○	2.0	22	13	6	21.0	135											
02025.0HP-135	○	2.0	25	13	6	24.0	135											
02025.4HP-120	●	2.0	1.00"	13	6	24.4	120											
EZH 02516HP-100	○	2.5	16	13	6	15.0	100											
02519HP-120	●	2.5	0.75"	13	6	18.0	120											
02520HP-120	○	2.5	20	13	6	19.0	120	16	8	20	11.0	7.0	-	-	Fig.1	EZBR...025... EZTR...025-...		
02522HP-135	○	2.5	22	13	6	21.0	135											
02525.0HP-135	○	2.5	25	13	6	24.0	135											
02525.4HP-120	●	2.5	1.00"	13	6	24.4	120											
EZH 03016HP-100	○	3.0	16	13	6	15.0	100											
03019HP-120	●	3.0	0.75"	13	6	18.0	120											
03020HP-120	○	3.0	20	13	6	19.0	120	16	8	21	13.5	9.5	5.5	-	Fig.2	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... *2 HPB% 0303-...		
03022HP-135	○	3.0	22	13	6	21.0	135											
03025.0HP-135	○	3.0	25	13	6	24.0	135											
03025.4HP-120	●	3.0	1.00"	13	6	24.4	120											
EZH 03516HP-100	○	3.5	16	13	6	15.0	100											
03519HP-120	●	3.5	0.75"	13	6	18.0	120											
03520HP-120	○	3.5	20	13	6	19.0	120	16	8	22	15.5	11.5	7.5	-	Fig.2	EZBR...035... EZTR...035...		
03522HP-135	○	3.5	22	13	6	21.0	135											
03525.0HP-135	○	3.5	25	13	6	24.0	135											
03525.4HP-120	●	3.5	1.00"	13	6	24.4	120											
EZH 04016HP-100	○	4.0	16	13	6	15	100											
04019HP-120	●	4.0	19.05	13	6	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)	EZBR...040... EZVBR045040-... EZGR...040-... EZFR...040-... EZTR...040-... *2 HPB% 0303-...		
04022HP-135	○	4.0	22	13	6	21	135											
04025.0HP-135	○	4.0	25	13	6	24	135											
04025.4HP-120	●	4.0	25.4	13	6	24.4	120											

*1: L4 shows Ød1 length

*2: Dimension T shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhang length of EZ Bar PLUS.

*3: HP type bars are not adjustable.

• Choose sleeves (Ød1) to meet with ØD dimension of bar.

● Spare Parts (for EZH-HP Sleeves)

Part Number	Spare Parts					Applicable EZB Bar	
	Clamp Screw	Wrench	Clamp Screw	Wrench	Adjustment Pin		
EZH 017...HP-...	HS3x4P (for adjustment pin and bar)	LW-1.5 1N • m Tightening Torque	-	-	LCP025140	-	EZBR020017...
020...HP-...						EZBR020020HP...	EZBR025020...
025...HP-...						EZBR025025HP...	EZBR030025...
030...HP-...						EZBR030030HP...	EZBR...030...
EZH 035...HP-...	HS3x4P (only for adjustment pin)	LW-1.5 1N • m Tightening Torque	HS4x4P (for bar)	LW-2 2N • m Tightening Torque	LCP025140	EZBR035035HP...	EZBR040035...
040...HP-...						EZBR040040HP...	EZBR...040...
050...HP-...						EZBR050050HP...	EZBR...050...
060...HP-...						EZBR060060HP...	EZBR...060...
070...HP-...						-	EZBR...070...

EZH-HP (Applicable Sleeve)

Adjustable

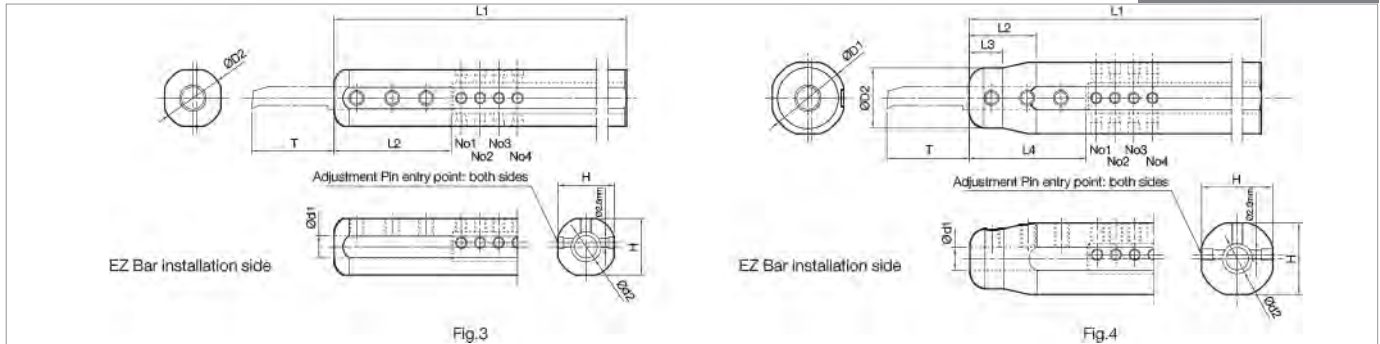


Fig.3

Fig.4

Part Number	Stock	Dimensions (mm)									T (mm) Overhang Length of Bar*2				Drawing	Applicable EZ Bar or EZ Bar PLUS F14~ F16 F18, F19, F28 G35, G45 J10
		Ød1	ØD1	ØD2	Ød2	H	L1	L2	L3	*L4	Adjustment Pin Setting					
											No1	No2	No3	No4		
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	_045X-...050EZ
04519HP-120	●	4.5	0.75"	16	6	18.0	120									
04520HP-120	○	4.5	20	16	6	19.0	120									
04522HP-135	○	4.5	22	16	6	21.0	135	18	9							
04525.0HP-135	○	4.5	25	16	6	24.0	135									
EZH 05016HP-100	○	5.0	16	16	6	15.0	100	4	-	29.0	25.5	20.5	15.5	10.5	Fig.3	EZBR...050... EZVBR05050-... EZGR...050-... EZFR...050-... EZTR...050-... *3 HP...05-...
05019HP-120	●	5.0	0.75"	16	6	18.0	120									
05020HP-120	○	5.0	20	16	6	19.0	120									
05022HP-135	○	5.0	22	16	6	21.0	135	18	9							
05025.0HP-135	○	5.0	25	16	6	24.0	135									
EZH 06016HP-100	○	6.0	16	16	8	15.0	100	4	-	31.0	30.5	25.5	20.5	15.5	Fig.3	EZBR...060... EZVBR065060-... EZGR...060-... EZFR...060-... _060X-...-070EZ *3 HP...0606-...
06019HP-120	●	6.0	0.75"	16	8	18.0	120									
06020HP-120	○	6.0	20	16	8	19.0	120									
06022HP-135	○	6.0	22	16	8	21.0	135	18	9							
06025.0HP-135	○	6.0	25	16	8	24.0	135									
EZH 07016HP-100	○	7.0	16	16	8	15.0	100	4	-	33.0	35.5	30.5	25.5	Fig.3	EZBR...070... EZGR...070-... EZFR...070-... EZTR...070-... *3 HP...07-...	
07019HP-120	●	7.0	0.75"	16	8	18.0	120									
07020HP-120	○	7.0	20	16	8	19.0	120									
07022HP-135	○	7.0	22	16	8	21.0	135	18	9							
07025.0HP-135	○	7.0	25	16	8	24.0	135									
EZH 07025.4HP-120	●	7.0	1.00"	16	8	24.4	120									

- *1: L4 shows Ød1 length
- *2: Dimension T shows overhang length of the EZB Bar when attached to sleeve. Dimensions in () show overhand length of EZ Bar PLUS.
- *3: HP type bars are not adjustable.
- Choose sleeves (Ød1) to meet with ØD 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

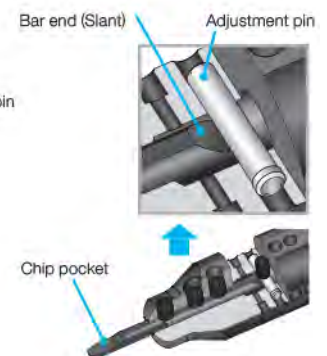


Fig. 3: Clamped bar

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

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

EZH-ST (Applicable Sleeve)

NOT Adjustable

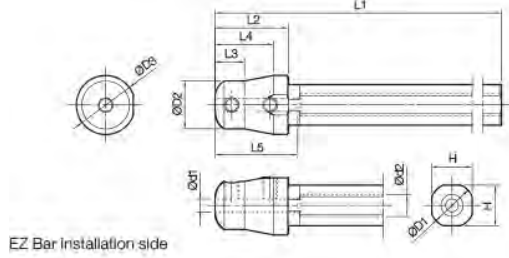


Fig.1

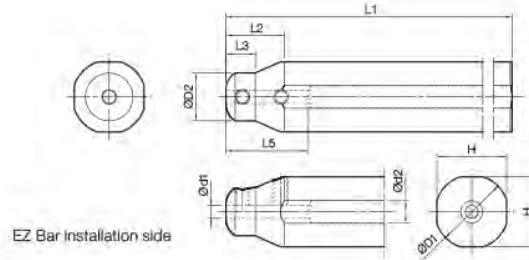


Fig.2

Part Number	Stock	Dimensions (mm)											Drawing	Applicable EZ Bar or EZ Bar PLUS ● F14~ ● F16 ● F19, ● F28 ● G34, ● G45 ● J10	
		Ød1	ØD1	ØD2	ØD3	Ød2	H	L1	L2	L3	L4	*L5			
EZH 01712ST-80	○	1.7	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...017...
01716ST-100	○	1.7	16	13	-	6	15.0	100						Fig.2	
01719ST-120	○	1.7	0.75*	13	-	6	18.0	120							
01720ST-120	○	1.7	20	13	-	6	19.0	120	16	8	-	16			
01722ST-135	○	1.7	22	13	-	6	21.0	135							
01725.0ST-135	○	1.7	25	13	-	6	24.0	135							
01725.4ST-120	○	1.7	1.00*	13	-	6	24.4	120							
EZH 02012ST-80	○	2.0	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...020... HPB% 0202-...
02016ST-100	○	2.0	16	13	-	6	15.0	100						Fig.2	
02019ST-120	○	2.0	0.75*	13	-	6	18.0	120							
02020ST-120	○	2.0	20	13	-	6	19.0	120	16	8	-	20			
02022ST-135	○	2.0	22	13	-	6	21.0	135							
02025.0ST-135	○	2.0	25	13	-	6	24.0	135							
02025.4ST-120	○	2.0	1.00*	13	-	6	24.4	120							
EZH 02512ST-80	○	2.5	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...025... EZTR...025-...
02516ST-100	○	2.5	16	13	-	6	15.0	100						Fig.2	
02519ST-120	○	2.5	0.75*	13	-	6	18.0	120							
02520ST-120	○	2.5	20	13	-	6	19.0	120	16	8	-	20			
02522ST-135	○	2.5	22	13	-	6	21.0	135							
02525.0ST-135	○	2.5	25	13	-	6	24.0	135							
02525.4ST-120	○	2.5	1.00*	13	-	6	24.4	120							
EZH 03012ST-80	○	3.0	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...030... EZVBR035030-... EZGR...030-... EZTR...030-... HPB% 0303-...
03016ST-100	○	3.0	16	13	-	6	15.0	100						Fig.2	
03019ST-120	○	3.0	0.75*	13	-	6	18.0	120							
03020ST-120	○	3.0	20	13	-	6	19.0	120	16	8	-	21			
03022ST-135	○	3.0	22	13	-	6	21.0	135							
03025.0ST-135	○	3.0	25	13	-	6	24.0	135							
03025.4ST-120	○	3.0	1.00*	13	-	6	24.4	120							
EZH 03512ST-80	○	3.5	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...035... EZTR...035-...
03516ST-100	○	3.5	16	13	-	6	15.0	100						Fig.2	
03519ST-120	○	3.5	0.75*	13	-	6	18.0	120							
03520ST-120	○	3.5	20	13	-	6	19.0	120	16	8	-	22			
03522ST-135	○	3.5	22	13	-	6	21.0	135							
03525.0ST-135	○	3.5	25	13	-	6	24.0	135							
03525.4ST-120	○	3.5	1.00*	13	-	6	24.4	120							
EZH 04012ST-80	○	4.0	12	13	16	6	11.0	80	20			16		Fig.1	EZBR...040... EZVBR045040-... EZGR...040-... EZFR...040-... EZTR...040-... HP...04-...
04016ST-100	○	4.0	16	13	-	6	15.0	100						Fig.2	
04019ST-120	○	4.0	0.75*	13	-	6	18.0	120							
04020ST-120	○	4.0	20	13	-	6	19.0	120	16	8	-	24			
04022ST-135	○	4.0	22	13	-	6	21.0	135							
04025.0ST-135	○	4.0	25	13	-	6	24.0	135							
04025.4ST-120	○	4.0	1.00*	13	-	6	24.4	120							

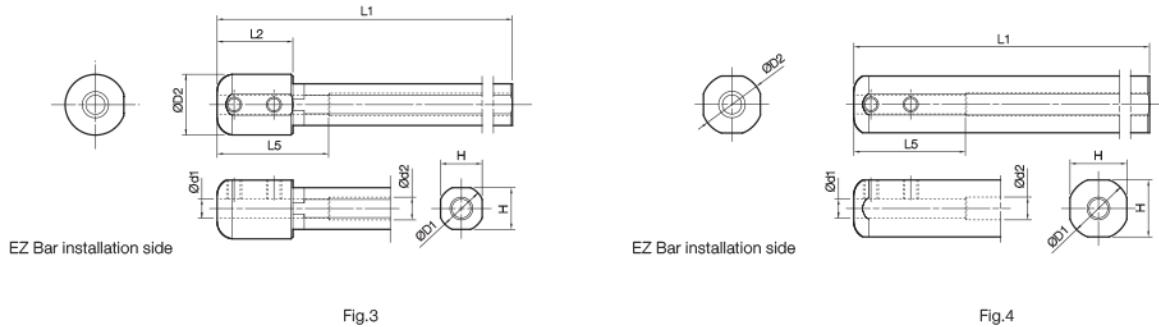
*:L5 shows Ød1 length

• Choose sleeves (Ød1) to meet with ØD 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.

EZH-ST (Applicable Sleeve)

NOT Adjustable



Part Number	Stock	Dimensions (mm)											Drawing	Applicable EZ Bar or EZ Bar PLUS F14- F16 F18, F19, F28 G34, G45 J10		
		Ød1	ØD1	ØD2	ØD3	Ød2	H	L1	L2	L3	L4	*L5				
EZH 05012ST-80	○	5	12	16	-	6	11.0	80	20	-	-	-	-	-	Fig.3	EZBR...050... EZVBR055050-... EZGR...050-... EZFR...050-... EZTR...050-... HP...05-...
05016ST-100	○	5	16	16	-	6	15.0	100	-	-	-	-	-	Fig.4		
05019ST-120	○	5	0.75"	16	-	6	18.0	120	-	-	-	-	-	Fig.2 (F24)		
05020ST-120	○	5	20	16	-	6	19.0	120	-	-	-	-	-	Fig.2 (F24)		
05022ST-135	○	5	22	16	-	6	21.0	135	18	9	-	29	-	Fig.2 (F24)		
05025.0ST-135	○	5	25	16	-	6	24.0	135	-	-	-	-	-	Fig.2 (F24)		
05025.4ST-120	○	5	1.00"	16	-	6	24.4	120	-	-	-	-	-	Fig.2 (F24)		
EZH 06012ST-80	○	6	12	16	-	8	11.0	80	20	-	-	-	-	Fig.3	EZBR...060... EZVBR...065060-... EZGR...060-... EZTR...060-... _060X-...-070EZ HP...0606-...	
06016ST-100	○	6	16	16	-	8	15.0	100	-	-	-	-	-	Fig.4		
06019ST-120	○	6	0.75"	16	-	8	18.0	120	-	-	-	-	-	Fig.2 (F24)		
06020ST-120	○	6	20	16	-	8	19.0	120	-	-	-	-	-	Fig.2 (F24)		
06022ST-135	○	6	22	16	-	8	21.0	135	18	9	-	31	-	Fig.2 (F24)		
06025.0ST-135	○	6	25	16	-	8	24.0	135	-	-	-	-	-	Fig.2 (F24)		
06025.4ST-120	○	6	1.00"	16	-	8	24.4	120	-	-	-	-	-	Fig.2 (F24)		
EZH 07012ST-80	○	7	12	16	-	8	11.0	80	20	-	-	-	-	Fig.3	EZBR...070... EZGR...070-... EZFR...070-... EZTR...070-... HP...07-...	
07016ST-100	○	7	16	16	-	8	15.0	100	-	-	-	-	-	Fig.4		
07019ST-120	○	7	0.75"	16	-	8	18.0	120	-	-	-	-	-	Fig.2 (F24)		
07020ST-120	○	7	20	16	-	8	19.0	120	-	-	-	-	-	Fig.2 (F24)		
07022ST-135	○	7	22	16	-	8	21.0	135	18	9	-	33	-	Fig.2 (F24)		
07025.0ST-135	○	7	25	16	-	8	24.0	135	-	-	-	-	-	Fig.2 (F24)		
07025.4ST-120	○	7	1.00"	16	-	8	24.4	120	-	-	-	-	-	Fig.2 (F24)		

- ※:L5 shows Ød1 length
- Choose sleeves (Ød1) to meet with ØD 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)

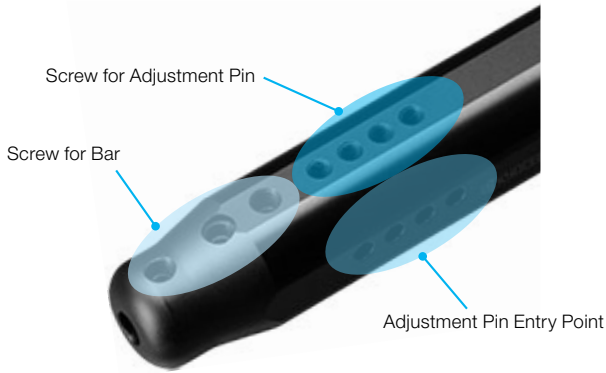
Part Number	Spare Parts		Applicable EZ Bar EZB-HP Type EZB-ST Type EZB-NB Type	EZ Bar PLUS EZG Type EZFG Type EZT Type	EZ Bar PLUS EZG Type EZFG Type EZT Type	2-Edge Tip Bars HP Type
	Screw	Wrench				
EZH 017...ST-..	HS3x4P	LW-1.5 1N • m Tightening Torque	EZBR...017...	-	-	-
020...ST-..			EZBR...020...	-	-	HPB%0202-...
025...ST-..			EZBR...025...	EZTR...025-...	-	-
030...ST-..			EZBR...030...	EZ_R...030-...	-	HPB%0303-...
EZH 035...ST-..	HS4x4P	LW-2 2N • m Tightening Torque	EZBR...035...	EZTR...035-...	-	-
040...ST-..			EZBR...040...	EZ_R...040-...	-	HP...04-...
050...ST-..			EZBR...050...	EZ_R...050-...	-	HP...05-...
060...ST-..			EZBR...060...	EZ_R...060-...	_060X-...-070EZ	HP...0606-...
070...ST-..			EZBR...070...	EZ_R...070-...	-	HP...07-...

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

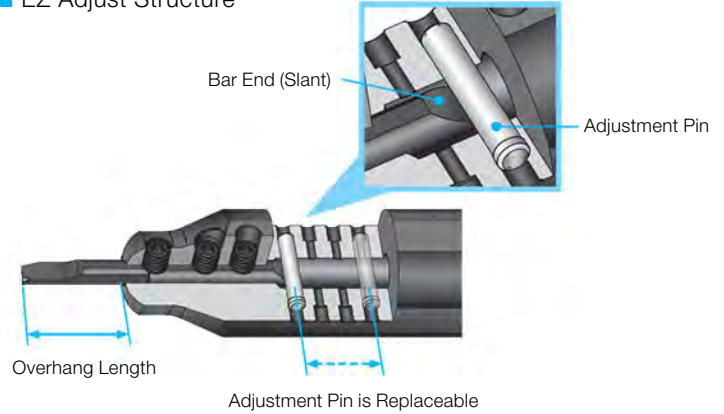
EZ Bar Operability

Easy Adjustability of Bar Reduces Preparation Time!

■ EZ Bar Spare Parts



■ EZ Adjust Structure



How to Attach Adjustment Pin



How to Clamp Bar



※ Sharp cutting edge of the bars may cause injury. Be careful when handling them.

A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
M MILLING
P SPARE PARTS
R TECHNICAL
T INDEX

Case Studies

304SS

Valve Part • Vc=250sfm • D.O.C.=0.004" • f=0.0012ipr • Wet • EZBR030030HP-015F (PR1225) • EZH03025.0HP-135	
PR1225	3,000 pcs/edge
Competitor F	2,000 pcs/edge
Compared to Competitor F, EZ Bar showed 1.5 times longer tool life with superior stability and accuracy of cutting edge position.	
(User Evaluation)	

316SS

Connector • Vc=150~200sfm • D.O.C.=0.004" • f=0.0012ipr • Wet • EZBR045040ST-008H (PR1225) • EZH04025.0HP-135	
PR1225	2,000 pcs/edge
Competitor G	500 pcs/edge
Compared to Competitor G, EZ Bar showed 4 times longer tool life. Adjustable overhang length of sleeves (EZH-HP) drastically improved operability.	
(User Evaluation)	

1045

Sleeve (Automotive Part) • Vc=150sfm • D.O.C.=0.002" • f=0.0024ipr • Wet • EZBR045040ST-008H (PR1225) • EZH04016HP-100	
PR1225	2,000 pcs/edge
Competitor H	1,000 pcs/edge
Compared to Competitor H, EZ Bar doubled tool life. The excellent operability of the sleeve reduced the cycle time and improved productivity.	
(User Evaluation)	

12L14

Collar • Vc=275sfm • D.O.C.=0.002"~0.004" • f=0.001ipr • Wet • EZBR040040HP-008H (PR1225) • EZH04019HP-120	
PR1225	10,000 pcs/edge (Stable Machining)
Competitor I	10,000 pcs/edge (Unstable)
Compared to Competitor I, EZ Bar achieved stable machining of 10,000 pcs/edge, minimizing deflection of the diameter. Number of defects is reduced drastically.	
(User Evaluation)	

4135

Sleeve • Vc=100sfm • D.O.C.=0.002" (2 passes) • f=0.0012ipr • Wet • EZBR045040ST-008H (PR1225) • EZH04019HP-100	
PR1225	300 pcs/edge (Further Machining Possible)
Competitor J	150 pcs/edge
PR1225 has double the tool life of that of Competitor J with good chip control.	
(User Evaluation)	

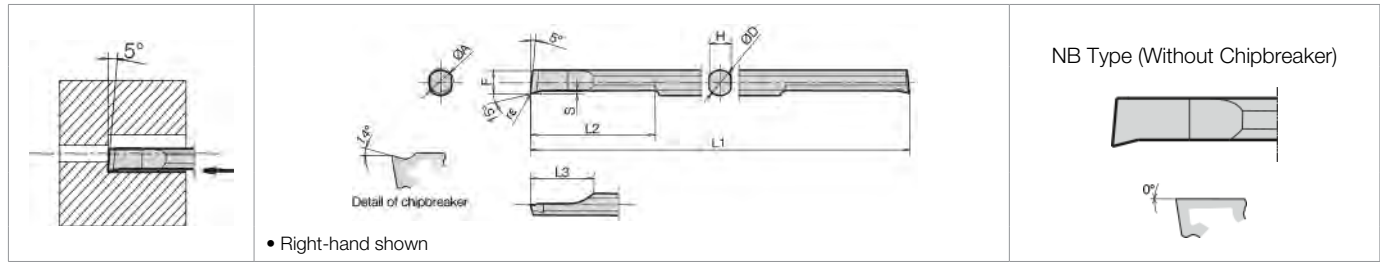
303SS

Pipe • Vc=125sfm • D.O.C.=0.009" • f=0.0012ipr • Wet • EZBR030030HP-015H (PR1225) • EZH03016HP-100	
PR1225	1,500 pcs/edge (No Defective Products)
Conventional K	1,500 pcs/edge (Unstable)
Conventional K was unstable in tool life and dimension. EZ Bar had stable machining.	
(User Evaluation)	

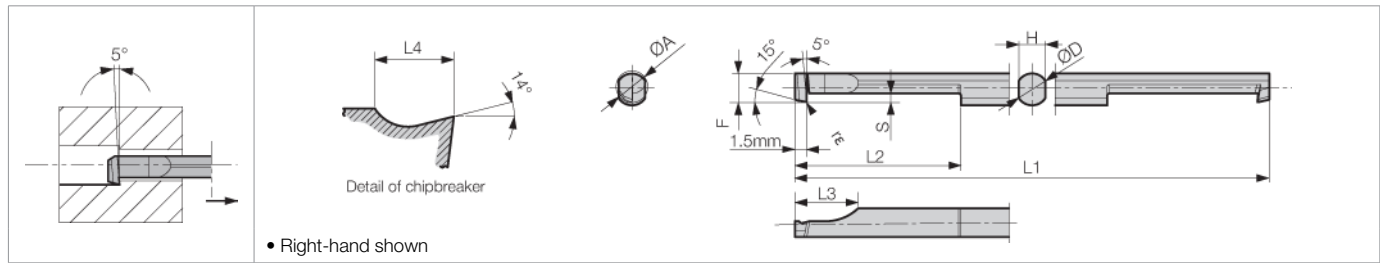
GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

DOUBLE-SIDED MICRO BARS [HPB / HPBT]

HPB (Boring)



HPBT (Back Boring)



Micro-Bar Dimensions

Part Number	Min. Bore Dia.		Dimensions (mm)							Insert Grade			
	ØA	ØD	H	L1	L2	L3	F	S	rε	PVD Coated		Carbide	
										PR930		KW10	
										R	L	R	L
HPB% 0202-005	2	2	1.70	50	10	5	1.75	0.25	+0 -0.02 0.05	○	○	○	○
0303-005	3	3	2.50	50	15	7	2.70	0.30		○	○	○	○
0404-005	4	4	3.35	60	20	10	3.65	0.50		○	○	○	○
0505-005	5	5	4.30	70	25	12	4.55	0.50		○	○	○	○
0606-005	6	6	5.20	70	25	12	5.50	0.50		○	○	○	○
0707-005	7	7	6.20	80	25	12	6.45	0.50		○	○	○	○
HPBR 0202-005NB	2	2	1.70	50	10	5	1.75	0.25	+0 -0.02 0.05	○	○	○	○
0303-005NB	3	3	2.50	50	15	7	2.70	0.30		○	○	○	○
0404-005NB	4	4	3.35	60	20	10	3.65	0.50		○	○	○	○
0505-005NB	5	5	4.30	70	25	12	4.55	0.50		○	○	○	○
0606-005NB	6	6	5.20	70	25	12	5.50	0.50		○	○	○	○
0707-005NB	7	7	6.20	80	25	12	6.45	0.50		○	○	○	○
HPBT% 0404-005	4	4	3.35	60	21	8	3.65	1.00	+0 -0.02 0.05	○	○	○	○
0505-005	5	5	4.30	70	26	8	4.55	1.30		○	○	○	○

Applicable Sleeves

Micro Bars	Sleeves	F20~	F25
HPB% 0202-...	EZH	02...	
0303-...		03...	
0404-...		04...	
0505-...		05...	
0606-...		06...	
0707-...		07...	
HPBT% 0404-...	EZH	04...	
0505-...		05...	

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc:sfm)		HPB02 Type		HPB03 Type		HPB04 Type HPBT04 Type		HPB05/06/07 Type HPBT05 Type		Remarks	
	PVD Coated	Carbide	Depth of Cut: D.O.C.(in), Feed: f(ipr)									
	PR930	KW10	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f		
Carbon Steel / Alloy Steel	★ 100-330	-	~0.012	~0.0012	~0.016	~0.0016	~0.018	~0.0028	~0.020	~0.0040		
Stainless Steel	★ 100-270	-	~0.012	~0.0008	~0.016	~0.0012	~0.018	~0.0020	~0.020	~0.0030	Wet	
Non-ferrous Material	-	★ 100-330	~0.012	~0.0020	~0.016	~0.0024	~0.018	~0.0040	~0.020	~0.0060		

★ : 1st Recommendation ☆ : 2nd Recommendation

Micro Bars sold in 10 piece boxes.

PSB-S (Internal Boring)

NOTE: PSB-S bars will be phased out and replaced with **EZB** type bars. See **F14**

Applicable Sleeves **F20~F25**

PSB%0202 Type
PSB%0303 Type
Shown on left

NBS Type (Without Chipbreaker)	
	Cermet, Coated Carbide
	CBN, Diamond

• Right-hand shown

PSBT-S (Back Boring)

NOTE: PSBT-S bars will be phased out and replaced with **HPBT** type bars. See **F28**

Applicable Sleeves **F20~F25**

• Right-hand shown

Micro-Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								Insert Grade								
		ØA	ØD	H	L1	L2	L3	F	S	rε	PVD Coated		Carbide		CBN		PCD	
											PR915	PR930	KW10	KBN510	KBN525	KPD001	KPD010	
PSB% 0202-50S 0303-50S 0404-60S 0505-70S 0606-70S 0707-80S	2	1.8	-	50	-	5	0.9	0.25	0.05		○	○						
	3	2.8	-	50	-	7	1.4	0.3			○	Ⓡ						
	4	3.8	3.6	60	30	10	1.9	0.5			○	Ⓡ						
	5	4.8	4.4	70	40	12	2.4	0.5			○	Ⓡ						
	6	5.8	5.2	70	45	12	2.9	0.5			○	Ⓡ						
	7	6.8	6.2	80	50	12	3.4	0.5			○	Ⓡ						
	7	6.8	6.2	80	50	12	3.4	0.5			○	Ⓡ						
PSB% 0202-50NBS 0303-50NBS 0404-60NBS 0505-70NBS 0606-70NBS 0707-80NBS	2	1.8	-	50	-	5	0.9	0.25	0.05		Ⓡ	Ⓡ						
	3	2.8	-	50	-	7	1.4	0.3			Ⓡ	Ⓡ	Ⓡ	Ⓡ				
	4	3.8	3.6	60	30	10	1.9	0.5			Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	
	5	4.8	4.4	70	40	12	2.4	0.5			Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	○
	6	5.8	5.2	70	45	12	2.9	0.5			Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ
	7	6.8	6.2	80	50	12	3.4	0.5			Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ
	7	6.8	6.2	80	50	12	3.4	0.5			Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ	Ⓡ
PSBT% 0415-60S 0515-70S	4	3.8	3.6	60	20	8	1.9	1.0	0.05		○	○						
	5	4.8	4.6	70	20	8	2.4	1.3			○	○						

Recommended Cutting Conditions

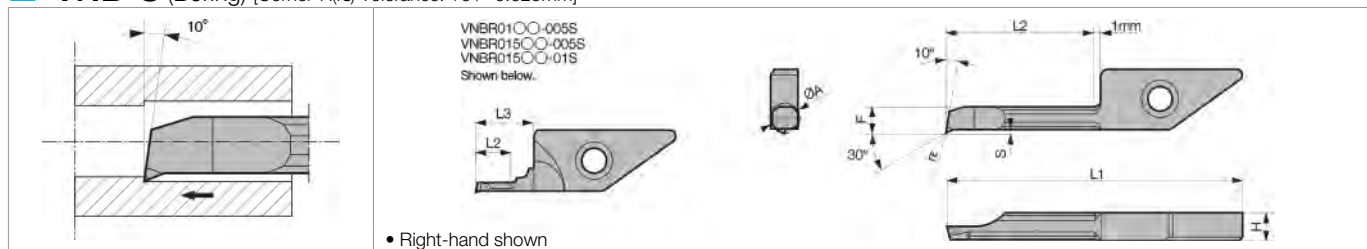
Workpiece Material	Insert Grade (Vc:sfm)						PSB02		PSB03		PSB04 PSBT04		PSB05 PSB06 PSB07 PSBT05		Remarks
	PVD Coated		Carbide	CBN	PCD		Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR915	PR930	KW10	KBN510 KBN525	KPD001	KPD010	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel	-	★ 100~330	-	-	-	-	~0.012	~0.001	~0.016	~0.002	~0.018	~0.003	~0.020	~0.004	Wet
Stainless Steel	-	★ 100~270	-	-	-	-	~0.012	~0.001	~0.016	~0.001	~0.018	~0.002	~0.020	~0.003	
Non-Ferrous Material	-	-	☆ ~330	-	★ ~990	☆ ~990	~0.012	~0.002	~0.016	~0.002	~0.018	~0.004	~0.020	~0.006	
Hardened Material	-	-	-	★ ~330	-	-	-	-	~0.003	~0.001	~0.004	~0.002	~0.006	~0.003	

★ : 1st Recommendation ☆ : 2nd Recommendation

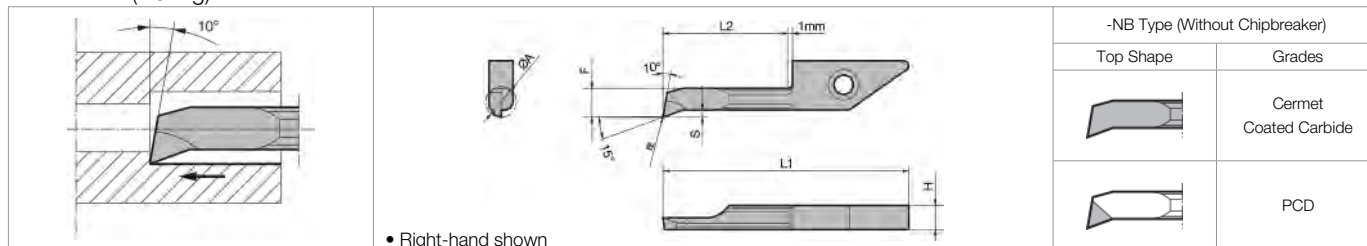
Micro Bars sold in 10 piece boxes.

SWISS IQ BAR FOR MICRO BORING

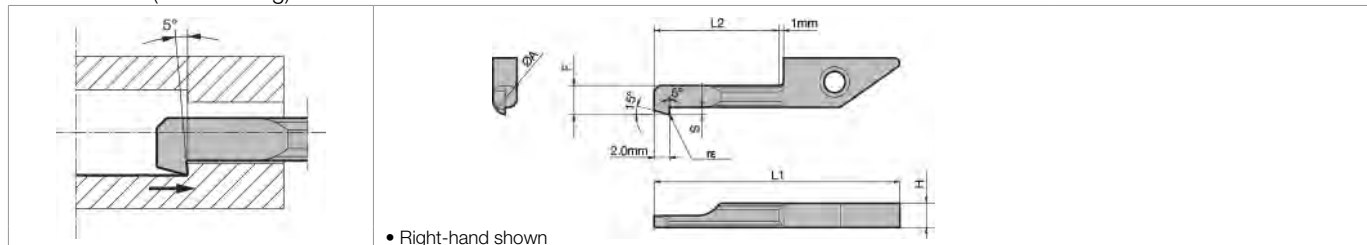
VNB-S (Boring) [Corner-R(re) Tolerance: +0 / -0.025mm]



VNB (Boring)



VNBT (Back Boring)



Insert Dimensions (VNB-S)

Part Number	Min. Bore Dia.	Dimensions (mm)							MEGA COAT	PVD Coated Carbide	Carbide	PCD	
		ØA	H	L1	L2	L3	F	S				re	KPD001
VNBR 0103-005S	1.0	3.9	26.5	3.0	7	0.85	0.20	+0 -0.02 0.05	○				
0105-005S	1.0	3.9	26.5	5.0	7	0.85	0.20		○				
01503-005S	1.5	3.9	26.5	3.0	7	1.3	0.20		○				
01505-005S	1.5	3.9	26.5	5.0	7	1.3	0.20		○				
0206-005S	2.0	3.9	26.5	6.0	-	1.8	0.25		○				
025075-005S	2.5	3.9	28.1	7.5	-	2.1	0.40		○				
0311-005S	3.0	3.9	30.8	11.0	-	2.6	0.40		○				
03515-005S	3.5	3.9	34.8	15.0	-	2.9	0.50		○				
0411-005S	4.0	3.9	30.8	11.0	-	3.5	0.50		○				
0420-005S	4.0	3.9	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	○				
01505-01S	1.5	3.9	26.5	5.0	7	1.3	0.20		○				
0206-01S	2.0	3.9	26.5	6.0	-	1.8	0.25		○				
025075-01S	2.5	3.9	28.1	7.5	-	2.1	0.40		○				
0311-01S	3.0	3.9	30.8	11.0	-	2.6	0.40		○				
03515-01S	3.5	3.9	34.8	15.0	-	3.0	0.50		○				
0411-01S	4.0	3.9	30.8	11.0	-	3.5	0.50		○				
0420-01S	4.0	3.9	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	○			
0420-02S	4.0	3.9	39.8	20.0	-	3.5	0.50			○			

Recommended Cutting Conditions (VNB-S)

Workpiece Material	MEGACOAT						VNB01-S VNB015-S		VNB02-S VNB04-S		Remarks
	PR1225	PR930	KW10	KBNS10	KPD001	KPD010	Depth of Cut: D.O.C.(in), Feed: f(ipr)				
	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f			
Carbon Steel / Alloy Steel (1045)	★ 100~400	☆ 100~325	-	-	-	-	~0.004	~0.0004	~0.008	~0.0012	Wet
Stainless Steel (304)	★ 100~325	☆ 100~250	-	-	-	-	~0.004	~0.0004	~0.008	~0.0008	

★ : 1st Recommendation ☆ : 2nd Recommendation

Swiss IQ Bars are sold in 5 piece boxes.

SWISS IQ BAR FOR MICRO BORING

NEW ITEMS!

● Insert Dimensions (VNB / VNB-NB / VNBT)

Part Number	Min. Bore Dia.	Dimensions (mm)							NEW MEGACOAT	PVD Coated Carbide	Carbide	PCD	
		ØA	H	L1	L2	F	S	re	PR1225	PR930	KW10	KPD001	KPD010
VNBR 0206-003	2	3.9	26.5	6	1.8	0.25	0.03		○	○			
0311-003	3	3.9	30.8	11	2.6	0.40	0.03		●	●			
0411-003	4	3.9	30.8	11	3.5	0.50	0.03		●	●			
0420-003	4	3.9	39.8	20	3.5	0.50	0.03		●	●			
0511-003	5	3.9	30.8	11	4.5	0.70	0.03		●	●			
0520-003	5	3.9	39.8	20	4.5	0.70	0.03		●	●			
0620-003	6	3.9	39.8	20	5.3	1.00	0.03		●	●			
0630-003	6	3.9	49.8	30	5.3	1.00	0.03		○	○			
0720-003	7	3.9	39.8	20	6.2	1.00	0.03		●	●			
0730-003	7	3.9	49.8	30	6.2	1.00	0.03		○	○			
VNBR 0206-01	2	3.9	26.5	6	1.8	0.25	0.10		○	○			
0311-01	3	3.9	30.8	11	2.6	0.40	0.10		○	○			
0411-01	4	3.9	30.8	11	3.5	0.50	0.10		○	○			
0420-01	4	3.9	39.8	20	3.5	0.50	0.10		○	○			
0511-01	5	3.9	30.8	11	4.5	0.70	0.10		○	○			
0520-01	5	3.9	39.8	20	4.5	0.70	0.10		○	○			
0620-01	6	3.9	39.8	20	5.3	1.00	0.10		○	○			
0630-01	6	3.9	49.8	30	5.3	1.00	0.10		○	○			
0720-01	7	3.9	39.8	20	6.2	1.00	0.10		○	○			
0730-01	7	3.9	49.8	30	6.2	1.00	0.10		○	○			
VNBR 0206-02	2	3.9	26.5	6	1.8	0.25	0.20		○	○			
0311-02	3	3.9	30.8	11	2.6	0.40	0.20		○	○			
0411-02	4	3.9	30.8	11	3.5	0.50	0.20		○	○			
0420-02	4	3.9	39.8	20	3.5	0.50	0.20		○	○			
0511-02	5	3.9	30.8	11	4.5	0.70	0.20		○	●			
0520-02	5	3.9	39.8	20	4.5	0.70	0.20		○	●			
0620-02	6	3.9	39.8	20	5.3	1.00	0.20	○	○	○			
0630-02	6	3.9	49.8	30	5.3	1.00	0.20		○	○			
0720-02	7	3.9	39.8	20	6.2	1.00	0.20		○	○			
0730-02	7	3.9	49.8	30	6.2	1.00	0.20		○	○			
VNBR 0206-003NB	2	3.9	26.5	6	1.8	0.25	0.03			○			
0311-003NB	3	3.9	30.8	11	2.6	0.40	0.03			○			
0411-003NB	4	3.9	30.8	11	3.5	0.50	0.03			○			
0420-003NB	4	3.9	39.8	20	3.5	0.50	0.03			○			
0511-003NB	5	3.9	30.8	11	4.5	0.70	0.03			○			
0520-003NB	5	3.9	39.8	20	4.5	0.70	0.03			○			
0620-003NB	6	3.9	39.8	20	5.3	1.00	0.03			○			
0630-003NB	6	3.9	49.8	30	5.3	1.00	0.03			○			
0720-003NB	7	3.9	39.8	20	6.2	1.00	0.03			○			
0730-003NB	7	3.9	49.8	30	6.2	1.00	0.03			○			
VNBR 0206-02NB	2	3.9	26.5	6	1.8	0.25	0.20			○			
0311-02NB	3	3.9	30.8	11	2.6	0.40	0.20			○			
0411-02NB	4	3.9	30.8	11	3.5	0.50	0.20			○		○	○
0420-02NB	4	3.9	39.8	20	3.5	0.50	0.20			○		○	○
0511-02NB	5	3.9	30.8	11	4.5	0.70	0.20			○		○	○
0520-02NB	5	3.9	39.8	20	4.5	0.70	0.20			○		○	○
0620-02NB	6	3.9	39.8	20	5.3	1.00	0.20			○		○	○
0630-02NB	6	3.9	49.8	30	5.3	1.00	0.20			○		○	○
0720-02NB	7	3.9	39.8	20	6.2	1.00	0.20			○		○	○
0730-02NB	7	3.9	49.8	30	6.2	1.00	0.20			○		○	○
VNBT 0411-003	4	3.9	30.8	11	3.6	1.00	0.03		○	○			
0420-003	4	3.9	39.8	20	3.6	1.00	0.03		○	○			
0511-003	5	3.9	30.8	11	4.6	1.30	0.03		○	○			
0520-003	5	3.9	39.8	20	4.6	1.30	0.03		○	○			
VNBT 0411-01	4	3.9	30.8	11	3.6	1.00	0.10		○	○			
0420-01	4	3.9	39.8	20	3.6	1.00	0.10		○	○			
0511-01	5	3.9	30.8	11	4.6	1.30	0.10		○	○			
0520-01	5	3.9	39.8	20	4.6	1.30	0.10		○	○			

◆ Recommended Cutting Conditions (VNB / VNB-NB / VNBT)

Workpiece Material	Insert						VNB02		VNB03		VNB04 VNB04		VNB05 VNB06 VNB07 VNB05		Remarks
	MEGACOAT	PVD Coated Carbide	Carbide	CBN	PCD		Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR1225	PR930	KW10	KBN510	KPD001	KPD010	D.O.C.	f	D.O.C.	f	D.O.C.	f	D.O.C.	f	
Carbon Steel / Alloy Steel (1045)	☆ 200~400	★ 100~400	☆ 100~325	-	-	-	~0.012	~0.0012	~0.016	~0.0016	~0.018	~0.0028	~0.020	~0.0039	
Stainless Steel (304)	☆ 150~325	★ 100~325	☆ 100~250	-	-	-	~0.012	~0.0008	~0.016	~0.0012	~0.018	~0.0020	~0.020	~0.0028	Wet
Non-ferrous Metals (Aluminum / Brass)	-	-	-	☆ ~325	★ ~975	☆ ~975	~0.012	~0.0020	~0.016	~0.0024	~0.018	~0.0039	~0.020	~0.0059	

★ : 1st Recommendation ☆ : 2nd Recommendation

Swiss IQ Bars are sold in 5 piece boxes.

PCD Inserts are sold in 1 piece boxes.

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

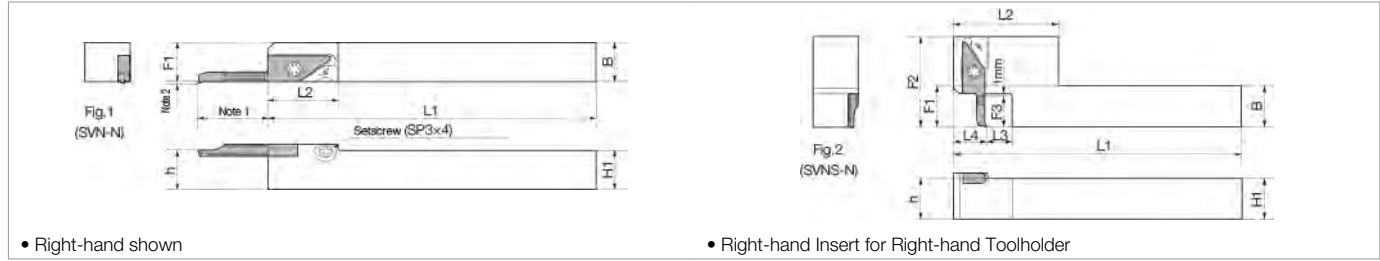
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SWISS IQ BAR FOR MICRO BORING

SVN-N (Without Side Stopper)

SVNS-N (Without Side Stopper / Without Clamp Screw)



• Right-hand shown

• Right-hand Insert for Right-hand Toolholder

Note 1 & Note 2 : See Insert Dimension Table. (F30~ F31)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)										Shape	Spare Parts			Applicable Inserts
		H1=h	B	L1	L2	L3	L4	F1	F2	F3	Clamp Screw		Wrench	Setscrew		
SVNR 1010H-12N	○	10	10	100	22	-	-	10	-	-	Fig.1	SB-3080TR	FT-10	SP3x4	F30~ F31 G37 G47 J15	
1212K-12N	○	12	12	125	22	-	-	12	-	-	Fig.1					
1616K-12N	○	16	16	125	22	-	-	16	-	-	Fig.1					
2020K-12N	○	20	20	125	22	-	-	20	-	-	Fig.1					
2525M-12N	○	25	25	150	22	-	-	25	-	-	Fig.1					
SVNSR 1010K-12-06N	○	10	10	125	45	10	12	10	29	6	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..06-...)	
1010K-12-11N	○	10	10	125	45	10	12	10	33	11	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1212M-12-06N	○	12	12	150	45	10	12	12	29	6	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..06-...)	
1212M-12-11N	○	12	12	150	45	10	12	12	33	11	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1212M-12-20N	○	12	12	150	45	10	13	12	42	20	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	
1616M-12-06N	○	16	16	150	45	16	12	16	29	6	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..06-...)	
1616M-12-11N	○	16	16	150	45	16	12	16	33	11	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..11-...)* (VNBTR..11-...)* (VNGR....-11)* (VNTR...-11)*	
1616M-12-20N	○	16	16	150	45	16	13	16	42	20	Fig.2	SB-3080TR	LTW-10S	-	(VNBR..20-...)* (VNBTR..20-...)* (VNGR....-20)*	

* Every type of insert is attachable for SVNS-N, however in case of setting insert top at the toolholder face level, please use above applicable () insert. In this case, F3 dimension of toolholder and L2 dimension of insert will correspond.

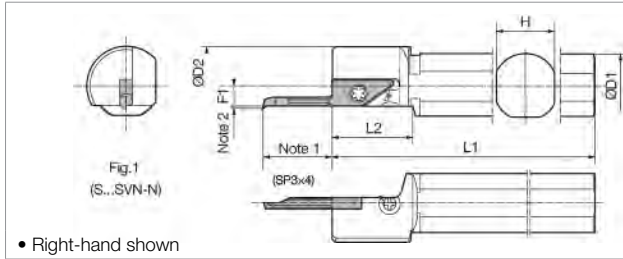
- 1) SVN-N / S...SVN-N / S-SVN-SN Toolholders (without side stopper) retain high index accuracy by easy restraint.
- 2) For high-rigidity clamping, (e.g. when varying load direction of undercutting, internal and external, or face cutting by one tool), changing the SP3x4 screw to a HS3x4 screw (sold separately) enables the toolholder's rigid clamping equivalent to the side stopper holders.

Spare Parts (Optional)

Screw (Side Stopper)	Wrench
	
HS3x4	LW-1.5

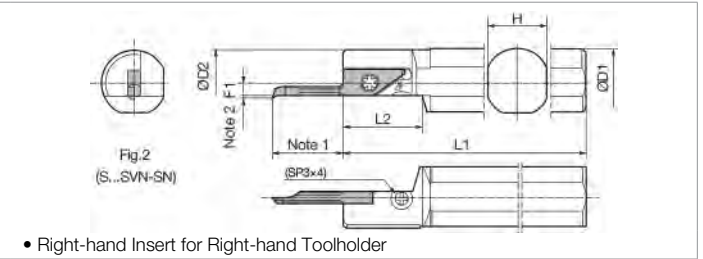
SWISS IQ BAR FOR MICRO BORING

S...SVN-N (Without Side Stopper : Standard)



• Right-hand shown

S...SVN-SN (Without Side Stopper : Straight)



• Right-hand Insert for Right-hand Toolholder

Note 1 & Note 2 : See Insert Dimension Table. (F30- F31)

Toolholder Dimensions

Part Number	Stock	Unit	Dimensions						Shape	Spare Parts			Applicable Inserts				
			ØD1	ØD2	H	L1	L2	F1		Clamp Screw	Wrench	Set Screw					
S12F-SVNR12N	○	mm	12	20.0	11	80	23	4	Fig.1	SB-3080TR	FT-10	SP3x4	VNBR..... VNBR..... VNBR..... VNBR..... VNBR.....				
S14G-SVNR12N	○		14	20.0	13	90	23	4	Fig.1								
S16H-SVNR12N	○		16	24.0	15	100	23	6	Fig.1								
S19H-SVNR12N	●	inch	0.750	0.945	0.669	3.937	0.945	0.236	Fig.1								
S19N-SVNR12N	●		0.750	0.945	0.669	6.299	0.945	0.236	Fig.1								
S20H-SVNR12N	○	mm	20	24.0	18	100	24	6	Fig.1								
S25H-SVNR12N	●	inch	1.000	1.181	0.905	3.937	0.945	0.236	Fig.1								
S25Q-SVNR12N	●		1.000	1.181	0.905	7.086	0.945	0.236	Fig.1								
S19H-SVNR12SN	●	mm	0.750	0.728	0.669	3.937	0.905	0.157	Fig.2					SB-3080TR	FT-10	SP3x4	
S20H-SVNR12SN	○		20	19.5	18	100	23	4	Fig.2								
S22K-SVNR12SN	○		22	21.5	20	125	23	4	Fig.2								
S25.0G-SVNR12SN	○		25	24.5	23	90	23	4	Fig.2								

Guidance of Each Holder Type Selection

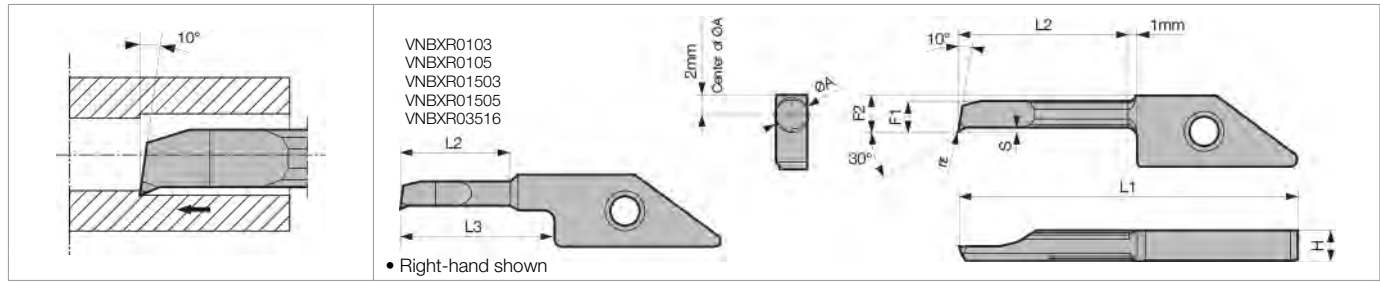
Gang-Type (Horizontal)	Gang-Type	Gang-Type (Front Loading Sleeve Type)	Gang-Type (Back Loading Sleeve Type)
Square Shank (Straight)	Square Shank (L-Shape)	Square Shank	Square Shank
Round Shank (Standard)		Round Shank (Standard)	Round Shank (Standard)
Round Shank (Straight)		Round Shank (Straight)	Round Shank (Straight)

Recommended toolholder may change according to machines used and actual position.
Automatic lathes have various toolpost types other than those above.

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
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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)								Insert Grade
		ØA	H	L1	L2	L3	F1	F1	S	
VNBXR 0103-005S	1.0	3.9	26.5	3	7	0.85	2.95	0.20	+0 -0.02 0.05	PR930
0105-005S	1.0	3.9	26.5	5	7	0.85	2.95	0.20		○
01503-005S	1.5	3.9	26.5	3	7	1.30	2.95	0.20		○
01505-005S	1.5	3.9	26.5	5	7	1.30	2.95	0.20		○
0206-005S	2.0	3.9	26.5	6	-	1.80	3.00	0.25		○
0311-005S	3.0	3.9	30.8	11	-	2.60	3.50	0.40		○
03511-005S	3.5	3.9	30.8	11	-	3.10	3.75	0.45		○
03516-005S	3.5	3.9	39.8	16	21	3.10	3.75	0.45		○
0411-005S	4.0	3.9	30.8	11	-	3.50	4.00	0.50		○
0420-005S	4.0	3.9	39.8	20	-	3.50	4.00	0.50		○
VNBXR 01503-01S	1.5	3.9	26.5	3	7	1.30	2.95	0.20	+0 -0.03 0.1	○
01505-01S	1.5	3.9	26.5	5	7	1.30	2.95	0.20		○
0206-01S	2.0	3.9	26.5	6	-	1.80	3.00	0.25		○
0311-01S	3.0	3.9	30.8	11	-	2.60	3.50	0.40		○
03511-01S	3.5	3.9	30.8	11	-	3.10	3.75	0.45		○
03516-01S	3.5	3.9	39.8	16	21	3.10	3.75	0.45		○
0411-01S	4.0	3.9	30.8	11	-	3.50	4.00	0.50		○
0420-01S	4.0	3.9	39.8	20	-	3.50	4.00	0.50		○
VNBXR 0411-02S	4.0	3.9	30.8	11	-	3.50	4.00	0.50	+0 -0.04 0.2	○
0420-02S	4.0	3.9	39.8	20	-	3.50	4.00	0.50		○

Recommended Cutting Conditions (VNB-S)

Workpiece Material	PVD Coated Carbide							Carbide		CBN		PCD		Remarks
	VNBX01-S VNBX015-S			VNBX02-S VNBX04-S				Depth of Cut: D.O.C.(in), Feed: f(ipr)						
	PR630	PR915	PR930	KW10	KBN510	KPD001	KPD010	D.O.C.	f	D.O.C.	f			
Carbon Steel / Alloy Steel (1045)	-	-	★ 100~325	-	-	-	-	-0.004	-0.0004	-0.008	-0.0012	Wet		
Stainless Steel (304)	-	-	★ 100~250	-	-	-	-	-0.004	-0.0004	-0.008	-0.0008			

VNBX-S Attachment holder for VNBX-S Swiss IQ Bar

★ : 1st Recommendation ☆ : 2nd Recommendation

1. VNBX-S Attachment holder for VNBX-S Swiss IQ Bar is below (See page [F35](#)).

- 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).

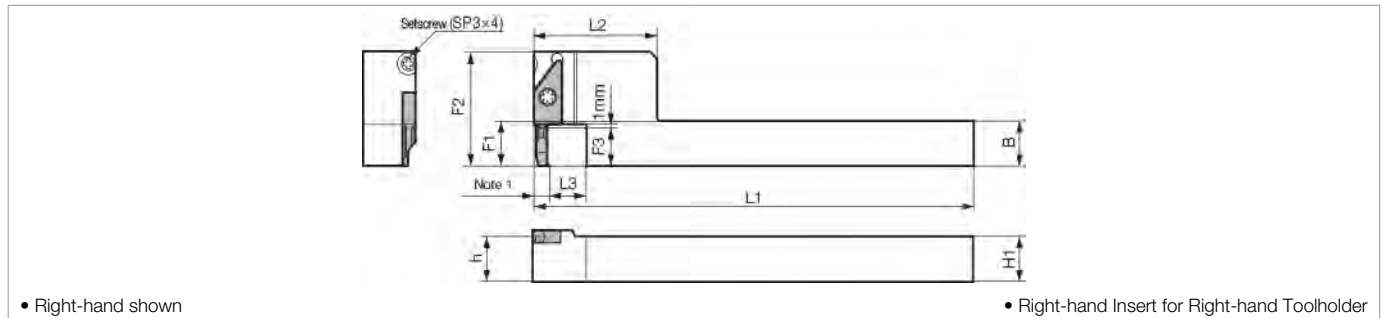
Spare Parts (Optional)

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) F2 dimension

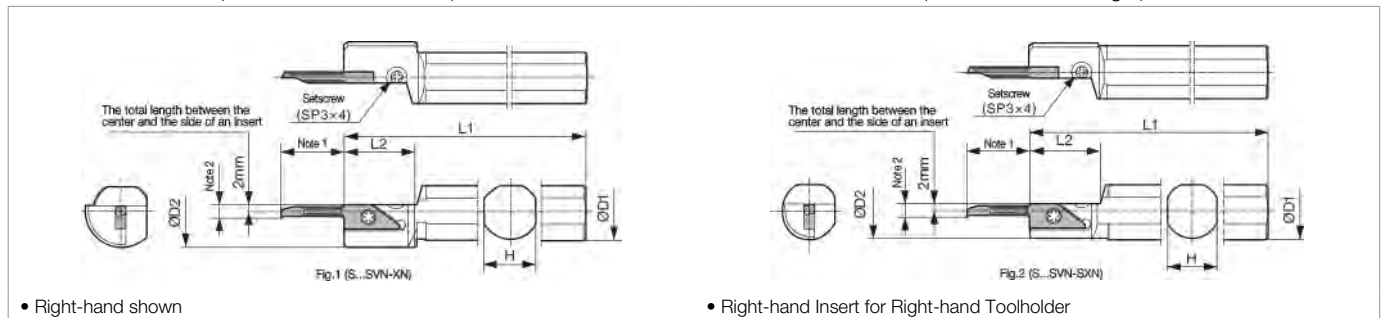
Toolholder Dimensions

Part Number	Stock	Dimensions (mm)									Spare Parts			Applicable Inserts F34
		H1=h	B	L1	L2	L3	F1	F2	F3	Clamp Screw	Wrench	Setscrew		
SVNSR 1010K-12-06XN	○	10	10	125	45	10	10	29	6	SB-3080TR	LTW-10S	SP3x4	(VNBXR02..)	
1010K-12-11XN	○	10	10	125	45	10	10	33	11				(VNBXR..11..)	
1212M-12-06XN	○	12	12	150	45	10	12	29	6				(VNBXR02..)	
1212M-12-11XN	○	12	12	150	45	10	12	33	11				(VNBXR..11..)	
1212M-12-20XN	○	12	12	150	45	10	12	42	20				(VNBXR0420..)	
1616M-12-06XN	○	16	16	150	45	16	16	29	6				(VNBXR02..)	
1616M-12-11XN	○	16	16	150	45	16	16	33	11				(VNBXR..11..)	
1616M-12-20XN	○	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 is same size as applicable insert (VNBX) L2 dimension + 1mm
 2. Note 2 dimension is same size as applicable insert (VNBX) F2 dimension

Toolholder Dimensions (Holder center axis core and insert center are coaxial type)

Part Number	Stock	Unit	Dimensions					Spare Parts			Applicable Inserts F34
			ØD1	ØD2	H	L1	L2	Clamp Screw	Wrench	Setscrew	
S12F -SVNR12XN	○	mm	12	20.0	11	80	23	SB-3080TR	FT-10	SP3x4	VNBXR...
S14G -SVNR12XN	○	mm	14	20.0	13	90	23				
S15H -SVNR12XN	●	inch	0.625	0.945	0.590	3.937	0.905				
S16H -SVNR12XN	○	mm	16	24.0	15	100	23				
S19H -SVNR12XN	●	inch	0.750	0.945	0.669	3.937	0.945				
S19N -SVNR12XN	●	inch	0.750	0.945	0.669	6.299	0.945				
S20H -SVNR12XN	○	mm	20	24.0	18	100	24				
S25H -SVNR12XN	●	mm	1.000	1.181	0.905	3.937	0.945				
S25Q -SVNR12XN	●	inch	1.000	1.181	0.905	7.086	0.945				
S19H -SVNR12SXN	●	mm	0.750	0.728	0.669	3.397	0.905	SB-3080TR	FT-10	SP3x4	VNBXR...
S20H -SVNR12SXN	○	mm	20	19.5	18	100	23				
S22K -SVNR12SXN	○	mm	22	21.5	20	125	23				
S25.0G -SVNR12SXN	○	mm	25	24.5	23	90	23				

※ 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 ().

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TWIN BAR FOR MICRO BORING

TWB (Micro Boring: Horizontal Type) [Corner-R(re) Tolerance: +0/-0.02mm, +0/-0.03mm]

A	GRADES			Part Number	Min. Bore Dia.	Dimensions (mm)			Insert Grade		
						ØA	F	S	re	PVD Coated Carbide	Carbide
B	INSERTS			TWBR	01003-005	1.0	0.85	0.20	+0 -0.02 0.05	PR1025	KW10
					01503-005	1.5	1.30	0.20		○	○
					02003-005	2.0	1.75	0.25		○	○
					02503-005	2.5	2.10	0.30		○	○
C	CBN & PCD			TWBR	03003-005	3.0	2.40	0.40	+0 -0.03 0.10	PR1025	KW10
					01503-010	1.5	1.30	0.20		○	○
					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

STW (Square Shank for Horizontal Type Inserts)

(For left-hand toolholder for grooving, please see [G48](#))

E	TURNING			
F	BORING			

• Right-hand shown

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

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Shape	Spare Parts		Applicable Inserts
		H1=h	B	L1	L2	L3	F1	F2	T		Clamp Screw	Wrench	
STWR 1212F-15	○	12	12	85	-	-	12	-	3	Fig.1	SB-3080TR	LTW-10S	TWBR○○○○○-○○○
1212K-15	○	12	12	125	-	-	12	-	3	Fig.1			
1616K-15	○	16	16	125	-	-	16	-	3	Fig.1			
2020K-15	○	20	20	125	-	25	25	-	3	Fig.2			
2525M-15	○	25	25	150	-	25	32	-	3	Fig.2			

S...-STW (Round Shank for Horizontal Type)

(For left-hand toolholder for grooving, please see [G48](#))

L	SOLID END MILLS			
M	MILLING			

• Right-hand shown

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

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)							Shape	Spare Parts		Applicable Inserts
		ØD1	ØD2	H	L1	L2	L3	T		Clamp Screw	Wrench	
S12F- STWR15	○	12.000	20.0	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWBR○○○○○-○○○
S14H- STWR15	○	14.000	20.0	13	100	18	22	3	Fig.1			
S15F- STWR15	○	15.875	20.0	15	85	18	22	3	Fig.1			
S16F- STWR15	○	16.000	20.0	15	85	18	22	3	Fig.1			
S19G- STWR15	○	19.050	18.5	17	90	18	-	3	Fig.2			
S19K- STWR15	○	19.050	18.5	17	120	18	-	3	Fig.2			
S20G- STWR15	○	20.000	19.5	18	90	18	-	3	Fig.2			
S20K- STWR15	○	20.000	19.5	18	120	18	-	3	Fig.2			
S22K- STWR15	○	22.000	21.5	20	125	22	-	3	Fig.2			
S25.0J- STWR15	○	25.000	24.5	23	110	22	-	3	Fig.2			
S25K- STWR15	○	25.400	25.0	23	120	22	-	3	Fig.2			

Twin Bars are sold in 5 piece boxes.

TWBT (Micro Boring: Vertical Type) [Corner-R(re) Tolerance: +0/-0.02mm, +0/-0.03mm]

	Part Number	Min. Bore Dia.	Dimensions (mm)			Insert Grade	
			ØA	F	S	rε	PVD Coated Carbide
• Right-hand shown	TWBT 01003-005	1.0	0.85	0.20	$+0$ -0.02 0.05	PR1025	KW10
	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		○	○
	TWBT 01503-010	1.5	1.30	0.20	$+0$ -0.03 0.1	PR1025	KW10
	02003-010	2.0	1.75	0.25		○	○
	02503-010	2.5	2.10	0.30		○	○
	03003-010	3.0	2.30	0.40		○	○
						○	○

STWS (Square Shank for Vertical Type: L-shape)

• Right-hand shown	

Toolholder Dimensions

Part Number	Stock	Dimensions (mm)									Shape	Spare Parts		Applicable Inserts Above & G49
		H1=h	B	L1	L2	L3	F1	F2	T	Clamp Screw		Wrench		
STWSR 1010JX-15T	○	10	10	120	16	-	10	9	3	-	SB-3080TR	LTW-10S	TWBTR○○○○○○-○○○ TWFGTR○○○	
1212JX-15T	○	12	12	120	16	-	12	7	3	-				
1616JX-15T	○	16	16	120	20	-	16	3	3	-				
STWSR 1010F-15T	○	10	10	85	16	-	10	9	3	-				
1212F-15T	○	12	12	85	16	-	12	7	3	-				

Recommended Cutting Conditions (VNB-S)

Workpiece Material	Recommended Grade (Vc sfm)	TWBR01003 TWBR01503 TWBR01003 TWBR01503				TWBR02003 TWBR02503 TWBR03003 TWBR02003 TWBR02503 TWBR03003				Remarks
	PVD Coated Carbide	Depth of Cut: D.O.C.(in), Feed: f(ipr)								
	PR1025	D.O.C.		f		D.O.C.		f		
Carbon Steel / Alloy Steel (1045)	★ 100~325	~0.004	~0.0004	~0.008	~0.0012	Wet				
Stainless Steel (304)	★ 100~250	~0.004	~0.0004	~0.008	~0.0008					

★ : 1st Recommendation ☆ : 2nd Recommendation

Twin Bars are sold in 5 piece boxes.

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A/S-SCLC-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D \sim 5.5$)

Shank Dia. ØD	Straight Hole Dia. Ød
Ø8	Ø2.5
Ø10	Ø3.0
Ø12	Ø4.0
Ø16	Ø5.0

• 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 Carbide Shank Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D \sim 7$)

Shank Dia. ØD	Straight Hole Dia. Ød
Ø8	Ø3
Ø10	Ø3
Ø12	Ø4
Ø16	Ø4

• 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							θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L			ØA	ØD	H	L1	L2	L3	L4					F	Clamp Screw	Wrench
																		
Excellent Bar	A06M-SCLC% 2AE	●	●	inch	0.480	0.375	0.336	6	0.787	0.937	0.803	0.236	12°	1/64	Yes	Fig.2	SB-2545TR	FT-8
	A08M-SCLC% 2AE	●	●		0.600	0.500	0.461	6	0.945	1.217	0.969	0.276	10°	1/64	Yes	Fig.2		
	A10R-SCLC% 3AE	●	●		0.770	0.625	0.586	8	1.181	1.339	1.205	0.354	10°	1/64	Yes	Fig.2	SB-4065TR	FT-15
	S10H-SCLC% 03-05AE	○	○		5	10	9.0	100	24	-	11	2.5	6°	0.2	No	Fig.1		
	S10H-SCLC% 03-06AE	○	○		6	10	9.0	100	28	-	13	3.0	15°	0.2	No	Fig.1	FT-6	
	S10H-SCLC% 04-07AE	○	○		7	10	9.0	100	32	-	15	3.5	13°	0.2	No	Fig.1		
	S10H-SCLC% 04-08AE	○	○		8	10	9.0	100	37	-	15	4.0	13°	0.2	No	Fig.1	SB-2035TR	FT-8
	A08X-SCLC% 06-10AE	○	○		10	8	7.0	120	16	20	17	5.0	11°	0.4	Yes	Fig.2		
	A10L-SCLC% 06-12AE	○	○		12	10	9.0	140	20	25	21	6.0	14°	0.4	Yes	Fig.2	SB-2545TR	FT-8
	A12M-SCLC% 06-14AE	○	○		14	12	11.0	150	24	30	25	7.0	12°	0.4	Yes	Fig.2		
A16Q-SCLC% 09-18AE	○	○	18	16	15.0	180	30	34	31	9.0	10°	0.4	Yes	Fig.2	SB-4065TR	FT-15		
Steel	S08X-SCLC% 06-10A	○	○	mm	10	8	7.0	120	16	20	17	5.0	10°	0.4	No	Fig.3	SB-2545TR	FT-8
	S10L-SCLC% 06-12A	○	○		12	10	9.0	140	20	25	21	6.0	14°	0.4	No	Fig.3		
	S12M-SCLC% 06-14A	○	○		14	12	11.0	150	24	30	25	7.0	12°	0.4	No	Fig.3	SB-4065TR	FT-15
	S16Q-SCLC% 09-18A	○	○		18	16	15.0	180	30	34	31	9.0	10°	0.4	No	Fig.3		
Carbide	E06N-SCLC% 2A	●	●	inch	0.480	0.375	0.336	6.3	0.787	0.764	0.764	0.236	12°	1/64	Yes	Fig.6	SB-2545TR	FT-8
	E06N-SCLC% 2A-2/3	●	●		0.480	0.375	0.336	4.2	0.787	0.764	0.764	0.236	12°	1/64	Yes	Fig.6		
	E08Q-SCLC% 2A	●	●		0.600	0.500	0.461	7.1	0.906	0.882	0.882	0.276	10°	1/64	Yes	Fig.6		
	E08Q-SCLC% 2A-2/3	●	●		0.600	0.5	0.461	4.8	0.906	0.882	0.882	0.276	10°	1/64	Yes	Fig.6		
	E10X-SCLC% 3A	●	●		0.770	0.625	0.586	8.7	1.102	1.079	1.079	0.354	10°	1/64	Yes	Fig.6		
	E10X-SCLC% 3A-2/3	●	●		0.770	0.625	0.586	5.8	1.102	1.079	1.079	0.354	10°	1/64	Yes	Fig.6		
	C04G-SCLC% 03-05A	○	○		5	4	3.8	90	9	-	8	2.5	10°	0.2	No	Fig.5	SB-1635TR	FT-6
	C05H-SCLC% 03-06A	●	○		6	5	4.4	100	11	-	11	3.0	15°	0.2	No	Fig.5		
	C06J-SCLC% 04-07A	○	○		7	6	5.4	110	12	-	12	3.5	13°	0.2	No	Fig.5	SB-2035TR	FT-8
	C07K-SCLC% 04-08A	○	○		8	7	6.4	125	13	-	13	4.0	13°	0.2	No	Fig.5		
	E08L-SCLC% 06-10A	○	○		10	8	7.0	140	16	15	15	5.0	11°	0.4	Yes	Fig.6	SB-2545TR	FT-8
	E08L-SCLC% 06-10A-2/3	○	○		10	8	7.0	90	16	15	15	5.0	14°	0.4	Yes	Fig.6		
	E10N-SCLC% 06-12A	○	○		12	10	9.0	160	20	19	19	6.0	14°	0.4	Yes	Fig.6		
	E10N-SCLC% 06-12A-2/3	●	○		12	10	9.0	105	20	19	19	6.0	12°	0.4	Yes	Fig.6		
	E12Q-SCLC% 06-14A	○	○		14	12	11.0	180	23	22	22	7.0	12°	0.4	Yes	Fig.6		
	E12Q-SCLC% 06-14A-2/3	○	○		14	12	11.0	120	23	22	22	7.0	10°	0.4	Yes	Fig.6		
	E16X-SCLC% 09-18A	○	○		18	16	15.0	220	28	27	27	9.0	10°	0.4	Yes	Fig.6	SB-4065TR	FT-15
	E16X-SCLC% 09-18A-2/3	○	○		18	16	15.0	145	28	27	27	9.0	10°	0.4	Yes	Fig.6		

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed	
Ref. Page	● B8	● B8	● B9	● B9	● B9	● B9, ● B10	● B8, ● B9	● B11	● B10	● B11, ● B12	
Toolholder	CF	GF	PP	GK	HQ	Standard	GQ	%-F	%-FSF	(E/F)%-I1	
...SCLC% 03-...	CCGT1109..	-	-	-	-	-	-	CCGT1109..	CCET1109..	-	
...SCLC% 04-...	CCGT1411..	-	-	-	-	-	-	CCGT1411..	CCET1411..	-	
...SCLC% 2... ...SCLC% 06-...	-	CCGT215..	CCMT215..	CCMT215..	CCMT215..	CCGT215..	CCGT215..	-	-	CCGT215..	
...SCLC% 3... ...SCLC% 09-...	-	CCGT325..	CCMT325	CCMT325	CCMT325..	CCGT325.. CCMT325..	CCGT325..	-	-	CCGT325..	
Application	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials				
Ref. Page	● B11	● B10	● B13	● B12	● B13	● C12	● C4				
Toolholder	F%-USF	MQ	Without Chipbreaker	AH	A3	PCD	CBN				
...SCLC% 03-...	-	-	-	-	-	-	CCMW1109..				
...SCLC% 04-...	-	-	-	-	-	CCGW1411..	CCMW1411..				
...SCLC% 2... ...SCLC% 06-...	CCET215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..				
...SCLC% 3... ...SCLC% 09-...	CCET325..	CCMT325..	CCGW325..	CCGT325..	CCGT325..	CCMT325.. CCGW325..	CCMW325..				

Recommended Cutting Conditions ● F71~ ● F72

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

A-SCLP-AE Excellent Bar (Boring / Internal Facing) (Max. Overhang Length $L/D \sim 5.5$)

• Right-hand shown

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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø10	Ø3
Ø12	Ø4
Ø16	Ø5

S-SCLP-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



E-SCLP-A Carbide Shank Bar (Boring / Internal Facing) (Max. Overhang Length $L/D \sim 7$)

• Right-hand shown











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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø10	Ø3
Ø12	Ø4
Ø16	Ø4

● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions							θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L			ØA	ØD	H	L1	L2	L3	L4					F	Clamp Screw	Wrench
																		
Excellent Bar	A05K-SCLP% 2AE	●	●	inch	0.413	0.312	0.273	5	0.630	0.760	0.669	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	0.961	0.791	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	1.201	0.961	0.276	4.0°	1/64	Yes	Fig.1		
	A10R-SCLP% 3AE	●	●		0.700	0.625	0.586	8	1.181	1.461	1.189	0.354	3.5°	1/64	Yes	Fig.1	SB-4065TR	FT-15
	A10L-SCLP% 08-12AE	○	○		12	10	9	140	20	25	20	6	5.0°	0.4	Yes	Fig.1		
	A12M-SCLP% 08-14AE	○	○		14	12	11	150	24	29	24	7	4.0°	0.4	Yes	Fig.1	SB-3060TR	FT-10
Steel	A12M-SCLP% 09-16AE	○	○	mm	16	12	11	150	24	31	24	8	4.0°	0.4	Yes	Fig.1		
	A16Q-SCLP% 09-18AE	○	○		18	16	15	180	30	37	30	9	3.5°	0.4	Yes	Fig.1	SB-4065TR	FT-15
	S10L-SCLP% 08-12A	○	○		12	10	9	140	20	25	20	6	5.0°	0.4	No	Fig.2		
	S12M-SCLP% 08-14A	○	○		14	12	11	150	24	29	24	7	4.0°	0.4	No	Fig.2	SB-3060TR	FT-10
	S12M-SCLP% 09-16A	○	○		16	12	11	150	24	31	24	8	4.0°	0.4	No	Fig.2		
	S16Q-SCLP% 09-18A	○	○		18	16	15	180	30	37	30	9	3.5°	0.4	No	Fig.2	SB-4065TR	FT-15
Carbide	E10N-SCLP% 08-12A	○	○	mm	12	10	9	160	20	19	19	6	5.0°	0.4	Yes	Fig.3		
	E10N-SCLP% 08-12A-2/3	○			12	10	9	105	20	19	19	6	5.0°	0.4	Yes	Fig.3		
	E10N-SCLP% 08-12A-1/2	○			12	10	9	80	20	19	19	6	5.0°	0.4	Yes	Fig.3	SB-3060TR	FT-10
	E12Q-SCLP% 08-14A	○	○		14	12	11	180	23	22	22	7	4.0°	0.4	Yes	Fig.3		
	E12Q-SCLP% 08-14A-2/3	○			14	12	11	120	23	22	22	7	4.0°	0.4	Yes	Fig.3		
	E12Q-SCLP% 08-14A-1/2	○			14	12	11	90	23	22	22	7	4.0°	0.4	Yes	Fig.3		
	E16X-SCLP% 09-18A	○	○		18	16	15	220	28	27	27	9	3.5°	0.4	Yes	Fig.3		
	E16X-SCLP% 09-18A-2/3	○			18	16	15	145	28	27	27	9	3.5°	0.4	Yes	Fig.3	SB-4065TR	FT-15
E16X-SCLP% 09-18A-1/2	○		18	16	15	110	28	27	27	9	3.5°	0.4	Yes	Fig.3				

● Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Medium	Finishing-Medium	Low Carbon Steel/Finishing	Low Carbon Steel/Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	● B13	● B13	● B13	● B13	● B14	● B14	● B14	● B14	● C13	● C4
Toolholder	PP 	GP 	HQ 	Standard 	%-Y 	XP 	XQ 	Without Chipbreaker 	PCD 	CBN 
...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 ● F71~ ● F72

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

S-SCLP(C) Steel Bar (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

Fig.1

A-SCLC Steel Bar (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

Fig.2

C-SCLP(C) Carbide Shank Bar (Boring / Internal Facing) (Max. Overhang Length $L/D \sim 7$)

*2° for C04G-SCLC% 03-05 (C025X-SCLC% 1.1)



*3° for C08L-SCLC% 06-10

• Right-hand shown

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








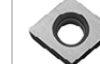


Fig.3

● Toolholder Dimensions


















Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts				
	R	L			ØA	ØD	H	L1	L2					F	Clamp Screw	Wrench		
																		
Steel	S05K-SCLC% 2	●	●	inch	0.394	0.312	-	5.00	0.625	0.197	12°	0.004	No	Fig.1	SB-2545TR	T-8		
	S06M-SCLP% 2.5	●	●		0.472	0.375	-	6.00	1.000	0.236	5°	1/64	No	Fig.1	SB-3TR	T-10		
	S08M-SCLP% 3	●	●		0.630	0.500	-	6.00	1.180	0.315	4°	1/64	No	Fig.1	SB-4TR	T-15		
	S10X-SCLP% 3	●	●		0.788	0.625	-	7.00	1.380	0.394	3°	1/64	No	Fig.1				
	S12R-SCLP% 3	●	●		0.984	0.750	-	8.00	1.560	0.492	0°	1/64	No	Fig.1				
	S16T-SCLP% 3	●	●		1.338	1.000	-	12.00	1.750	0.669	0°	1/64	No	Fig.1				
	Carbide	A05K-SCLC% -2	●			inch	0.415	0.313	-	5.0	0.870	0.218	11°	1/64	Yes	Fig.2	SB-2545TR	T-8
		A06M-SCLC% -2	●				0.480	0.375	-	6.0	0.870	0.250	8°	1/64	Yes	Fig.2		
		A08R-SCLC% -2	●				0.600	0.500	-	8.0	0.870	0.312	6°	1/64	Yes	Fig.2		
		A10S-SCLC% -2	●				0.770	0.625	-	10.0	0.870	0.406	4°	1/64	Yes	Fig.2		
C025X-SCLC% 1.1 **		●		0.197	0.156		0.148	3.543	0.315	0.098	15°	0.008	No	Fig.3	SB-1635TR	FT-6		
C05K-SCLC% 2		●		0.394	0.312		0.282	5.00	0.625	0.197	12°	0.004	No	Fig.3	SB-2545TR	FT-8		
C06M-SCLP% 2.5		●		0.472	0.375		0.334	6.00	1.000	0.236	5°	1/64	No	Fig.3	SB-3TR	FT-10		
C08R-SCLP% 3		●		0.630	0.500		0.480	8.00	1.180	0.315	4°	1/64	No	Fig.3	SB-4TR	FT-15		
C10S-SCLP% 3		●		0.788	0.625		0.584	10.00	1.380	0.394	3°	1/64	No	Fig.3				
C12S-SCLP% 3		●		0.984	0.750		0.710	10.00	1.560	0.492	0°	1/64	No	Fig.3				

** Optional sleeve SL2.5-10 (0.625" dia.) is available. (Sleeve screw: SLS-2, sleeve wrench: LW-2)

● Applicable Inserts [CP]

Application	Finishing	Finishing	Finishing-Medium	Medium	Finishing-Medium	Low Carbon Steel/Finishing	Low Carbon Steel/Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	● B13	● B13	● B13	● B13	● B14	● B14	● B14	● B14	● C13	● C4
Toolholder	PP 	GP 	HQ 	Standard 	%-Y 	XP 	XQ 	Without Chipbreaker 	PCD 	CBN 
...SCLP% 2	-	-	-	CPGT215..	-	-	-	-	-	-
...SCLP% 2.5	CPMT2515..	CPMT2515..	CPMH2515..	CPMH2515..	CPMH2515..	CPMT2515..	-	CPMB2515..	CPMH2515..	CPGB2515..
...SCLP% 3	CPMT32..	CPMT32..	CPMH32..	CPMH32..	CPMH32..	CPMT32..	CPMT32..	CPMB32..	CPMH32..	CPGB32..

● Applicable Inserts [CC]

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Medium	Finishing-Medium	Finishing	Finishing / Precision	Low Feed
Ref. Page	● B8	● B8	● B9	● B9	● B9	● B9, ● B10	● B8, ● B9	● B11	● B10	● B11, ● B12
Toolholder	CF 	GF 	PP 	GK 	HO 	Standard 	GQ 	%-F 	%-FSF 	(E/F)% -II 
...SCLC% 1.1	CCGT1109..	-	-	-	-	-	-	CCGT1109..	CCET1109..	-
...SCLC% 2 ...SCLC% -2	-	CCGT215..	CCMT215..	CCMT215..	CCMT215..	CCGT215..	CCGT215..	-	-	CCGT215..
Application	Low Feed / Precision	Stainless Steel	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials			
Ref. Page	● B11	● B10	● B13	● B12	● B13	● C12	● C4			
Toolholder	F% -USF 	MO 	Without Chipbreaker 	AH 	A3 	PCD 	CBN 			
...SCLC% 1.1	-	-	-	-	-	-	CCMW1109..			
...SCLC% 2 ...SCLC% -2	CCET215..	-	CCGW215..	-	-	CCMT215.. CCGW215..	CCMW215..			

Recommended Cutting Conditions ● F71~ ● F72

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

- A GRADES
- B INSERTS
- C BN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

A-SDUC-AE Excellent Bar (Copying)

(Max. Overhang Length $L/D \sim 5.5$)

A16Q-SDUC-07-14AE inner hole dia. of (Ø2.5mm)
A20R-SDUC-11-20AE inner hole dia. of (Ø3.0mm)

Outer Hole Dia. (Ø5mm)

Shank Dia. ØD Straight Hole Dia. Ød

Ø10	Ø3
Ø12	Ø4
Ø16	Ø5

• 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 $L/D \sim 4$)

• 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 $L/D \sim 7$)

Shank Dia. ØD Straight Hole Dia. Ød





















Ø10	Ø3
Ø12	Ø4
Ø16	Ø4

• 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							θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L			ØA	ØD	H	L1	L2	L4	F					S	Clamp Screw	Wrench
																		
Excellent Bar	A06M-SDUC% 2AE	●	●	inch	0.551	0.375	0.336	6	0.748	0.756	0.341	0.130	5°	1/64	Yes	Fig.1	SB-2560TR	FT-8
	A08M-SDUC% 2AE	●	●		0.630	0.500	0.461	6	0.827	0.988	0.360	0.130	5°	1/64	Yes	Fig.1		
	A10R-SDUC% 2AE	●	●		0.787	0.625	0.586	8	0.827	1.031	0.459	0.130	5°	1/64	Yes	Fig.1		
	A16Q-SDUC% 07-14AE	○	○		14	16	15	180	28	23	10.8	4.4	5°	0.4	Yes	Fig.1		
	A10L-SDUC% 07-14AE	○	○		14	10	9	140	19	20	8.7	3.3	5°	0.4	Yes	Fig.2		
	A12M-SDUC% 07-16AE	○	○		16	12	11	150	21	24	9.7	3.3	5°	0.4	Yes	Fig.2		
	A16Q-SDUC% 07-20AE	○	○		20	16	15	180	21	26	11.7	3.3	5°	0.4	Yes	Fig.2		
A16Q-SDUC% 11-23AE	○	○	23	16	15	180	21	31	14.5	6.1	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15		
Steel	S16Q-SDUC% 07-14A	○	○	mm	14	16	15	180	28	23	10.8	4.4	5°	0.4	No	Fig.3	SB-2560TR	FT-8
	S20R-SDUC% 11-20A	○	○		20	20	19	200	48	30	15.6	6.1	5°	0.4	No	Fig.3	SB-4065TR	FT-15
	S10L-SDUC% 07-14A	○	○		14	10	9	140	19	20	8.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8
	S12M-SDUC% 07-16A	○	○		16	12	11	150	21	24	9.7	3.3	5°	0.4	No	Fig.4		
	S16Q-SDUC% 07-20A	○	○		20	16	15	180	21	26	11.7	3.3	5°	0.4	No	Fig.4		
	S16Q-SDUC% 11-23A	○	○		23	16	15	180	21	31	14.5	6.1	5°	0.4	No	Fig.4		
Carbide	E06N-SDUC% 2A	●	○	mm	0.551	0.375	0.336	6.3	0.776	0.697	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	4.2	0.776	0.697	0.341	0.130	5°	1/64	Yes	Fig.5		
	E08Q-SDUC% 2A	●	○		0.630	0.500	0.461	7.1	0.894	0.772	0.360	0.098	5°	1/64	Yes	Fig.5		
	E08Q-SDUC% 2A-2/3	●	○		0.630	0.500	0.461	4.8	0.894	0.772	0.360	0.098	5°	1/64	Yes	Fig.5		
	E10X-SDUC% 2A	●	○		0.787	0.625	0.586	8.7	1.091	0.976	0.459	0.130	5°	1/64	Yes	Fig.5		
	E10X-SDUC% 2A-2/3	●	○		0.787	0.625	0.586	5.8	1.091	0.976	0.459	0.130	5°	1/64	Yes	Fig.5		
	E10N-SDUC% 07-14A	○	○		14	10	9	160	20	19	8.7	3.3	5°	0.4	Yes	Fig.5		
	E10N-SDUC% 07-14A-2/3	○	○		14	10	9	105	20	19	8.7	3.3	5°	0.4	Yes	Fig.5		
	E12Q-SDUC% 07-16A	○	○		16	12	11	180	23	22	9.7	3.3	5°	0.4	Yes	Fig.5		
	E12Q-SDUC% 07-16A-2/3	○	○		16	12	11	120	23	22	9.7	3.3	5°	0.4	Yes	Fig.5		
	E16X-SDUC% 07-20A	○	○		20	16	15	220	28	26	11.7	3.3	5°	0.4	Yes	Fig.5		
	E16X-SDUC% 07-20A-2/3	●	○		20	16	15	145	28	26	11.7	3.3	5°	0.4	Yes	Fig.5		
	E16X-SDUC% 11-23A	○	○		23	16	15	220	28	27	14.5	6.1	5°	0.4	Yes	Fig.5		
E16X-SDUC% 11-23A-2/3	○	○	23	16	15	145	28	27	14.5	6.1	5°	0.4	Yes	Fig.5	SB-4065TR	FT-15		

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision	Low Feed
Ref. Page	● B15	● B15, ● B16	● B16	● B16	● B16	● B17	● B18	● B18	● B19, ● B20	● B19	● B20
Shape	CF	CK	PP	GK	HQ	Standard	%-F	%-FSF	(E/F)%-U	F%-USF	(E/F)%-J
Toolholder											
...
...
...
...
...
Application	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	Hard Materials		
Ref. Page	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5		
Shape	F%-JSF	XP	XQ	MQ	Without Chipbreaker	AH	%-A3	PCD	CBN		
Toolholder											
...		
...	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..		
...	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..		

Recommended Cutting Conditions ● F71 ~ ● F72

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

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CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

A-SDQC-AE Excellent Bar (Copying) (Max. Overhang Length $L/D \sim 5.5$)

• Right-hand shown

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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø10	Ø3
Ø12	Ø4
Ø16	Ø5

S-SDQC-A Steel Bar (Copying) (Max. Overhang Length $L/D \sim 4$)

• 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 $L/D \sim 7$)

• Right-hand shown

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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø10	Ø3
Ø12	Ø4
Ø16	Ø4

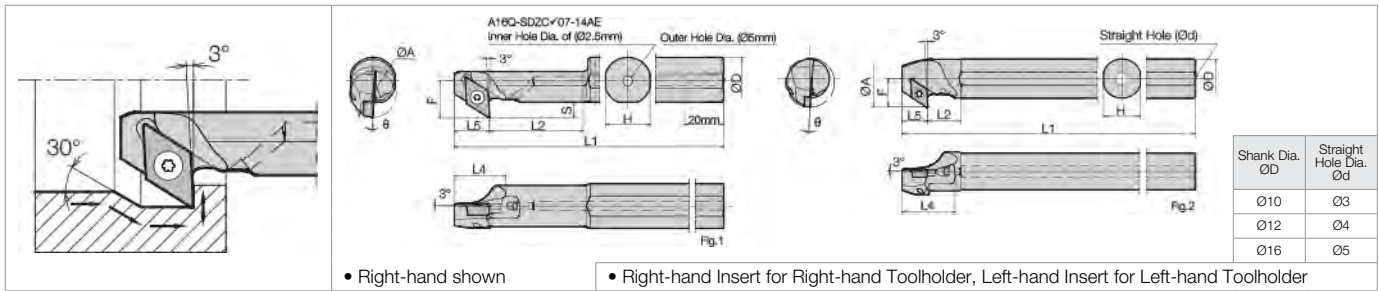
Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions							θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L			ØA	ØD	H	L1	L2	L4	F					S	Clamp Screw	Wrench
Excellent Bar	A06M-SDQC%2AE	●	●	inch	0.512	0.375	0.336	6	0.736	0.783	0.295	0.083	10°	1/64	Yes	Fig.1	SB-2560TR	FT-8
	A08M-SDQC%2AE	●	●		0.630	0.500	0.461	6	0.866	1.051	0.364	0.102	8°	1/64	Yes	Fig.1		
	A10R-SDQC%2AE	●	●		0.787	0.625	0.586	8	0.984	1.256	0.443	0.102	6°	1/64	Yes	Fig.1		
	A10L-SDQC%07-13AE	○	○		13	10	9	140	19	21	7.50	2.1	10°	0.4	Yes	Fig.1		
	A12M-SDQC%07-16AE	○	○		16	12	11	150	22	25	9.25	2.6	8°	0.4	Yes	Fig.1		
Steel	A16Q-SDQC%07-20AE	○	○	mm	20	16	15	180	25	32	11.30	2.6	6°	0.4	Yes	Fig.1	SB-2560TR	FT-8
	S10L-SDQC%07-13A	○	○		13	10	9	140	19	21	7.50	2.1	10°	0.4	No	Fig.2		
	S12M-SDQC%07-16A	○	○		16	12	11	150	22	25	9.25	2.6	8°	0.4	No	Fig.2		
	S16Q-SDQC%07-20A	○	○		20	16	15	180	25	32	11.30	2.6	6°	0.4	No	Fig.2		
	Carbide	E10N-SDQC%07-13A	○		○	mm	13	10	9	160	20	19	7.50	2.1	10°	0.4		
E10N-SDQC%07-13A-2/3		○	○	13	10		9	105	20	19	7.50	2.1	10°	0.4	Yes	Fig.3		
E12Q-SDQC%07-16A		○	○	16	12		11	180	23	22	9.25	2.6	8°	0.4	Yes	Fig.3		
E12Q-SDQC%07-16A-2/3		○	○	16	12		11	120	23	22	9.25	2.6	8°	0.4	Yes	Fig.3		
E16X-SDQC%07-20A		○	○	20	16		15	220	28	27	11.30	2.6	6°	0.4	Yes	Fig.3		
E16X-SDQC%07-20A-2/3		○	○	20	16		15	145	28	27	11.30	2.6	6°	0.4	Yes	Fig.3		

Recommended Cutting Conditions **F71~ F72**
 Applicable Inserts **F45**

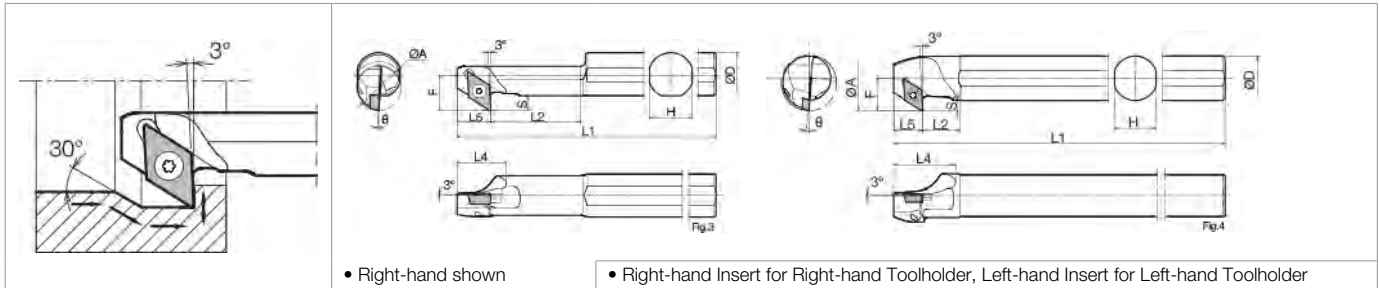
A-SDZC-AE Excellent Bar (Back Boring)

(Max. Overhang Length L/D≈-5.5)



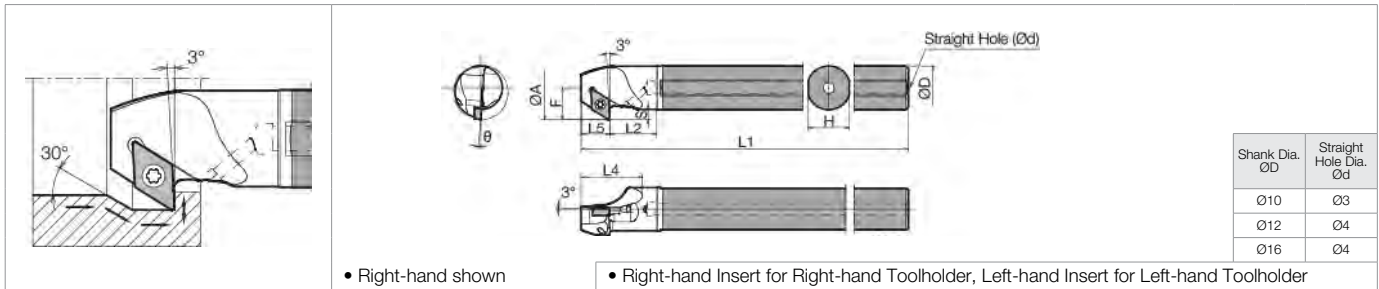
S-SDZC-A Steel Bar (Back Boring)

(Max. Overhang Length L/D≈-4)



E-SDZC-A Carbide Shank Bar (Back Boring)

(Max. Overhang Length L/D≈-7)



Toolholder Dimensions

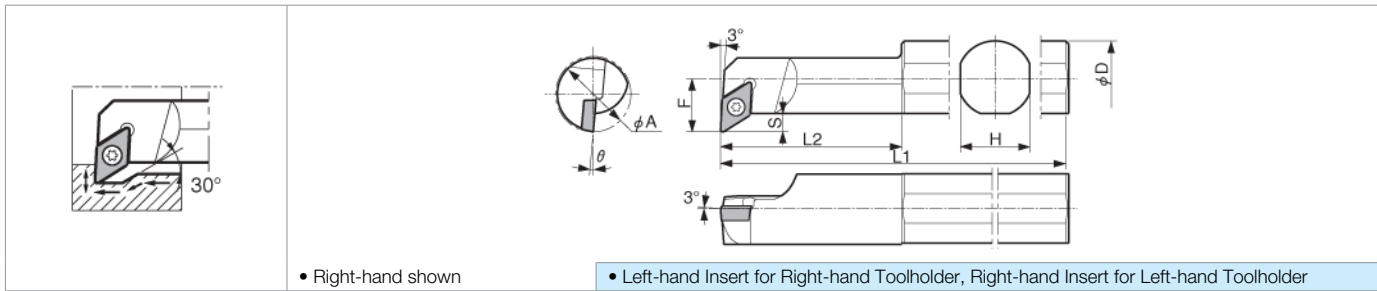
Part Number	Stock		Min. Bore Dia.	Dimensions (mm)										θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts	
	R	L		ØA	ØD	H	L1	L2	L4	L5	F	S	Clamp Screw					Wrench	
	○	○		○	○	○	○	○	○	○	○	○	○					○	
Excellent Bar	A16Q-SDZC%07-14AE	○	○	14	16	15	180	30.0	17	10.0	10.8	4.4	5°	0.4	Yes	Fig.1	SB-2545TR	FT-8	
	A10L-SDZC%07-14AE	○	○	14	10	9	140	14.0	16	9.5	8.7	3.3	5°	0.4	Yes	Fig.2	SB-2545TR	FT-8	
	A12M-SDZC%07-16AE	○	○	16	12	11	150	14.0	20	10.5	9.7	3.3	5°	0.4	Yes	Fig.2	SB-2560TR	FT-8	
	A16Q-SDZC%07-20AE	○	○	20	16	15	180	14.0	22	10.5	11.7	3.3	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15	
	A16Q-SDZC%11-23AE	○	○	23	16	15	180	15.0	22	15.0	14.5	6.1	5°	0.4	Yes	Fig.2	SB-4065TR	FT-15	
Steel	S16Q-SDZC%07-14A	○	○	14	16	15	180	30.0	17	10.0	10.8	4.4	5°	0.4	No	Fig.3	SB-2545TR	FT-8	
	S10L-SDZC%07-14A	○	○	14	10	9	140	14.0	16	9.5	8.7	3.3	5°	0.4	No	Fig.4	SB-2545TR	FT-8	
	S12M-SDZC%07-16A	○	○	16	12	11	150	14.0	20	10.5	9.7	3.3	5°	0.4	No	Fig.4	SB-2560TR	FT-8	
	S16Q-SDZC%07-20A	○	○	20	16	15	180	14.0	22	10.5	11.7	3.3	5°	0.4	No	Fig.4	SB-4065TR	FT-15	
	S16Q-SDZC%11-23A	○	○	23	16	15	180	15.0	22	15.0	14.5	6.1	5°	0.4	No	Fig.4	SB-4065TR	FT-15	
Carbide	E10N-SDZC%07-14A	○	○	14	10	9	160	10.5	16	9.5	8.7	3.3	5°	0.4	Yes	Fig.5	SB-2545TR	FT-8	
	E12Q-SDZC%07-16A	●	○	16	12	11	180	12.5	20	10.5	9.7	3.3	5°	0.4	Yes	Fig.5	SB-2560TR	FT-8	
	E16X-SDZC%07-20A	○	○	20	16	15	220	17.5	22	10.5	11.7	3.3	5°	0.4	Yes	Fig.5	SB-4065TR	FT-15	
	E16X-SDZC%11-23A	○	○	23	16	15	220	17.0	22	15.0	14.5	6.1	5°	0.4	Yes	Fig.5	SB-4065TR	FT-15	

Recommended Cutting Conditions → F71~ → F72

Applicable Inserts → F45

S-SDUC Steel Bar (Copying)

(Max. Overhang Length $L/D \approx 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						θ	Std. Corner-R	Coolant Hole	Spare Parts	
	R	L			ϕA	ϕD	H	L1	L2	F				S	Clamp Screw
Steel			inch										No		
S08M-SDUC%2	●	●		0.564	0.500	0.480	6.00	1.125	0.346	0.145	5°	1/64		SB-2560TR	FT-8
S10X-SDUC%2	●	●		0.564	0.625	0.584	7.00	1.125	0.346	0.145	5°	1/32		SB-4085TR	FT-15
S12R-SDUC%3	●	●		0.750	0.750	0.710	8.00	1.500	0.476	0.224	5°				
S16X-SDUC%3	●	●		0.980	1.000	0.970	9.00	2.360	0.693	0.240	5°				

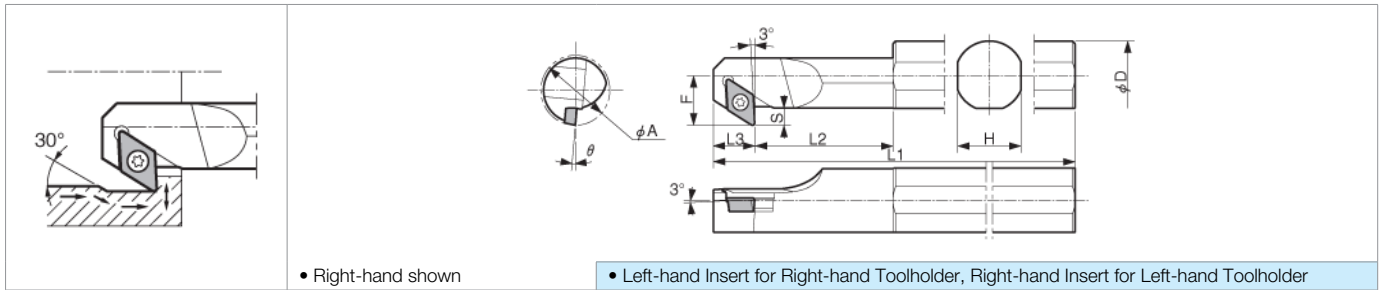
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision	Low Feed
Ref. Page	● B15	● B15, ● B16	● B16	● B16	● B16	● B17	● B18	● B18	● B19, ● B20	● B19	● B20
Shape	CF	CK	PP	GK	HQ	Standard	%-F	%-FSF	(E/F)%-U	F%-USF	(E/F)%-J
Toolholder											
...	DCGT215..	DCGT215..	DCMT215..	DCMT215..	DCMT215..	DCGT215..	DCGT215..	DCET215..	DCGT215..	DCET215..	DCET215..
...	DCGT325..	DCGT325..	DCMT325..	DCMT325..	DCMT325..	DCMT325..	DCGT325..	DCET325..	DCGT325..	DCET325..	DCET325.. DCGT325..
Application	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	Hard Materials		
Ref. Page	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5		
Shape	F%-JSF	XP	XO	MQ	Without Chipbreaker AH	%-A3	PCD	CBN			
Toolholder											
...	-	DCMT215..	-	DCMT215..	DCGW215..	-	-	DCMT215..	DCMW215..		
...	DCET325..	DCMT325..	DCMT325..	DCMT325..	DCGW325..	DCGT325..	DCGT325..	DCMT325..	DCMW325..		

Recommended Cutting Conditions ● F71~ ● F72

S-SDZC Steel Bar (Back Boring)

(Max. Overhang Length $L/D \approx 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions							θ	Std. Corner-R	Coolant Hole	Spare Parts		
	R	L			ØA	ØD	H	L1	L2	F	S				Clamp Screw	Wrench	
Steel	S10Q-SDZC$\frac{R}{L}$2	●	●	inch	0.550	0.625	0.596	7.00	1.18	0.491	0.410	0.173	5°	1/64	No	SB-2560TR	FT-8
	S10X-SDZC$\frac{R}{L}$2	●	●		0.630	0.625	0.596	7.00	1.52	0.491	0.449	0.173	5°	1/64			
	S12R-SDZC$\frac{R}{L}$3	●	●		0.787	0.750	0.710	8.00	1.60	0.590	0.595	0.240	5°	1/32		SB-4085TR	FT-15
	S16X-SDZC$\frac{R}{L}$3	●	●		0.984	1.000	0.960	9.00	2.09	0.590	0.693	0.240	5°	1/32			

Applicable Inserts

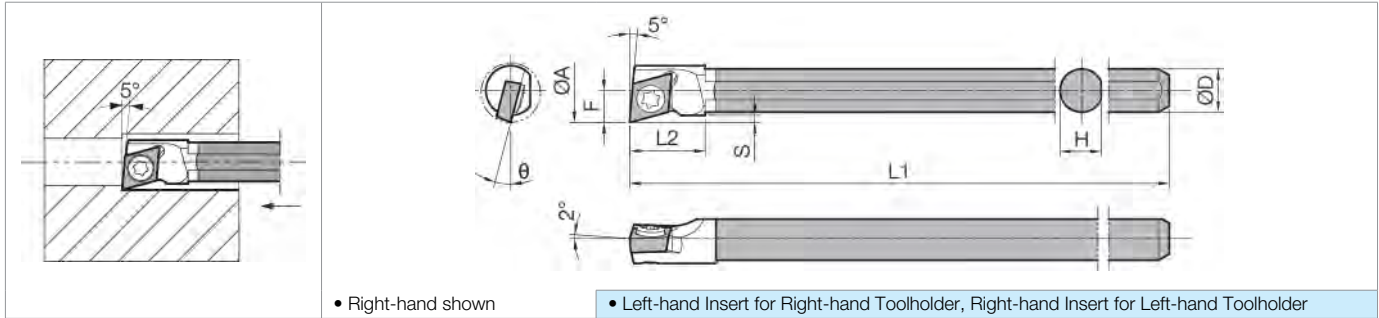
Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Roughing	Finishing	Finishing / Precision	Low Feed	Low Feed / Precision	Low Feed
Ref. Page	● B15	● B15, ● B16	● B16	● B16	● B16	● B17	● B18	● B18	● B19, ● B20	● B19	● B20
Shape	CF	CK	PP	GK	HQ	Standard	$\frac{R}{L}$ -F	$\frac{R}{L}$ -FSF	(E/F) $\frac{R}{L}$ -U	F $\frac{R}{L}$ -USF	(E/F) $\frac{R}{L}$ -J
Toolholder											
...
Application	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	Hard Materials		
Ref. Page	● B20	● B17	● B17	● B17	● B21	● B21	● B21	● C13	● C5		
Shape	F $\frac{R}{L}$ -JSF	XP	XO	MQ	Without Chipbreaker	AH	$\frac{R}{L}$ -A3	PCD	CBN		
Toolholder											
...		
...		

Recommended Cutting Conditions ● F71~ ● F72

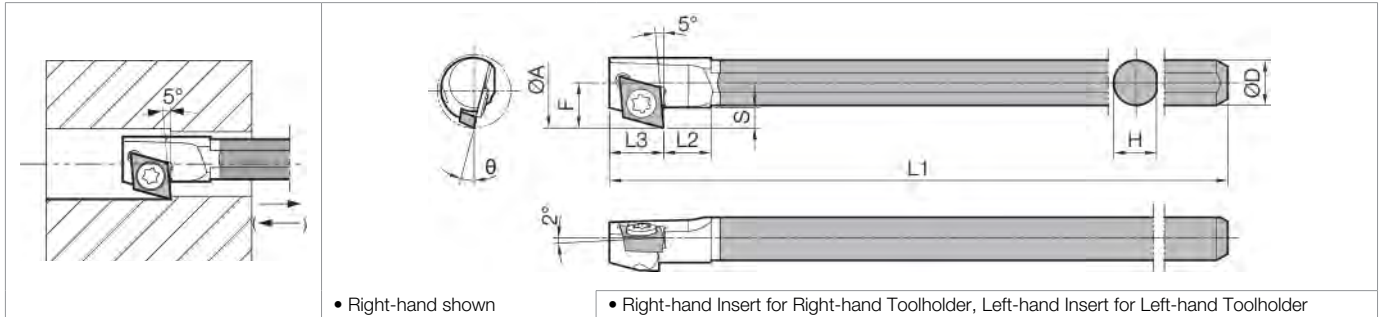
GRADES A
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C-SJLC Carbide Shank Bar (Boring / Internal Facing) (Max. Overhang Length L/D≈7)



C-SJZC 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)							θ	Std. Corner-R	Spare Parts		
	R	L		ØA	ØD	H	L1	L2	L3	F			S	Clamp Screw	Wrench
	C04X-SJLC% 03-055	○		○	5.5	4	3.8	91	7	-			2.95	0.65	15°
C04X-SJZC% 03-065	○	○	6.5	4	3.8	93	4	4.8	4.00	1.80	15°	0.03			

Applicable Inserts

Application	Finishing	Finishing / Precision
Ref. Page	• B22	• B22
Shape	¾-F	¾-FSF
Toolholder		
...-SJLC% 03-...	JCGT1109..	JCET1109..
...-SJZC% 03-...	JCGT1109..	JCET1109..

Recommended Cutting Conditions • F71 ~ • F72

Features of C-SJLC

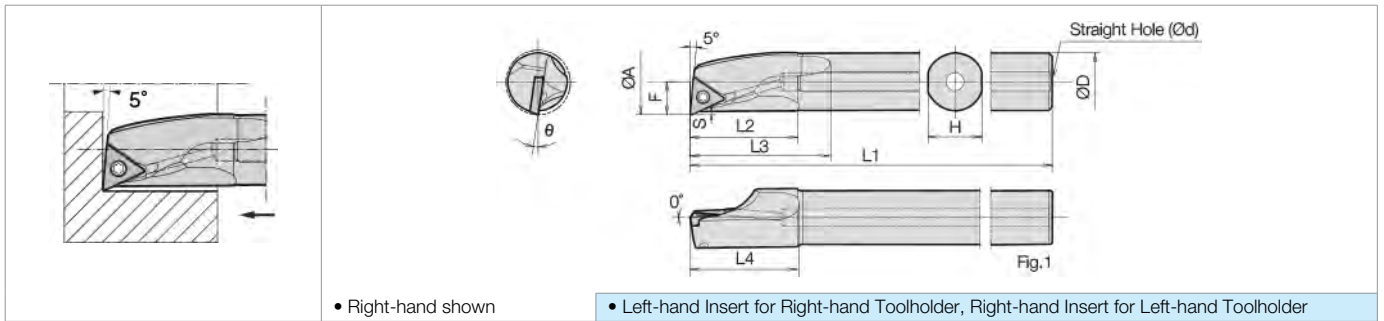
1. Well balanced design minimizing bore diameter yet maintaining a smaller insert radius.
2. High flexibility of tool pass during pecking.
3. Good surface finish at internal facing.

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).

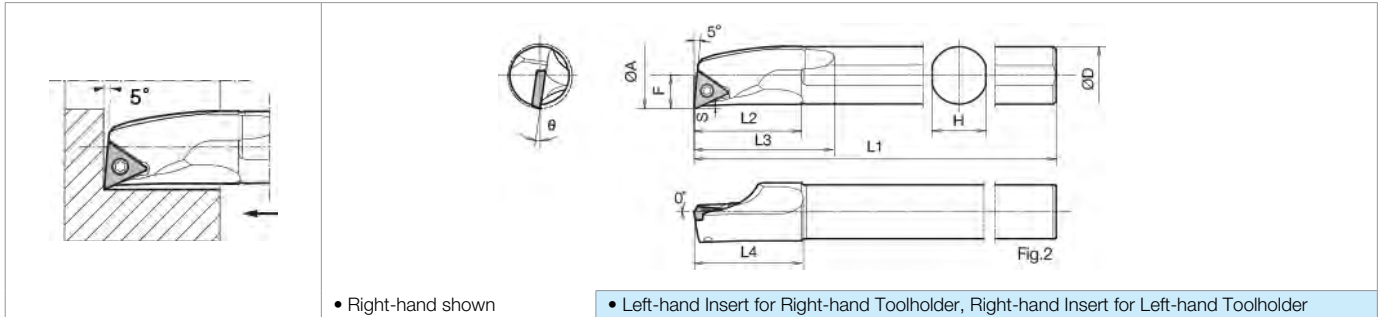
A-STLC-AE Excellent Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D \approx 5.5$)



S-STLC-A Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D \approx 4$)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)										θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts	
	R	L		ØA	ØD	H	L1	L2	L3	L4	F	S	Clamp Screw					Wrench	
Excellent Bar	○	○	10	8	7	120	16	22	16	5.0	0.5	14°	0.4	Yes	Fig.1	SB-2250TR	FT-7		
	A08X-STLC%09-10AE																		
	○	○	12	10	9	140	20	26	20	6.2	0.9	12°	0.4	Yes	Fig.1				
	A10L-STLC%09-12AE																		
	○	○	12	10	9	140	20	26	20	6.2	0.9	12°	0.4	Yes	Fig.1				
A10L-STLC%11-12AE																			
○	○	14	12	11	150	24	30	25	7.2	0.7	10°	0.4	Yes	Fig.1	SB-2560TR	FT-8			
A12M-STLC%11-14AE																			
○	○	18	16	15	180	30	39	31	9.2	0.7	8°	0.4	Yes	Fig.1					
A16Q-STLC%11-18AE																			
Steel	○	○	10	8	7	120	16	22	16	5.0	0.5	14°	0.4	No	Fig.2	SB-2250TR	FT-7		
	S08X-STLC%09-10A																		
	○	○	12	10	9	140	20	26	20	6.2	0.9	12°	0.4	No	Fig.2				
	S10L-STLC%09-12A																		
	○	○	12	10	9	140	20	26	20	6.2	0.9	12°	0.4	No	Fig.2				
S10L-STLC%11-12A																			
○	○	14	12	11	150	24	30	25	7.2	0.7	10°	0.4	No	Fig.2	SB-2560TR	FT-8			
S12M-STLC%11-14A																			
○	○	18	16	15	180	30	39	31	9.2	0.7	8°	0.4	No	Fig.2					
S16Q-STLC%11-18A																			

Applicable Insert

Application	Finishing-Medium
Ref. Page	➔ B23
Shape	HC
Toolholder	
...-STLC%09-...	TCMT1815..
...-STLC%11-...	TCMT215..

Recommended Cutting Conditions ➔ F71~ ➔ F72

GRADES **A**
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A/S-STLB(P)-AE Excellent Bar (Boring / Internal Facing) (Max. Overhang Length $L/D \sim 5.5$)

Shank Dia. $\varnothing D$	Straight Hole Dia. $\varnothing d$
$\varnothing 8$	$\varnothing 2.5$
$\varnothing 10$	$\varnothing 3.0$
$\varnothing 12$	$\varnothing 4.0$
$\varnothing 16$	$\varnothing 5.0$

• 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 $L/D \sim 4$)

Shank Dia. $\varnothing D$	Straight Hole Dia. $\varnothing d$
$\varnothing 8$	$\varnothing 3$
$\varnothing 10$	$\varnothing 3$
$\varnothing 12$	$\varnothing 4$
$\varnothing 16$	$\varnothing 4$

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

E(C)-STLB(P)-A Carbide Shank Bar (Boring / Internal Facing) (Max. Overhang Length $L/D \sim 7$)

Shank Dia. $\varnothing D$	Straight Hole Dia. $\varnothing d$
$\varnothing 8$	$\varnothing 3$
$\varnothing 10$	$\varnothing 3$
$\varnothing 12$	$\varnothing 4$
$\varnothing 16$	$\varnothing 4$

• 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								θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts			
	R	L			ØA	ØD	H	L1	L2	L3	L4	F					S	Clamp Screw	Wrench	
Excellent Bar	●	●	inch	0.312	0.250	0.211	4	0.472	-	0.469	0.150	0.025	12.0°	0.008	No	Fig.1	SB-2035TR	FT-6		
	●	●		0.392	0.312	0.273	5	0.630	0.839	0.650	0.201	0.031	12.0°	0.008	Yes	Fig.2	-	-		
	●	●		0.392	0.312	0.273	5	0.630	0.850	0.646	0.197	0.022	10.0°	1/64	Yes	Fig.2	SB-2545TR	FT-8		
	●	●		0.480	0.375	0.336	6	0.787	0.949	0.807	0.244	0.036	8.0°	1/64	Yes	Fig.2	-	-		
	●	●		0.480	0.375	0.336	6	0.787	0.961	0.807	0.236	0.030	10.0°	1/64	Yes	Fig.2	-	-		
	●	●		0.580	0.500	0.461	6	0.945	1.228	0.953	0.283	0.032	7.0°	1/64	Yes	Fig.2	SB-3060TR	FT-10		
	●	●		0.700	0.625	0.586	8	1.181	1.402	1.193	0.362	0.036	3.5°	1/64	Yes	Fig.2	-	-		
	○	○		mm	8	6	5.0	100	12	-	12	3.8	0.5	12.0°	0.2	No	Fig.1	SB-2035TR	FT-6	
	○	○			10	8	7.0	120	16	22	16	5.0	0.5	10.0°	0.4	Yes	Fig.2	SB-1TR	FT-6	
	○	○			10	8	7.0	120	16	22	16	5.0	0.5	10.0°	0.4	Yes	Fig.2	-	-	
○	○	12	10		9.0	140	20	25	20	6.2	0.9	8.0°	0.4	Yes	Fig.2	SB-2545TR	FT-8			
○	○	12	10		9.0	140	20	26	20	6.0	0.7	10.0°	0.4	Yes	Fig.2	SB-3060TR	FT-10			
○	○	14	12		11.0	150	24	30	24	7.2	0.8	7.0°	0.4	Yes	Fig.2	-	-			
Steel	○	○	mm	8	6	5.0	100	12	-	12	3.8	0.5	12.0°	0.2	No	Fig.3	SB-2035TR	FT-6		
	○	○		10	8	7.0	120	16	22	16	5.0	0.5	10.0°	0.4	No	Fig.4	SB-1TR	FT-6		
	○	○		10	8	7.0	120	16	22	16	5.0	0.5	10.0°	0.4	No	Fig.4	-	-		
	○	○		12	10	9.0	140	20	25	20	6.2	0.9	8.0°	0.4	No	Fig.4	SB-2545TR	FT-8		
	○	○		12	10	9.0	140	20	26	20	6.0	0.7	10.0°	0.4	No	Fig.4	SB-3060TR	FT-10		
	○	○		14	12	11.0	150	24	30	24	7.2	0.8	7.0°	0.4	No	Fig.4	-	-		
	○	○		16	12	11.0	150	24	30	24	8.0	0.6	5.0°	0.4	No	Fig.4	SB-2545TR	FT-8		
	○	○		18	16	15.0	180	30	36	30	9.2	0.7	3.5°	0.4	No	Fig.4	SB-3060TR	FT-10		
	Carbide	○		○	mm	8	6	5.4	110	12	-	12	3.8	0.5	12.0°	0.2	No	Fig.5	SB-2035TR	FT-6
		○		○		10	8	7.0	140	16	15	15	5.0	0.5	10.0°	0.4	Yes	Fig.6	SB-1TR	FT-6
○		○	10	8		7.0	140	16	15	15	5.0	0.5	10.0°	0.4	Yes	Fig.6	-	-		
○		○	12	10		9.0	160	20	19	19	6.2	0.9	8.0°	0.4	Yes	Fig.6	SB-2545TR	FT-8		
○		○	12	10		9.0	105	20	19	19	6.2	0.9	8.0°	0.4	Yes	Fig.6	-	-		
○		○	12	10		9.0	80	20	19	19	6.2	0.9	8.0°	0.4	Yes	Fig.6	-	-		
○		○	12	10		9.0	160	20	19	19	6.0	0.7	10.0°	0.4	Yes	Fig.6	-	-		
○		○	12	10		9.0	105	20	19	19	6.0	0.7	10.0°	0.4	Yes	Fig.6	SB-3060TR	FT-10		
○		○	12	10		9.0	80	20	19	19	6.0	0.7	10.0°	0.4	Yes	Fig.6	-	-		
○		○	14	12		11.0	180	23	22	22	7.2	0.8	7.0°	0.4	Yes	Fig.6	-	-		
NEW	○	○	mm	14	12	11.0	120	23	22	22	7.2	0.8	7.0°	0.4	Yes	Fig.6	-	-		
	○	○		14	12	11.0	90	23	22	22	7.2	0.8	7.0°	0.4	Yes	Fig.6	-	-		
	○	○		14	12	11.0	90	23	22	22	7.2	0.8	7.0°	0.4	Yes	Fig.6	-	-		
	○	○		14	12	11.0	90	23	22	22	7.2	0.8	7.0°	0.4	Yes	Fig.6	-	-		
	○	○		16	12	11.0	180	23	22	22	8.0	0.6	5.0°	0.4	Yes	Fig.6	SB-2545TR	FT-8		
	○	○		18	16	15.0	220	28	27	27	9.2	0.7	3.5°	0.4	Yes	Fig.6	-	-		
	○	○		18	16	15.0	145	28	27	27	9.2	0.7	3.5°	0.4	Yes	Fig.6	SB-3060TR	FT-10		
	○	○		18	16	15.0	110	28	27	27	9.2	0.7	3.5°	0.4	Yes	Fig.6	-	-		

Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Low Carbon Steel/ Finishing
Ref. Page	● B23, ● B25	● B25	● B25	● B23	● B25	● B23, ● B26, ● B27	● B27	● B27	● B27	● B25
Shape										
Toolholder	TBGT121..	-	-	TBMT121..	-	TBGT121..	-	-	-	-
...
...	TPGT1515..	-	-	-	-	TPGH1515..	TPET1515..	-	TPET1515..	-
...	TPGT1815..	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	-	-	-	TPMT1815..
...	-	TPMT22..	TPMT22..	-	TPMT22..	TPGH22..	TPET22..	TPGH22..	TPET22..	TPMT22..
Application	Low Carbon Steel/ Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials						
Ref. Page	● B26	● B23, ● B27	● C14~ ● C16	● C6						
Shape										
...	-	TBGW121..	TBMT121..	-						
...	-	TPGB1515..	TPMH1515..	TPGB1515..						
...	-	TPGB1815..	TPMH1815..	TPGB1815..						
...	TPMT22..	TPGB22..	TPMH22..	TPGB22..						

Recommended Cutting Conditions ● F71~ ● F72

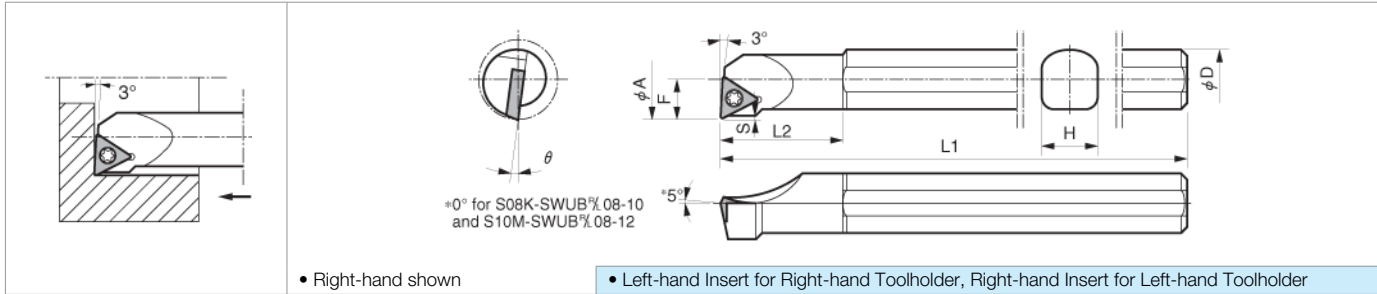
● : U.S. Stock Standard
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S-STUP(B) Steel Bar (Boring)

(Max. Overhang Length $L/D \approx 3$)



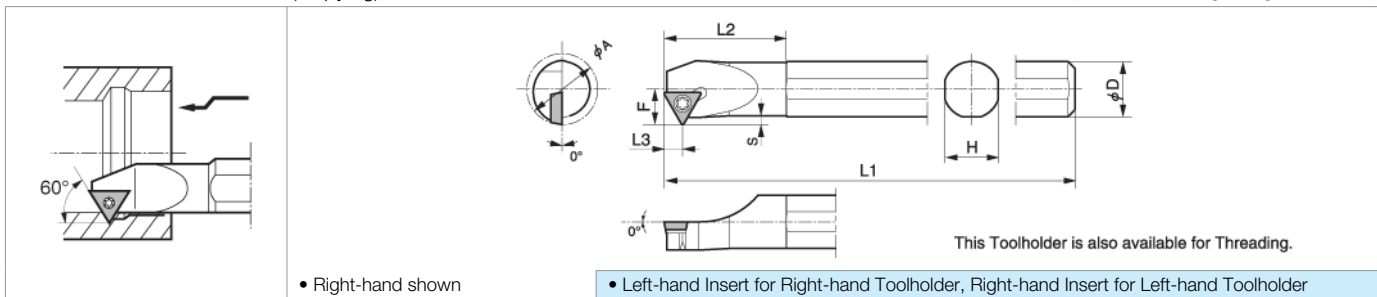
Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						θ	Std. Corner-R	Coolant Hole	Spare Parts	
	R	L			ϕA	ϕD	H	L1	L2	F				S	Clamp Screw
S04H-STUB%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%1.5	●			0.392	0.313	0.270	5.00	0.75	0.196	0.020	13°	1/64			
S06M-STUP%1.8	●	●		0.472	0.375	0.356	6.00	1.01	0.236	0.015	13°	1/64			
S08M-STUP%1.8	●	●		0.630	0.500	0.480	6.00	1.18	0.315	0.090	10°	1/64			
S10X-STUP%2	●	●		0.787	0.625	0.584	7.00	1.38	0.394	0.100	7°	1/64			
S12R-STUP%2	●	●		0.912	0.750	0.710	8.00	1.58	0.456	0.115	5°	1/64			

Applicable Inserts **F55**

S-STWP Steel Bar (Copying)

(Max. Overhang Length $L/D \approx 3$)



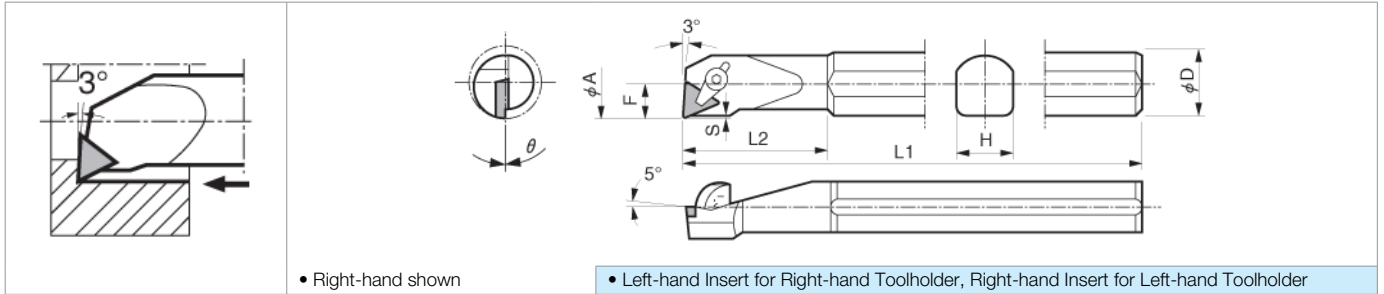
Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						θ	Std. Corner-R	Coolant Hole	Spare Parts		
	R	L			ϕA	ϕD	H	L1	L2	L3				F	S	Clamp Screw
S06M-STWP%2	●		inch	0.476	0.375	0.350	6.00	0.91	0.205	0.238	0.056	0°	1/64	No	SB-3STR	FT-10
S08M-STWP%2	●			0.630	0.500	0.476	6.00	1.20	0.205	0.315	0.700	0°	1/64			
S10X-STWP%2	●			0.786	0.625	0.600	7.00	1.40	0.205	0.393	0.860	0°	1/64			
S12R-STWP%2	●			0.970	0.750	0.726	8.00	1.60	0.205	0.485	0.115	0°	1/64			
S16R-STWP%2	●			1.240	1.000	0.974	8.00	2.00	0.205	0.620	0.125	0°	1/64			

Applicable Inserts **F55**

S-CTUP Steel Bar (Copying)

(Max. Overhang Length $L/D \approx 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							θ	Std. Corner-R	Coolant Hole	Spare Parts				
	R	L		Min. Bore Dia.	ØA	ØD	H	L1	L2	F				S	Clamp Assembly	Wrench		Shim
Steel S10X-CTUP%2	●		inch	0.625	0.625	0.584	7.00	1.25	0.313	0.03	0°	1/64	No			-		
S12X-CTUP%2	●			1.060	0.750	0.710	7.00	1.50	0.520	0.05	0°	1/64			-	LW-2.5	-	-

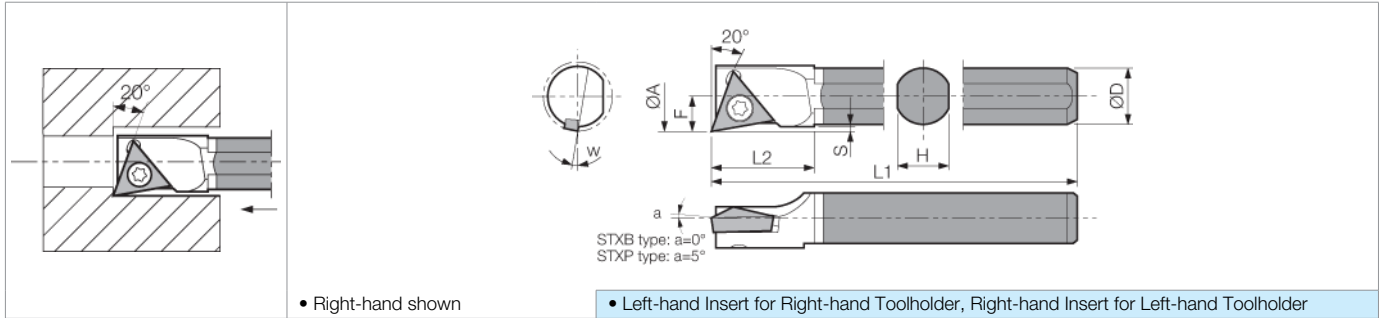
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Medium	Low Feed / Precision	Low Carbon Steel/ Finishing
Ref. Page	● B23, ● B25	● B25	● B25	● B23	● B25	● B23, ● B26, ● B27	● B27	● B27	● B27	● B25
Toolholder Shape										
...-STUB%1.2	TBGT121..	-	-	TBMT121..	-	TBGT121..	-	-	-	-
...-STUP%1.5	TPGT1515..	-	-	-	-	TPGH1515..	TPET1515..	-	TPET1515..	-
...-STUP%1.8	TPGT1815..	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	-	-	-	TPMT1815..
...-STUP%2 ...-STWP%2 ...-CTUP%2	-	TPMT22..	TPMT22..	-	TPMT22..	TPGH22..	TPET22..	TPGH22..	TPET22..	TPMT22..
Application	Low Carbon Steel/ Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials						
Ref. Page	● B26	● B23, ● B27	● C14~ ● C16	● C6						
Toolholder Shape		Without Chipbreaker								
...-STUB%1.2	-	TBGW121..	TBMT121.. TBGW121..	-						
...-STUP%1.5	-	TPGB1515..	TPMH1515.. TPGB1515..	TPGB1515..						
...-STUP%1.8	-	TPGB1815..	TPMH1815.. TPGB1815..	TPGB1815..						
...-STUP%2 ...-STWP%2 ...-CTUP%2	TPMT22..	TPGB22..	TPMH22.. TPGB22..	TPGB22..						

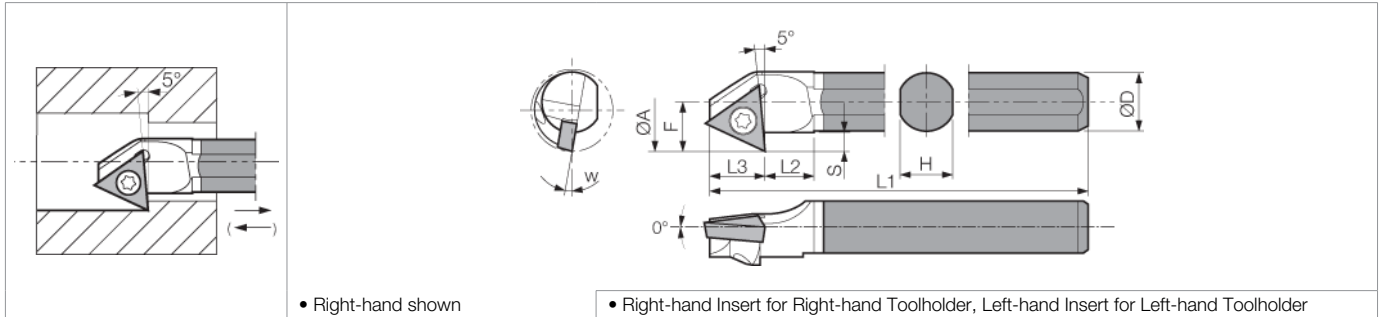
Recommended Cutting Conditions ● F71 ~ ● F72

GRADES A
 INSERTS B
 CBN & PCD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

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	Previous Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							θ	Std. Corner-R	Spare Parts	
		R	L		ØA	ØD	H	L1	L2	L3	F			S	Clamp Screw
C06J-STXB%06-075	STXB%07506B-06W	○	○	7.5	6	5.4	110	11	0.5	3.75	0.5	10°	0.03	SB-1STR	FT-6
C08X-STXP%08-09	STXP%09008B-08W	○	○	9.0	8	7.0	143	14	0.6	4.60	0.5	10°	0.03	SB-1TR	
C10X-STXP%09-11	STXP%11010B-09W	○	○	11.0	10	9.0	164	17	0.6	5.60	0.5	10°	0.03	SB-2TR	FT-8
C06J-STZB%06-085	STZB%08506B-06W	○		8.5	6	5.4	110	5	5.7	5.10	2.0	10°	0.03	SB-1STR	FT-6

Applicable Inserts **F57**

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Low Feed / Precision	Low Carbon Steel/ Finishing	Cast Iron
Ref. Page	● B23, ● B25	● B25	● B25	● B23	● B25	● B23, ● B26, ● B27	● B27	● B27	● B25	● B23, ● B27
Shape	CF	PP	GP	DP	HO	ℓ	ℓ-FSF	Fℓ-JJSF	XP	Without Chipbreaker
Toolholder										
...-STXBℓ 1.2... ...-STXBℓ 06-...	TBGT121..	-	-	TBMT121..	-	TBGT121..	-	-	-	TBGW121..
...-STXPℓ 08-...	TPGT1515..	-	-	-	-	TPGH1515..	TPET1515..	TPET1515..	-	TPGB1515..
...-STXPℓ 1.8... ...-STXPℓ 09-...	TPGT1815..	TPMT1815..	TPMT1815..	-	TPMT1815..	TPGH1815..	-	-	TPMT1815..	TPGB1815..
...-STZBℓ 1.2... ...-STZBℓ 06-...	TBGT121..	-	-	TBMT121..	-	TPGH121..	-	-	-	TPGB22..
Application	Non-ferrous Metals	Hard Materials								
Ref. Page	● C14- ● C16	● C6								
Shape	PCD	CBN								
Toolholder										
...-STXBℓ 1.2... ...-STXBℓ 06-...	TBMT121..	-								
...-STXPℓ 08-...	TPMH1515.. TPGB1515..	TPGB1515..								
...-STXPℓ 1.8... ...-STXPℓ 09-...	TPMH1815.. TPGB1815..	TPGB1815..								
...-STZBℓ 1.2... ...-STZBℓ 06-...	TBMT121..	-								

Recommended Cutting Conditions ● F71~ ● F72

◆ Recommended Cutting Conditions C...STXP(B) Boring Bar

(Work Material : 4140)

Toolholder Description	Insert Description (Grade)	Insert Grade (Vc:sfm)	Depth of Cut: D.O.C.(in), Feed: f(ipr)		Coolant
			D.O.C.	f	
C06J-STXBℓ 06-075	TBGT0601003ℓ (PR930)	100~330	0.001~0.004	0.001~0.002	Yes
C08X-STXPℓ 08-09	TPGH080201ℓ (PR930)	100~330	0.002~0.006	0.001~0.003	Yes
C10X-STXPℓ 09-11	TPGH090201ℓ (PR930)	100~330	0.002~0.006	0.001~0.003	Yes

- GRADES **A**
- INSERTS **B**
- CBN & POD **C**
- TURNING **E**
- BORING **F**
- GRINDING **G**
- CUT-OFF **H**
- THREADING **J**
- SOLID END MILLS **L**
- MILLING **M**
- SPARE PARTS **P**
- TECHNICAL **R**
- INDEX **T**

A-SVJP(C)-AE Excellent Bar (Internal Spherical Machining / Internal Facing)

(Max. Overhang Length $L/D \sim 5.5$)

Please see [F59](#) for cutting instructions

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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø12	Ø4
Ø16	Ø4

S-SVJP(C)-A Steel Bar (Internal Spherical Machining / Internal Facing)

(Max. Overhang Length $L/D \sim 4$)

Please see [F59](#) 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		Min. Bore Dia.	Dimensions (mm)								θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L		ØA	ØD	H	L1	L2	L3	L4	F					Clamp Screw	Wrench	
Excellent Bar	A12M-SVJP%08-16AE		○	○	16	12	11	150	26	33	21	2	5°	0.2	Yes	Fig.1	SB-2050TR	FT-6
	A12M-SVJC%08-16AE		○	○	16	12	11	150	26	33	20	2	5°	0.4	Yes	Fig.1		
	A16Q-SVJC%08-20AE		○	○	20	16	15	180	36	43	22	2	5°	0.4	Yes	Fig.1		
Steel	S12M-SVJP%08-16A		○	○	16	12	11	150	26	33	21	2	5°	0.2	No	Fig.2	SB-2050TR	FT-6
	S12M-SVJC%08-16A		○	○	16	12	11	150	26	33	20	2	5°	0.4	No	Fig.2		
	S16Q-SVJC%08-20A		○	○	20	16	15	180	36	43	22	2	5°	0.4	No	Fig.2		

● Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing-Medium	Finishing / Precision	Low Feed / Precision	Non-ferrous Metals	Hard Materials
Ref. Page	B31	B30	B30	B30	B32	B32	C16	C7
Shape	CK	VF	PP	HQ	%-FSF	F%-USF	PCD	CBN
Toolholder								
...-SVJP%08-...	VPGT1515	-	-	-	VPET1515..	VPET1515..	-	-
...-SVJC%08-...	-	VCMT1515..	VCMT1515..	VCMT1515..	-	-	VCMT1515..	VCGW1515..

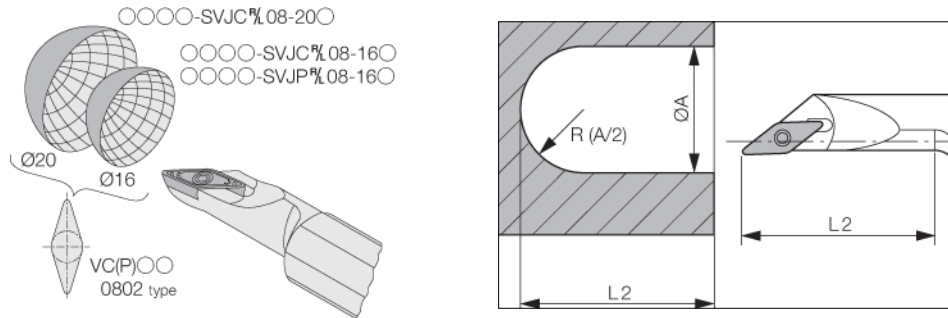
Recommended Cutting Conditions [F71](#)~[F72](#)

A...SVJP(C)-○, S...SVJP(C)-○ Excellent Bar (Internal Spherical Machining / Internal Facing)

[Refer to Page 58 (Dynamic bar)]

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

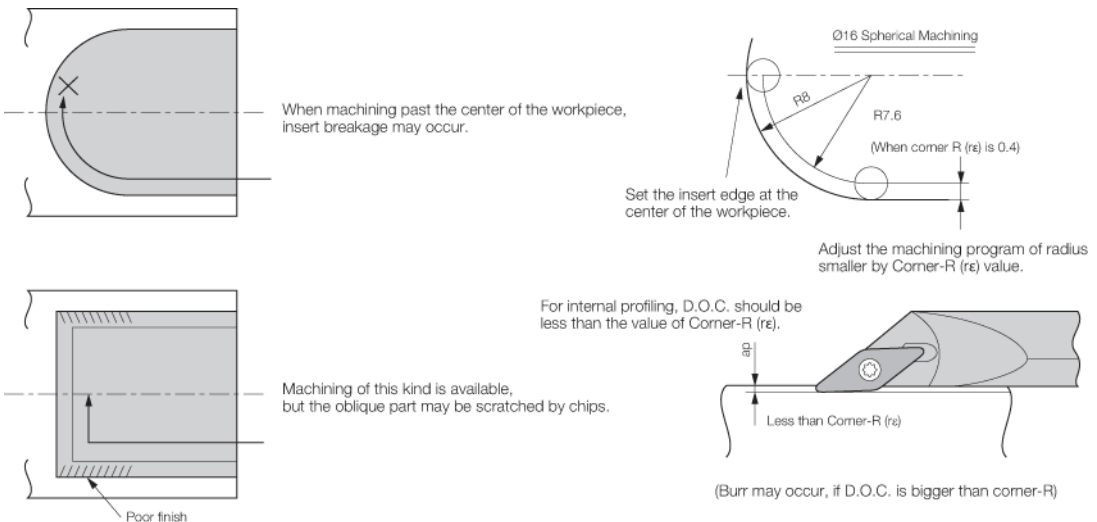
1. Application Range



2. Machining Method

In Cases with No Existing Hole	Finishing
In Cases with Drilled Hole	Finishing
	<p>Machining Process 1. Finish the internal face firstly. 2. Next, finish the internal diameter.</p>

3. Caution



- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

A-SVPB(C)-AE Excellent Bar (Copying / Undercutting)

(Max. Overhang Length $L/D \sim 5.5$)

Technical drawing of the A-SVPB(C)-AE bar. It shows a cross-section with a 27.5° cutting angle and a 5° rake angle. Dimensions include θ , ϕA , F , L , L_2 , S , L_1 , H , L_4 , and ϕD . A table lists the following specifications:

Shank Dia. ϕD	Straight Hole Dia. ϕd
$\phi 10$	$\phi 3$
$\phi 12$	$\phi 4$
$\phi 16$	$\phi 5$

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

S-SVPB-A Steel Bar (Copying / Undercutting)

(Max. Overhang Length $L/D \sim 4$)

Technical drawing of the S-SVPB-A bar. It shows a cross-section with a 27.5° cutting angle and a 5° rake angle. Dimensions include θ , ϕA , L , L_2 , S , L_1 , H , and L_4 . The drawing is labeled Fig.2.

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

E-SVPB(C)-A Carbide Shank Bar (Copying / Undercutting)



(Max. Overhang Length $L/D \sim 7$)

Technical drawing of the E-SVPB(C)-A bar. It shows a cross-section with a 27.5° cutting angle and a 5° rake angle. Dimensions include θ , ϕA , F , L , L_2 , S , L_1 , H , L_4 , and ϕD . A table lists the following specifications:










Shank Dia. ϕD	Straight Hole Dia. ϕd
$\phi 10$	$\phi 3$
$\phi 12$	$\phi 4$
$\phi 16$	$\phi 4$

• 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								θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts	
	R	L			ØA	ØD	H	L1	L2	L4	F	S					Clamp Screw	Wrench
																		
Excellent Bar	●	●	inch	0.630	0.375	0.336	6	0.945	0.843	0.335	0.118	8°	1/64	Yes	Fig.1	SB-2570TR	FT-8	
	●	●		0.790	0.500	0.461	6	1.142	1.000	0.433	0.177	8°	1/64	Yes	Fig.1			
	●	●		0.980	0.625	0.586	8	1.378	1.283	0.531	0.197	5°	1/64	Yes	Fig.1			
	Steel	○	○	mm	14	10	9	140	24	21.0	8.5	3.0	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6
		○	○		18	12	11	150	29	26.0	11.0	4.5	8°	0.4	Yes	Fig.1		
		○	○		22	16	15	180	35	33.0	13.5	5.0	5°	0.4	Yes	Fig.1		
Carbide	○	○	mm	14	10	9	140	24	21.0	8.5	3.0	8°	0.4	No	Fig.2	SB-2050TR	FT-6	
	○	○		18	12	11	150	29	26.0	11.0	4.5	8°	0.4	No	Fig.2			
	○	○		22	16	15	180	35	33.0	13.5	5.0	5°	0.4	No	Fig.2			
Carbide	○	○	mm	14	10	9	160	20	18.5	8.5	3.0	8°	0.4	Yes	Fig.3	SB-2050TR	FT-6	
	○	○		18	12	11	180	23	22.0	11.0	4.5	8°	0.4	Yes	Fig.3			
	○	○		22	16	15	220	28	27.0	13.5	5.0	5°	0.4	Yes	Fig.3			

● Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Hard Materials
Ref. Page	● B28, ● B30	● B28, ● B30	● B28	● B28, ● B30	● B29	● B28	● B29	● C16	● C7
Shape	VF 	PP 	GP 	HQ 	%-F 	%-FSF 	%-Y 	PCD 	CBN 
Toolholder									
...-SVPC%1.5AE... ...-SVPC%08-...	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	VCMT1515..	VCGW1515..
...-SVPB%2AE... ...-SVPB%11-...	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VB_T22..	VBET22..	VBGT22..	VBMT22..	VBGW22..

Recommended Cutting Conditions ● F71 ~ ● F72

GRADES **A**

INSERTS **B**

CBN & POD **C**

TURNING **E**

BORING **F**

GRINDING **G**

CUT-OFF **H**

THREADING **J**

SOLID END MILLS **L**

MILLING **M**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

- A GRADES
- B INSERTS
- C BN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

A-SVUB(C)-AE Excellent Bar (Copying) (Max. Overhang Length $L/D \sim 5.5$)

A12M-SVUC% 08-16AE (Inner Hole Dia. of Ø3mm)
A16Q-SVUB% 11-20AE (Inner Hole Dia. of Ø3mm)

Shank Dia. ØD	Outer Hole Dia. Ød
Ø12	Ø4
Ø16	Ø5

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

S-SVUB(C)-A Steel Bar (Copying) (Max. Overhang Length $L/D \sim 4$)

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

A-SVUB(C)-A Carbide Shank Bar (Copying) (Max. Overhang Length $L/D \sim 7$)

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

Shank Dia. ØD	Straight Hole Dia. Ød
Ø12	Ø4
Ø16	Ø4

A-SVZB(C)-AE Excellent Bar (Back Boring) (Max. Overhang Length $L/D \sim 5.5$)

A12M-SVZC% 08-16AE (Inner Hole Dia. of Ø3mm)
A16Q-SVZB% 11-20AE (Inner Hole Dia. of Ø3mm)



Shank Dia. ØD	Outer Hole Dia. Ød
Ø12	Ø4
Ø16	Ø5

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

A-SVZB(C)-A Steel Bar (Back Boring) (Max. Overhang Length $L/D \sim 4$)

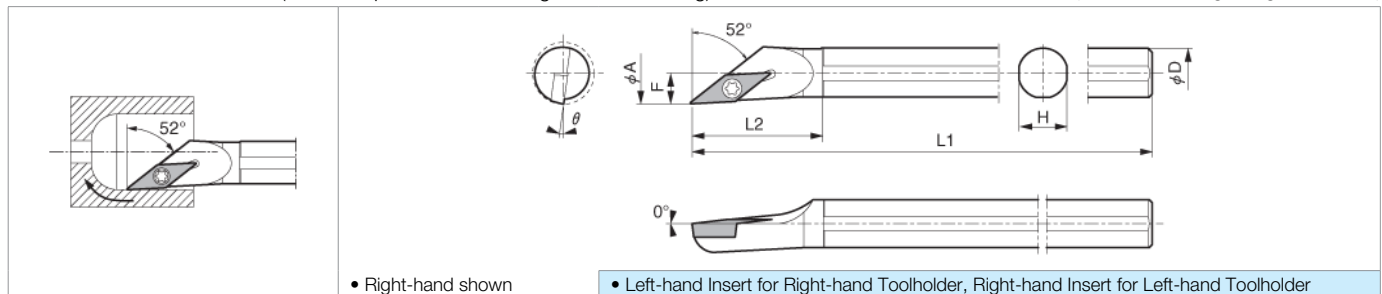
• Right-hand shown • Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

● Toolholder Dimensions



Part Number	Stock		Unit	Min. Bore Dia.	Dimensions								θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts		
	R	L			$\varnothing A$	$\varnothing D$	H	L1	L2	L4	L5	F					S	Clamp Screw	Wrench
																			
Excellent Bar	A08M-SVUC%1.5AE	●	●	inch	0.630	0.500	0.461	6	1.004	0.906	-	0.453	0.217	8°	1/64	Yes	Fig.1	SB-2050TR	FT-6
	A10R-SVUB%2AE	●	●	inch	0.790	0.625	0.586	8	1.280	1.063	-	0.630	0.315	8°	1/64	Yes	Fig.1	SB-2570TR	FT-8
	A12M-SVUC%08-16AE	○	○	mm	16	12	11	150	25.5	23	-	11.5	5.5	8°	0.4	Yes	Fig.1	SB-2050TR	FT-6
	A16Q-SVUB%11-20AE	○	○	mm	20	16	15	180	32.5	27	-	16.0	8.0	8°	0.4	Yes	Fig.1	SB-2570TR	FT-8
	A08M-SVZC%1.5AE	●	●	inch	0.630	0.500	0.461	6	1.299	0.579	-	0.453	0.217	8°	1/64	Yes	Fig.1	SB-2050TR	FT-6
	A10R-SVZB%2AE	●	●	inch	0.790	0.625	0.586	8	1.673	0.799	-	0.630	0.315	8°	1/64	Yes	Fig.1	SB-2570TR	FT-8
Steel Bar	S12M-SVUC%08-16A	○	○	mm	16	12	11	150	25.5	23	-	11.5	5.5	8°	0.4	No	Fig.2	SB-2050TR	FT-6
	S16Q-SVUB%11-20A	○	○	mm	20	16	15	180	32.5	27	-	16.0	8.0	8°	0.4	No	Fig.2	SB-2570TR	FT-8
Carbide	E12Q-SVUC%08-18A	○	○	mm	18	12	11	180	23.0	22	-	11.5	5.5	8°	0.4	Yes	Fig.3	SB-2050TR	FT-6
	E16X-SVUB%11-25A	○	○	mm	25	16	15	220	28.0	27	-	16.0	8.0	8°	0.4	Yes	Fig.3	SB-2570TR	FT-8
Excellent Bar	A12M-SVZC%08-16AE	○	○	mm	16	12	11	150	25.5	14	7.5	11.5	5.5	8°	0.4	Yes	Fig.4	SB-2050TR	FT-6
	A16Q-SVZB%11-20AE	○	○	mm	20	16	15	180	32.5	20	10.0	16.0	8.0	8°	0.4	Yes	Fig.4	SB-2570TR	FT-8
	S12M-SVZC%08-16A	○	○	mm	16	12	11	150	25.5	14	7.5	11.5	5.5	8°	0.4	No	Fig.5	SB-2050TR	FT-6
	S16Q-SVZB%11-20A	○	○	mm	20	16	15	180	32.5	20	10.0	16.0	8.0	8°	0.4	No	Fig.5	SB-2570TR	FT-8

■ S-SVJB Steel Bar (Internal Spherical Machining / Internal Facing)










(Max. Overhang Length L/D≈~3)



● Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions								θ	Std. Corner-R	Coolant Hole	Spare Parts	
	R	L			$\varnothing A$	$\varnothing D$	H	L1	L2	L3	F	S				Clamp Screw	Wrench
																	
Steel	S08M-SVJB%2	●	●	inch	0.620	0.500	0.480	6.00	1.25	-	0.310	-	8°	1/64	No	SB-2570TR	FT-8
	S10X-SVJB%2	●	●	inch	0.780	0.625	0.584	7.00	1.44	-	0.390	-	8°	1/64	No	SB-2570TR	FT-8

● Applicable Inserts

Application	Finishing	Finishing	Finishing	Finishing-Medium	Finishing	Finishing / Precision	Finishing-Medium	Non-ferrous Metals	Hard Materials
Ref. Page	● B28, ● B30	● B28, ● B30	● B28	● B28, ● B30	● B29	● B28	● B29	● C16	● C7
Shape	VF	PP	GP	HQ	%-F	%-FSF	%-Y	PCD	CBN
Toolholder									
...-SVUC%1.5AE... ...-SVUC%08-...	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	VCMT1515..	VCGW1515..
...-SVUB%2AE... ...-SVUB%11-...	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VB_T22..	VBET22..	VBGT22..	VBMT22..	VBGW22..
...-SVZC%1.5AE... ...-SVZC%08-...	VCMT1515..	VCMT1515..	-	VCMT1515..	-	-	-	VCMT1515..	VCGW1515..
...-SVZB%2AE... ...-SVZB%11-...	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VB_T22..	VBET22..	VBGT22..	VBMT22..	VBGW22..
...-SVJB%2	VBMT22..	VBMT22..	VBMT22..	VBMT22..	VB_T22..	VBET22..	VBGT22..	VBMT22..	VBGW22..

Recommended Cutting Conditions ● F71 - ● F72

- A GRADES
- B INSERTS
- C BN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

S/A-SWUB(P)-AE Excellent Bar (Boring) (Max. Overhang Length $L/D \sim 5.5$)

Fig.1 Fig.2

Ø for A08X-SWUB% 08-10AE, A10L-SWUB% 08-12AE

Shank Dia. ØD	Outer Hole Dia. Ød
Ø8	Ø2.5
Ø10	Ø3.0
Ø12	Ø4.0
Ø16	Ø5.0

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

S/A-SWUB(P)-A Steel Bar (Boring) (Max. Overhang Length $L/D \sim 4$)

Fig.3 Fig.4

Ø 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

E(C)-SWUB(P)-A Carbide Shank Bar (Boring) (Max. Overhang Length $L/D \sim 7$)



Fig.5 Fig.6

Ø for E08L-SWUB% 08-10A, E10N-SWUB% 08-12A, E10N-SWUB% 08-12A-2/3, E10N-SWUB% 08-12A-1/2

Shank Dia. ØD	Outer Hole Dia. Ød
Ø5	-
Ø6	-
Ø7	-
Ø8	Ø3
Ø10	Ø3
Ø12	Ø4
Ø16	Ø4

• 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							θ	Std. Corner-R	Coolant Hole	Shape	Spare Parts			
	R	L			ØA	ØD	H	L1	L2	L3	L4					F	Clamp Screw	Wrench	
																			
Excellent Bar	S06H-SWUB% 1.2AE	●	●	inch	0.240	0.375	0.336	4	0.827	-	0.504	0.118	15.0°	0.01	No	Fig.1	SB-2035TR	FT-6	
	S06H-SWUB% 1.5AE	●	●		0.312	0.375	0.336	4	1.102	-	0.583	0.157	15.0°	0.01	No	Fig.1			
	A06M-SWUB% 1.5AE	●	●		0.472	0.375	0.336	6	0.787	0.945	0.795	0.236	10.0°	0.01	Yes	Fig.2	SB-2050TR	FT-8	
	A08M-SWUB% 2AE	●	●		0.630	0.500	0.461	6	0.945	1.220	0.957	0.276	4.0°	1/64	Yes	Fig.2	SB-2545TR		
	A10R-SWUB% 3AE	●	●		0.770	0.625	0.586	8	1.181	1.433	1.193	0.354	3.5°	1/32	Yes	Fig.2	SB-4065TR		FT-15
	S10H-SWUB% 06-06AE	○	○		mm	6	10	9.0	100	21	-	13	3.0	15.0°	0.2	No	Fig.1	SB-2035TR	FT-6
	S10H-SWUB% 06-07AE	○	○			7	10	9.0	100	25	-	15	3.5	13.0°	0.2	No	Fig.1		
	S10H-SWUB% 08-08AE	○	○			8	10	9.0	100	28	-	15	4.0	15.0°	0.2	No	Fig.1	SB-2050TR	FT-8
	A08X-SWUB% 08-10AE	○	○			10	8	7.0	120	16	21	16	5.0	13.0°	0.2	Yes	Fig.2		
	A10L-SWUB% 08-12AE	○	○			12	10	9.0	140	20	25	20	6.0	10.0°	0.2	Yes	Fig.2		
A12M-SWUB% 11-14AE	○	○	14	12		11.0	150	24	30	24	7.0	4.0°	0.4	Yes	Fig.2	SB-2545TR	FT-8		
A16Q-SWUB% 11-18AE	○	○	18	16		15.0	180	30	37	30	9.0	1.0°	0.4	Yes	Fig.2	SB-4065TR		FT-15	
A16Q-SWUB% 16-18AE	○	○	18	16		15.0	180	30	37	30	9.0	3.5°	0.8	Yes	Fig.2				
Steel	S10H-SWUB% 06-06A	○	○	mm		6	10	9.0	100	21	-	13	3.0	15.0°	0.2	No	Fig.3	SB-2035TR	FT-6
	S10H-SWUB% 06-07A	○	○			7	10	9.0	100	25	-	15	3.5	13.0°	0.2	No	Fig.3		
	S10H-SWUB% 08-08A	○	○		8	10	9.0	100	28	-	15	4.0	15.0°	0.2	No	Fig.3	SB-2050TR	FT-8	
	S08X-SWUB% 08-10A	○	○		10	8	7.0	120	16	21	16	5.0	13.0°	0.2	No	Fig.4			
	S10L-SWUB% 08-12A	○	○		12	10	9.0	140	20	25	20	6.0	10.0°	0.2	No	Fig.4			
	S12M-SWUB% 11-14A	○	○		14	12	11.0	150	24	30	24	7.0	4.0°	0.4	No	Fig.4	SB-2545TR	FT-8	
	S16Q-SWUB% 11-18A	○	○		18	16	15.0	180	30	37	30	9.0	1.0°	0.4	No	Fig.4	SB-4065TR		FT-15
	S16Q-SWUB% 16-18A	○	○		18	16	15.0	180	30	37	30	9.0	3.5°	0.8	No	Fig.4			
Carbide	C05H-SWUB% 06-06A	○	○	mm	6	5	4.4	100	11	-	11	3.0	13.0°	0.2	No	Fig.5	SB-2035TR	FT-6	
	C06J-SWUB% 06-07A	○	○		7	6	5.4	110	12	-	12	3.5	13.0°	0.2	No	Fig.5			
	C07K-SWUB% 08-08A	○	○		8	7	6.4	125	13	-	13	4.0	13.0°	0.2	No	Fig.5	SB-2050TR	FT-8	
	E08L-SWUB% 08-10A	○	○		10	8	7.0	140	16	15	15	5.0	13.0°	0.2	Yes	Fig.6			
	E10N-SWUB% 08-12A	○	○		12	10	9.0	160	20	19	19	6.0	10.0°	0.2	Yes	Fig.6			
	E10N-SWUB% 08-12A-2/3	○	○		12	10	9.0	105	20	19	19	6.0	10.0°	0.2	Yes	Fig.6	SB-2545TR	FT-8	
	E10N-SWUB% 08-12A-1/2	○	○		12	10	9.0	80	20	19	19	6.0	10.0°	0.2	Yes	Fig.6			
	E12Q-SWUB% 11-14A	○	○		14	12	11.0	180	23	22	22	7.0	4.0°	0.4	Yes	Fig.6			
	E12Q-SWUB% 11-14A-2/3	○	○		14	12	11.0	120	23	22	22	7.0	4.0°	0.4	Yes	Fig.6	SB-4065TR	FT-15	
	E12Q-SWUB% 11-14A-1/2	○	○		14	12	11.0	90	23	22	22	7.0	4.0°	0.4	Yes	Fig.6			
	E16X-SWUB% 11-18A	○	○		18	16	15.0	220	28	27	27	9.0	1.0°	0.4	Yes	Fig.6			
	E16X-SWUB% 11-18A-2/3	○	○		18	16	15.0	145	28	27	27	9.0	1.0°	0.4	Yes	Fig.6	SB-2050TR	FT-6	
	E16X-SWUB% 11-18A-1/2	○	○		18	16	15.0	110	28	27	27	9.0	1.0°	0.4	Yes	Fig.6			
	E16X-SWUB% 16-18A	○	○		18	16	15.0	220	28	27	27	9.0	3.5°	0.8	Yes	Fig.6			
	E16X-SWUB% 16-18A-2/3	○	○		18	16	15.0	145	28	27	27	9.0	3.5°	0.8	Yes	Fig.6	SB-4065TR	FT-15	
E16X-SWUB% 16-18A-1/2	○	○	18	16	15.0	110	28	27	27	9.0	3.5°	0.8	Yes	Fig.6					

● Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	● B33	● B34	● B33	● B34	● B33	● B34	● B34	● C16, ● C17	● C8
Shape	CF	GP	%-DP	HQ	%-F	%-Y	Without Chipbreaker	PCD	CBN
Toolholder									
...-SWUB% 1.2AE... ...-SWUB% 06-...	WBGT121..	-	WBMT121..	-	WB_T121..	-	WBGW121..	WBMT121..	WBGW121..
...-SWUB% 1.5AE... ...-SWUB% 08-...	-	-	WBMT1515..	-	WB_T1515..	-	WBGW1515..	WBMT1515..	WBGW1515..
...-SWUP% 2AE... ...-SWUP% 11-...	-	WPMT215..	-	WPMT215..	-	WPGT215..	WPGW215..	WPMT215..	-
...-SWUP% 3AE... ...-SWUP% 16-...	-	WPMT32..	-	WPMT32..	-	WPGT32..	WPGW32..	-	-

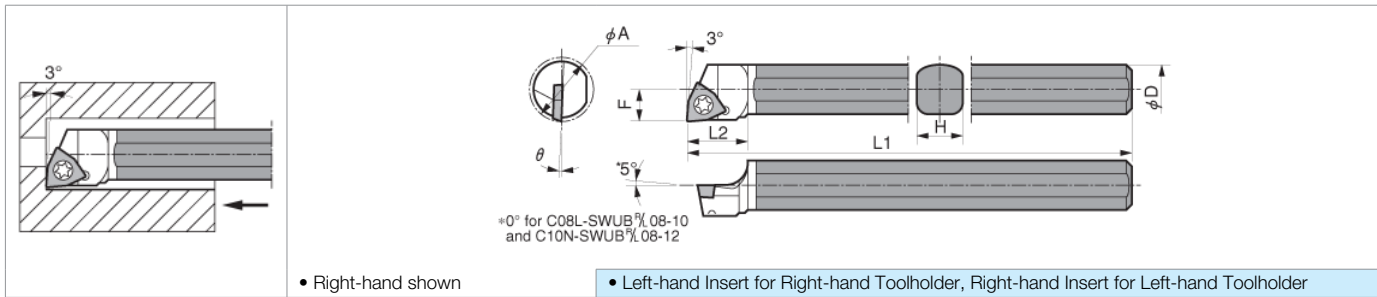
Recommended Cutting Conditions ● F71 - ● F72

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

GRADERS **A**
 INSERTS **B**
 CBN & POD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

C-SWUB Carbide Shank Bar (Boring)

(Max. Overhang Length $L/D \approx 7$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions						θ	Std. Corner-R	Coolant Hole	Spare Parts		
	R	L			ϕA	ϕD	H	L1	L2	F				S	Clamp Screw	Wrench
Carbide	C0325K-SWUB% 1.2	●	●	inch	0.240	0.203	0.180	5.00	0.50	0.118	15°	1/64	1/64	No	SB-2040TR	FT-6
	C045K-SWUB% 1.5	●	●	inch	0.312	0.281	0.252	5.00	0.55	0.157	15°	1/64	1/64		SB-2050TR	FT-6

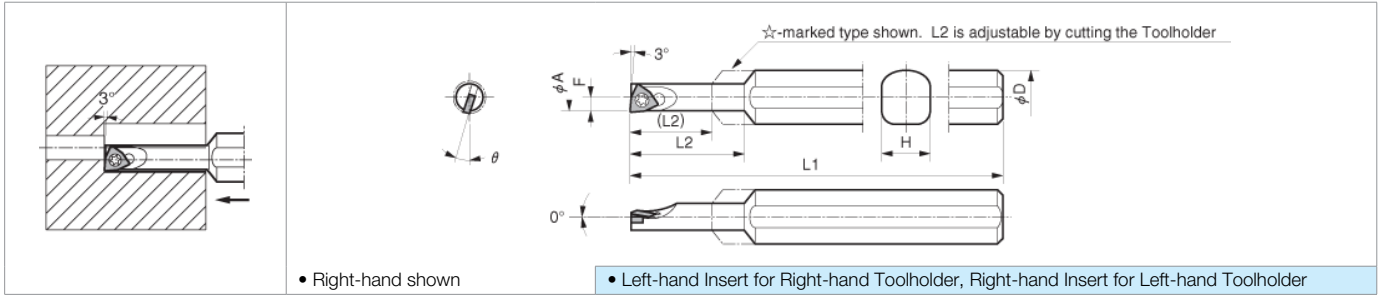
Applicable Inserts

Application	Minute D.O.C.	Finishing	Finishing	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	● B33	● B33	● B33	● B34	● C16, ● C17	● C8
Shape	CF	%-DP	%-F	Without Chipbreaker	PCD	CBN
Toolholder						
...-SWUB% 1.2	WBGW121..	WBMT121..	WB_T121..	WBGW121..	WBMT121..	WBGW121..
...-SWUB% 1.5	-	WBMT1515..	WB_T1515..	WBGW1515..	WBMT1515..	WBGW1515..

Recommended Cutting Conditions ● F71 ~ ● F72

S-SWUB Steel Bar (Boring / Internal Facing)

(Max. Overhang Length $L/D \approx 3$)



Toolholder Dimensions

Part Number	Stock		Unit	Min. Bore Dia.	Dimensions					θ	Std. Corner-R	Coolant Hole	Spare Parts			
	R	L			ϕA	ϕD	H	L1	L2				F	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	Cast Iron	Non-ferrous Metals	Hard Materials
Ref. Page	● B33	● B33	● B33	● B34	● C16, ● C17	● C8
Shape	CF	%-DP	%-F	Without Chipbreaker	PCD	CBN
Toolholder						
...-SWUB%1.2	WBGW121..	WBMT121..	WB_T121..	WBGW121..	WBMT121..	WBGW121..
...-SWUB%1.5	-	WBMT1515..	WB_T1515..	WBGW1515..	WBMT1515..	WBGW1515..

Recommended Cutting Conditions ● F71 ~ ● F72

GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GRINDING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

EZH Sleeves EZ Bar Sleeves (Listed by Sleeve Shank Dia.)

A	GRADES	Sleeve Part Number			EZ Bar Part Number				Shank Dia ØD1 (mm)	Applicable Machine Manufacturer	
		EZH-CT (With coolant hole and EZ Adjust Structure)	EZH-HP (Adjustable)	EZH-ST	Sleeve Shank Dia ØD1 (mm)	EZB	EZG EZFG EZT EZVB	EZ Bar Plus			HP
B	INSERTS	-	-	EZH 01712ST-80	12.00	EZBR ...017...	-	-	-	1.7	General Machines
				02012ST-80		EZBR ...020...	-		HPB% 0202-...	2.0	
				02512ST-80		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03012ST-80		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03512ST-80		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04012ST-80		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				05012ST-80		EZBR ...050...	EZ-- ...050-...		HP-- ...05-...	5.0	
				06012ST-80		EZBR ...060...	EZ-- ...060-...		HP-- 0606-...	6.0	
				07012ST-80		EZBR ...070...	EZ-- ...070-...		HP-- ...07-...	7.0	
				C		CBN & PCD	-		-	EZH 01716HP-100	
02016HP-100	EZBR ...020...	-	HPB% 0202-...		2.0						
02516HP-100	EZBR ...025...	EZ-- ...025-...	-		2.5						
03016HP-100	EZBR ...030...	EZ-- ...030-...	HPB% 0303-...		3.0						
03516HP-100	EZBR ...035...	EZ-- ...035-...	-		3.5						
04016HP-100	EZBR ...040...	EZ-- ...040-...	HP-- ...04-...		4.0						
04516HP-100	-	-	-		4.5						
05016HP-100	05016ST-100	-	-		5.0						
06016HP-100	06016ST-100	-	-		6.0						
07016HP-100	07016ST-100	-	-		7.0						
E	TURNING	-	-	EZH 01719CT-120	19.05	EZBR ...017...	-	-	-	1.7	CITIZEN MACHINERY MIYANO CO., LTD.
				02019CT-120		EZBR ...020...	-		HPB% 0202-...	2.0	
				02519CT-120		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03019CT-120		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03519CT-120		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04019CT-120		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				-		04519HP-120	-		-	4.5	
				05019CT-120		05019HP-120	05019ST-120		-	5.0	
				06019CT-120		06019HP-120	06019ST-120		-060X- ...-070EZ	6.0	
				07019CT-120		07019HP-120	07019ST-120		-	7.0	
F	BORING	-	-	EZH 01720CT-120	20.00	EZBR ...017...	-	-	-	1.7	AMADA MACHINE TOOLS CO., LTD. EGURO, LTD. TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD.
				02020CT-120		EZBR ...020...	-		HPB% 0202-...	2.0	
				02520CT-120		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03020CT-120		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03520CT-120		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04020CT-120		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				-		04520HP-120	-		-	4.5	
				05020CT-120		05020HP-120	05020ST-120		-	5.0	
				06020CT-120		06020HP-120	06020ST-120		-060X- ...-070EZ	6.0	
				07020CT-120		07020HP-120	07020ST-120		-	7.0	
G	GROOVING	-	-	EZH 01722CT-135	22.00	EZBR ...017...	-	-	-	1.7	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd. TSUGAMI CORPORATION
				02022CT-135		EZBR ...020...	-		HPB% 0202-...	2.0	
				02522CT-135		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03022CT-135		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03522CT-135		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04022CT-135		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				-		04522HP-135	-		-	4.5	
				05022CT-135		05022HP-135	05022ST-135		-	5.0	
				06022CT-135		06022HP-135	06022ST-135		-060X- ...-070EZ	6.0	
				07022CT-135		07022HP-135	07022ST-135		-	7.0	
H	CUT-OFF	-	-	EZH 01725.OCT-135	25.00	EZBR ...017...	-	-	-	1.7	AMADA MACHINE TOOLS CO., LTD. EGURO, LTD. TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD.
				02025.OCT-135		EZBR ...020...	-		HPB% 0202-...	2.0	
				02525.OCT-135		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03025.OCT-135		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03525.OCT-135		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04025.OCT-135		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				-		04525.0HP-135	-		-	4.5	
				05025.OCT-135		05025.0HP-135	05025.0ST-135		-	5.0	
				06025.OCT-135		06025.0HP-135	06025.0ST-135		-060X- ...-070EZ	6.0	
				07025.OCT-135		07025.0HP-135	07025.0ST-135		-	7.0	
I	SPARE PARTS	-	-	EZH 01725.4CT-120	25.40	EZBR ...017...	-	-	-	1.7	CITIZEN MACHINERY MIYANO CO., LTD.
				02025.4CT-120		EZBR ...020...	-		HPB% 0202-...	2.0	
				02525.4CT-120		EZBR ...025...	EZ-- ...025-...		-	2.5	
				03025.4CT-120		EZBR ...030...	EZ-- ...030-...		HPB% 0303-...	3.0	
				03525.4CT-120		EZBR ...035...	EZ-- ...035-...		-	3.5	
				04025.4CT-120		EZBR ...040...	EZ-- ...040-...		HP-- ...04-...	4.0	
				-		04525.0HP-135	-		-	4.5	
				05025.4CT-120		05025.4HP-120	05025.4ST-120		-	5.0	
				06025.4CT-120		06025.4HP-120	06025.4ST-120		-060X- ...-070EZ	6.0	
				07025.4CT-120		07025.4HP-120	07025.4ST-120		-	7.0	

- Choose sleeves (Ød1) to meet with ØD 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.
- Machine manufacturers in random order.

EZH Sleeves and Compatible Bars (Listed by Sleeve Shank Dia.)

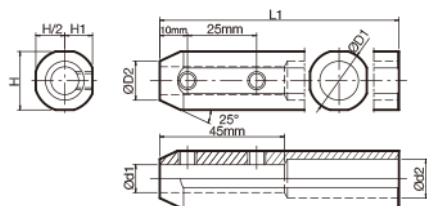
Shank Size (Hole Dia. : mm)		017 (1.7mm)	020 (2.0mm)	025 (2.5mm)	03 (3.0mm)	035 (3.5mm)	
EZH-CT (With coolant hole and EZ Adjust Structure) Sleeve Part Numbers	EZH	01719CT-120	EZH	02019CT-120	EZH	02519CT-120	
		01720CT-120		02020CT-120		02520CT-120	
		01722CT-135		02022CT-135		02522CT-135	
		01725.0CT-135		02025.0CT-135		02525.0CT-135	
EZH-HP (Adjustable) Sleeve Part Numbers	EZH	01716HP-100	EZH	02016HP-100	EZH	02516HP-100	
		01719HP-120		02019HP-120		02519HP-120	
		01720HP-120		02020HP-120		02520HP-120	
		01722HP-135		02022HP-135		02522HP-135	
EZH-ST Sleeve Part Numbers	EZH	01712ST-80	EZH	02012ST-80	EZH	02512ST-80	
		01716ST-100		02016ST-100		02516ST-100	
		01719ST-120		02019ST-120		02519ST-120	
		01720ST-120		02020ST-120		02520ST-120	
EZ Bar	Boring	EZBR	020017ST-	EZBR	020020HP-	EZBR	025025HP-
		EZBR	020017-...NB	EZBR	025020-...NB	EZBR	030025-...NB
EZ Bar - Plus	Internal Grooving Face Grooving Internal Threading						
2-edge Micro-Bar	Boring Bar		HPB% 0202-		HPB% 0303-		
Boring Bars	Internal Grooving Face Grooving Internal Threading						

Shank Size (Hole Dia. : mm)		04 (4.0mm)	045 (4.5mm)	05 (5.0mm)	06 (6.0mm)	07 (7.0mm)	
EZH-CT (With coolant hole and EZ Adjust Structure) Sleeve Part Numbers	EZH	04019CT-120		EZH	05019CT-120	EZH	06019CT-120
		04020CT-120			05020CT-120		06020CT-120
		04022CT-135			05022CT-135		06022CT-135
		04025.0CT-135			05025.0CT-135		06025.0CT-135
EZH-HP (Adjustable) Sleeve Part Numbers	EZH	04016HP-100	EZH	04516HP-100	EZH	05016HP-100	
		04019HP-120		04519HP-120		05019HP-120	
		04020HP-120		04520HP-120		05020HP-120	
		04022HP-135		04522HP-135		05022HP-135	
EZH-ST Sleeve Part Numbers	EZH	04012ST-80		EZH	05012ST-80	EZH	06012ST-80
		04016ST-100			05016ST-100		06016ST-100
		04019ST-120			05019ST-120		06019ST-120
		04020ST-120			05020ST-120		06020ST-120
EZ Bar	Boring	EZBR	040040HP-		EZBR	050050HP-	
		EZBR	045040ST-		EZBR	055050ST-	
		EZBR	...040-...NB		EZBR	...050-...NB	
		EZVBR	045040-		EZVBR	055050-	
EZ Bar - Plus	Internal Grooving Face Grooving Internal Threading	EZGR	040040-		EZGR	050050-	
		EZFR	050040-		EZFR	060050-	
		EZTR	050040-		EZTR	060050-	
Double-Sided Micro-Bar	Boring Bar	HPB% 0404-		HPB% 0505-	HPB% 0606-	HPB% 0707-	
		HPBT% 0404-		HPBT% 0505-			
		HPG% 0404-		HPG% 0505-	HPG% 0606-	HPG% 0707-	
		HPT% 04504-		HPT% 06005-			
Boring Bars	Internal Grooving Face Grooving Internal Threading	C04-		C05-	C06-	C07-	

Note 1) When attaching Double-Sided Micro Bar to EZH-HP Sleeve (Adjustable overhang length), detach Adjustable Pin. Overhang length is NOT adjustable.
 2) PSH Sleeves will be switched to EZH Sleeves.

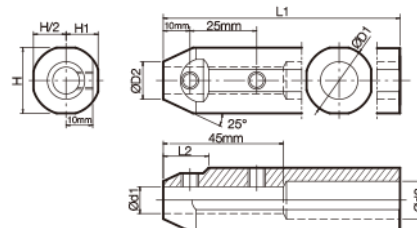
GRADES **A**
 INSERTS **B**
 CBN & PCD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

SHA Sleeves



Holder Installation Side

Fig.1



Holder Installation Side

Fig.2

Part Number	Stock	Dimensions (mm)								Shape	Spare Parts		Applicable Machine Manufacturer
		Ød1	ØD1	ØD2	Ød2	H	H1	L1	L2		Screw	Wrench	
		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.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 MIYANO CO., LTD.
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 CO., LTD. Nomura VTC Automatic Lathe Co., Ltd.
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	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd.
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	HS6x4P	LW-3	Nomura VTC Automatic Lathe Co., Ltd.
1223-120	○	12	23.00	16	14	22.0	10.5	120	16	Fig.2			

※ : Length of Ød1...45mm (All SHA sleeves)

- Choose sleeves (Ød1) to meet with ØD dimension of toolholder.
- Machine manufacturers are in random order.

SHA Sleeves and Applicable Toolholders (Listed by Shank Dia.)

Shank Size (Hole Dia. : mm)	08 (8mm)	10 (10mm)	12 (12mm)
SHA Sleeve Part Numbers	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
Boring Bars Part Numbers	A08-....	A10-....	A12-....
	C08-....	C10-....	C12-....
	E08-....	E10-....	E12-....
	S08-....	S10-....	S12-....
Internal Grooving Toolholder Part Numbers	SIGE%0808A-EH	SIGE%1010B-EH	SIGE%1412C-EH
		SIGE%1210B-EH	SIGE%1612C-EH
	SIGE%0808A-WH	SIGE%1010B-WH	SIGE%1412C-WH
		SIGE%1210B-WH	SIGE%1612C-WH
	SIGER1008B-WH-90	SIGER1210B-WH-90	SIGER1412C-WH-90

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 (rε)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	Feed Rate f (ipr)
* P	Low-carbon Steel Low-carbon Alloy 1010, 4115, 5115 etc.	HB 130	Finishing (Solid Type)	Continuous Interrupted	EZB-F EZB-H	PR1225	0.002 0.006	100 - 225 - 350 100 - 200 - 300	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.000 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 325	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	CF	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 325	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
	Medium-carbon Steel Medium-carbon Alloy 1045, 4137 etc.	HB 130	Finishing (Solid Type)	Continuous Interrupted	EZB-F EZB-H	PR1225	0.002 0.006	100 - 225 - 350 100 - 200 - 300	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.000 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 400	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	CF	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 325	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
	High-carbon Alloy D2, H13 etc.	HB 280	Finishing (Solid Type)	Continuous Interrupted	EZB-F EZB-H	PR1225	0.002 0.006	100 - 225 - 350 100 - 200 - 300	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.000 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 325	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	CF	PR1425	0.004 0.008	125 - 250 - 400 125 - 225 - 325	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
M	Stainless Steel 303, 304, 316, 420 etc.	HB 220	Finishing (Solid Type)	Continuous Interrupted	EZB-F EZB-H	PR1225	0.002 0.006	100 - 200 - 250 100 - 200 - 250	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.000 - 0.001 - 0.002 0.001 - 0.002 - 0.003
			Finishing	Continuous Interrupted	F	PR1225	0.004 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	CF	PR1225	0.004 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
	Stainless Steel S17400 etc.	HB 300	Finishing (Solid Type)	Continuous Interrupted	EZB-F EZB-H	PR1225	0.002 0.006	100 - 200 - 250 100 - 200 - 250	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.000 - 0.001 - 0.002 0.001 - 0.002 - 0.003
			Finishing	Continuous Interrupted	F	PR1225	0.004 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	CF	PR1225	0.004 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.006 - 0.010 0.002 - 0.006 - 0.010	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
K	Gray Cast Iron NO.35 NO.45 NO.50 etc.	HB 250	Finishing (Solid Type)	Continuous Interrupted	(VNB) (VNB-NB)	KW10	0.001 0.008	100 - 200 - 325 100 - 200 - 325	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F	KW10	0.004 0.008	100 - 200 - 325 100 - 200 - 250	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	Without Chipbreaker	KW10	0.008 0.016	100 - 200 - 325 100 - 200 - 250	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
	Nodular Cast Iron 65-45-12 80-60-03 etc.	HB 270	Finishing (Solid Type)	Continuous Interrupted	(VNB) (VNB-NB)	KW10	0.001 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F, U	KW10	0.004 0.008	100 - 200 - 250 100 - 200 - 250	0.002 - 0.003 - 0.004 0.002 - 0.004 - 0.006	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
			Finishing-Medium	Continuous Interrupted	Without Chipbreaker	KW10	0.008 0.016	100 - 200 - 325 100 - 200 - 250	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.001 - 0.002 - 0.003 0.001 - 0.003 - 0.004
N	Non-ferrous Metals Copper Alloy Aluminum Alloy (Si 10% Under) etc.	HB 100	High Speed Finishing (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	0.002	500 - 650 - 975	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006
			Finishing	Continuous Interrupted	F, U	KW10	0.004 0.008	325 - 500 - 650 325 - 500 - 650	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008
S	Titanium Alloy Ti-6Al-4V etc.	HB 400	Precision Finishing (Rainbow-colored Finish)	Continuous Interrupted	Without Chipbreaker	KW10	0.004 0.008	325 - 400 - 500 225 - 325 - 400	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004
			Finishing	Continuous Interrupted	F, U	KW10	0.004 0.008	75 - 125 - 200 75 - 125 - 200	0.002 - 0.008 - 0.020 0.002 - 0.008 - 0.020	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008
	Heat-resistant Alloys Inconel 625 Inconel 718	HB 350	Finishing (Solid Type)	Continuous Interrupted	(VNB)	KW10	0.008 0.008	25 - 100 - 175 25 - 100 - 175	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.003
			Finishing	Continuous Interrupted	F, U	KW10	0.008 0.008	25 - 100 - 175 25 - 100 - 175	0.002 - 0.008 - 0.016 0.002 - 0.008 - 0.016	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.004
H	Hardened Steel Hard Materials D2, H13 etc.	40 ~ 50 HRC	Finishing	Continuous Interrupted	(VNB)	PR930	0.008 0.008	100 - 175 - 225 100 - 175 - 225	0.002 - 0.004 - 0.016 0.002 - 0.004 - 0.008	0.000 - 0.001 - 0.002 0.000 - 0.001 - 0.001
		45 ~ 68 HRC	Finishing	Continuous Interrupted	ME MES	KBN05M	0.008 1/64	200 - 325 - 450 200 - 250 - 400	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008	0.001 - 0.002 - 0.004 0.001 - 0.002 - 0.004

* For machining free-cutting steels, use PR1005 at Vc=500sfm or less. For D.O.C. and feed rate (f), refer to specs for low carbon steels.

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Recommended Cutting Conditions - Boring (Positive Insert)

[D.O.C. Indicates Radius]

A GRADES	B INSERTS	C CBN & PCD	E TURNING	F BORING	G GROOVING	H CUT-OFF	J THREADING	L SOLID END MILLS	M MILLING	P SPARE PARTS	R TECHNICAL	T INDEX	ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - Recommendation - Upper Limit		
																					Vc (sfm)	D.O.C. (in)	Feed Rate f(ipr)
P	Low-carbon Steel Low-carbon Alloy 1010, 4115, 5115 etc.	HB 300	Precision Finishing	Continuous Interrupted	F, U	TN6020 PR1425	0.004 0.008	825 - 975 - 1150 400 - 550 - 725	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006													
			Finishing	Continuous Interrupted	XP	PV7010 CA525	1/64 1/64	650 - 825 - 975 500 - 650 - 825	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 Interrupted	XQ	PV7010 CA525	1/64 1/64	500 - 650 - 825 325 - 500 - 650	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 Interrupted	Standard	PV725 CA525	1/32 1/32	325 - 500 - 650 250 - 400 - 500	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 1045, 4137 etc.	HB 300	Precision Finishing	Continuous Interrupted	F, U	TN620 PR1425	0.008 1/64	500 - 650 - 825 400 - 450 - 550	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006													
			Finishing	Continuous Interrupted	PP	PV7010 CA525	1/64 1/64	500 - 650 - 825 400 - 600 - 650	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 Interrupted	HQ	PV7010 CA525	1/64 1/64	400 - 600 - 725 325 - 500 - 650	0.020 - 0.039 - 0.079 0.039 - 0.039 - 0.059	0.004 - 0.006 - 0.010 0.004 - 0.006 - 0.008													
			Medium	Continuous Interrupted	Standard	PV725 CA5525	1/32 1/32	325 - 500 - 650 250 - 400 - 500	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 D2, H13 etc.	HB 280	Precision Finishing	Continuous Interrupted	F, U	TN620 PR1425	0.008 1/64	400 - 500 - 600 350 - 425 - 525	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006 0.001 - 0.004 - 0.006													
			Finishing	Continuous Interrupted	PP	PV7010 CA525	1/64 1/64	400 - 500 - 600 325 - 400 - 500	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 Interrupted	HQ	PV7010 CA525	1/64 1/64	400 - 500 - 600 325 - 400 - 500	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 Interrupted	Standard	CA515 CA525	1/32 1/32	325 - 400 - 500 250 - 325 - 400	0.039 - 0.059 - 0.098 0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.012 0.004 - 0.006 - 0.008													
Stainless Steel 303, 304, 316, 420 etc.	HB 220	Finishing	Continuous Interrupted	MQ	CA6525	1/64 1/32	400 - 500 - 600 325 - 400 - 500	0.008 - 0.020 - 0.031 0.008 - 0.020 - 0.031	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004														
		Medium	Continuous Interrupted	Standard	CA6525	1/64 1/32	400 - 500 - 600 325 - 400 - 500	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.008 0.002 - 0.004 - 0.008														
	HB 300	Finishing	Continuous Interrupted	MQ	CA6525	1/64 1/32	250 - 325 - 400 200 - 250 - 325	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 Interrupted	Standard	CA6525	1/64 1/32	250 - 325 - 400 200 - 250 - 325	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 NO.35 NO.45 NO.50 etc.	HB 250	High Speed Finishing	Continuous Interrupted	Without Chipbreaker	KBN60M PT600M	1/64 1/32	1300 - 1650 - 1975 650 - 825 - 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													
			Finishing (Gloss Oriented)	Continuous Interrupted	Standard	PV7005 TN620	1/32 1/32	650 - 825 - 975 325 - 500 - 650	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 Interrupted	Standard	CA4505 CA4515	1/64 1/32	500 - 600 - 650 325 - 500 - 600	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 Interrupted	Standard Without Chipbreaker	CA4505 CA4515	1/32 1/32	325 - 500 - 650 250 - 400 - 500	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 65-45-12 80-60-03 etc.	HB 270	High Speed Finishing	Continuous Interrupted	Without Chipbreaker	KBN60M PT600M	1/64 1/32	650 - 975 - 1300 500 - 650 - 825	0.002 - 0.008 - 0.020 0.008 - 0.020 - 0.039	0.001 - 0.002 - 0.004 0.002 - 0.004 - 0.006													
			Finishing (Gloss Oriented)	Continuous Interrupted	Standard	PV7005 TN620	1/32 1/32	500 - 650 - 825 325 - 400 - 500	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 Interrupted	Standard	CA4505 CA4515	1/64 1/32	400 - 500 - 600 325 - 400 - 500	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 Interrupted	Standard	CA4505 CA4515	1/32 1/32	325 - 400 - 500 250 - 325 - 400	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 Alloy (Si 10% Under) etc.	HB 100	High Speed Finishing (Rainbow-colored Finish)	Continuous	Without Chipbreaker	KPD001	0.008	650 - 1300 - 3275	0.002 - 0.004 - 0.012	0.002 - 0.004 - 0.006													
			Finishing	Continuous Interrupted	FSF, USF	KW10	1/64 1/64	325 - 650 - 1300 325 - 650 - 1300	0.002 - 0.020 - 0.039 0.002 - 0.020 - 0.039	0.001 - 0.004 - 0.008 0.001 - 0.004 - 0.008													
	Titanium Alloy Ti-6Al-4V etc.	HB 400	Precision Finishing (Rainbow-colored Finish)	Continuous Interrupted	Without Chipbreaker	KPD001	0.008 1/64	325 - 400 - 500 225 - 325 - 400	0.002 - 0.004 - 0.012 0.002 - 0.004 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004													
			Finishing	Continuous Interrupted	F, U	KW10	0.008 1/64	100 - 175 - 225 100 - 175 - 225	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 Inconel 625 Inconel 718	HB 350	Finishing	Continuous Interrupted	F, U	KW10	1/64 1/64	25 - 100 - 175 25 - 100 - 175	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 Interrupted	MQ	PR1310	1/64 1/32	125 - 200 - 250 125 - 200 - 250	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 Hard Materials D2, H13 etc.	40 - 50 HRC 45 - 68 HRC	Finishing	Continuous Interrupted	HQ	CA515	1/32 1/32	200 - 250 - 325 100 - 175 - 225	0.002 - 0.012 - 0.020 0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004 0.002 - 0.003 - 0.004													
			Finishing	Continuous Interrupted	ME MET	KBN05M	1/64 1/32	325 - 450 - 600 300 - 400 - 525	0.004 - 0.008 - 0.012 0.004 - 0.008 - 0.012	0.001 - 0.003 - 0.004 0.001 - 0.003 - 0.004													

※ For machining free-cutting steels, use PR1005 at Vc=500sfm or less. For D.O.C. and feed rate (f), refer to specs for low carbon steels.

GROOVING

G

G1 - G49

EXTERNAL GROOVING

G2 - G32

Summary of External Grooving

G2

KTGF-F (WITHOUT OFFSET) / KTGF

G4

S...KTGF

Sleeve Holders

G5

KGBA / KGBAS

G12

KGD

G14

KKC

Cera-Notch System

G24

KGM (SWISS) / KGM

G30

KGM-T

G31

INTERNAL GROOVING

G33 - G43

Summary of Internal Grooving

G33

EZG

EZ Bars

G34

HPG

Double-Sided Micro Bars

G36

VNG

Swiss IQ Bars

G37

SIGE-EH / SIGE-WH

G40

SIGE-WH-90 (SWISS)

G42

FACE GROOVING

G44 - G49

Summary of Face Grooving

G44

EZFG

EZ Bars

G45

HPFG

Double-Sided Micro Bars

G47

VNFG

Swiss IQ Bars

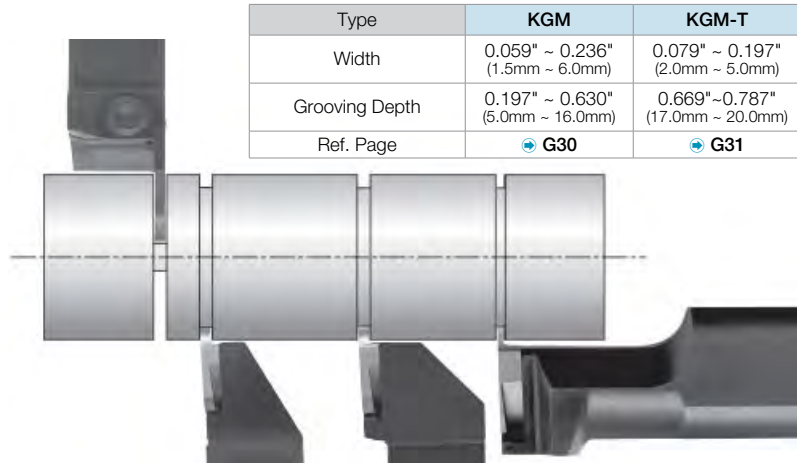
G47

TWFG / TWFGT

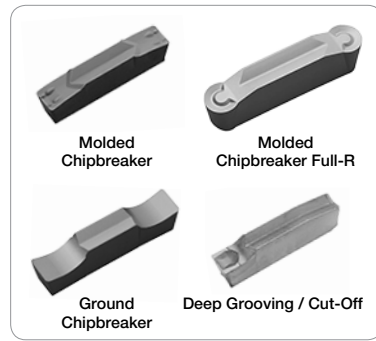
Twin Bars

G48

External Grooving of Precision Parts (G3~G13, G26~G32)



Type	KGM	KGM-T
Width	0.059" ~ 0.236" (1.5mm ~ 6.0mm)	0.079" ~ 0.197" (2.0mm ~ 5.0mm)
Grooving Depth	0.197" ~ 0.630" (5.0mm ~ 16.0mm)	0.669" ~ 0.787" (17.0mm ~ 20.0mm)
Ref. Page	G30	G31

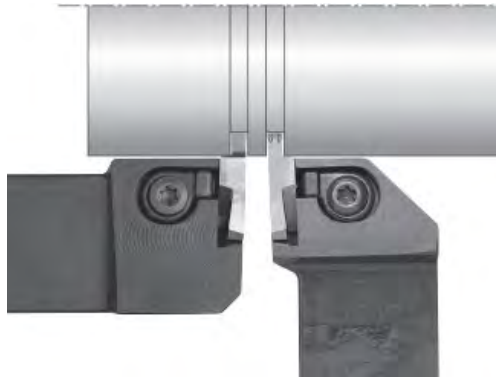


Type	KTGF-F	KTGF
Width	0.013" ~ 0.098" (0.33mm ~ 2.50mm)	
Grooving Depth	0.032" ~ 0.098" (0.80mm ~ 2.50mm)	
Ref. Page	G4	

S-KTGF	
Width	0.013" ~ 0.098" (0.33mm ~ 2.50mm)
Grooving Depth	0.032" ~ 0.098" (0.80mm ~ 2.50mm)
Ref. Page	G5

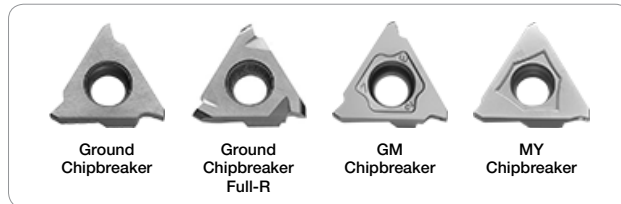


Shallow Grooving [Grooving Depth : ~0.020" (5mm)]

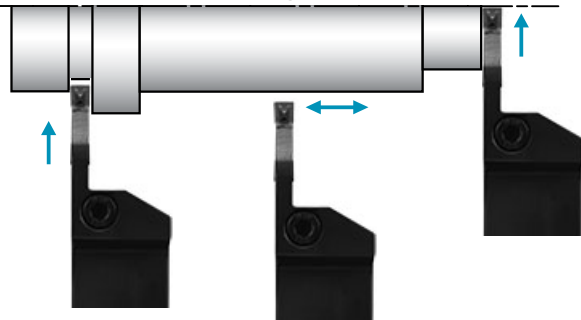


	General (Square)	Full-R (Round)	GM Chipbreaker	MY Chipbreaker
Edge Shape				

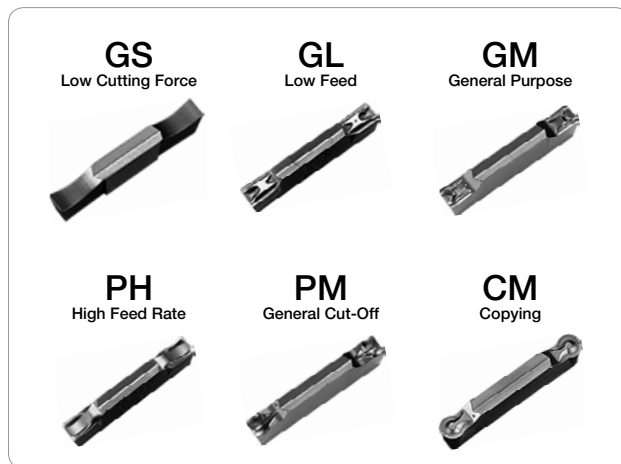
Type	KGBAS	KGBA
Width	0.013" ~ 0.189" (0.33mm ~ 4.80mm)	0.013" ~ 0.098" (0.33mm ~ 2.50mm)
Grooving Depth	0.032" ~ 0.197" (0.80mm ~ 5.00mm)	0.032" ~ 0.098" (0.80mm ~ 2.50mm)
Ref. Page	G13	G12



External Grooving (G14~G25)



Type	KGD
Width	0.079" ~ 0.236" (2.0mm ~ 6.0mm)
Grooving Depth	0.236" ~ 0.787" (6.0mm ~ 20.0mm)
Ref. Page	G19~ G21



Applicable Inserts

Part Number	A	T	Ød	Classification of Usage		Applicable Toolholders	Ref. Page for Toolholder					
				● : Light Interruption / 1st Choice	⊙ : Light Interruption / 2nd Choice							
TGF32_	0.375	0.125	0.177									
Insert Right-handed Insert Shown	Part Number	Unit	Dimensions			Cermet	MEGA COAT	PVD Coated Carbide	Carbide	PCD		
			W	B	rε	TC40	PR1215	PR930	PR1115	KW10	KPD001	
	TGF32% 031N	inch	0.031	0.078	0.004	●	⊙				KTGFL...16F KTGFL...16 S...KTGFL16	G4 G5
	041N		0.041	0.078	0.004	●	⊙					
	047N		0.047	0.078	0.004	●	⊙					
	058N		0.058	0.078	0.004	●	⊙					
	062N		0.062	0.078	0.004	●	⊙					
	078N		0.078	0.098	0.004	●	⊙					
	094N	0.094	0.098	0.004	●	⊙						
	TGF32% 033-005	mm	0.33	0.8	0.05	●	⊙					
	050-005		0.50	1.2	0.05	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	075-010		0.75	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	095-010		0.95	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	100-010		1.00	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	120-010		1.20	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	125-010		1.25	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
	140-010		1.40	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ		
145-010	1.45		2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ			
150-010	1.50		2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ			
175-010	1.75	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ				
200-010	2.00	2.5	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ				
250-010	2.50	2.5	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ				
TGF32% 125-010	inch	1.25	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ			
150-010		1.50	2.0	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ			
200-010		2.00	2.5	0.10	Ⓡ	⊙	⊙	Ⓛ	Ⓡ			

• Dimension B shows available grooving depth

Recommended Cutting Conditions

TGF Insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								Remarks			
	Cermet		MEGA COAT	PVD Coated Carbide		Carbide	PCD	TGF32% 033 ~ 050	TGF32% 075 ~ 095	TGF32% 100 ~ 145	TGF32% 150 ~ 250	Wet
	TN90	TC40	TC60	PR1215	PR930	PR1115	KW10					
Carbon Steel	☆ 500-725	☆ 500-725	☆ 325-500	★ 250-600	☆ 250-600	☆ 250-600	-	-	① 0.0004-0.0020 ② Turning N/A ③ Turning N/A	① 0.0008-0.0028 ② Turning N/A ③ Turning N/A	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008
Alloy Steel	☆ 425-650	☆ 425-650	☆ 250-425	★ 250-525	☆ 250-525	☆ 250-525	-	-	① 0.0004-0.0016 ② Turning N/A ③ Turning N/A	① 0.0008-0.0024 ② Turning N/A ③ Turning N/A	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008
Stainless Steel	☆ 225-500	-	☆ 200-325	☆ 200-425	☆ 200-425	★ 200-425	-	-	① 0.0004-0.0016 ② Turning N/A ③ Turning N/A	① 0.0008-0.0024 ② Turning N/A ③ Turning N/A	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008
Cast Iron	-	-	-	-	-	-	★ 200-650	-	① 0.0004-0.0020 ② Turning N/A ③ Turning N/A	① 0.0008-0.0028 ② Turning N/A ③ Turning N/A	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008
Aluminum	-	-	-	-	-	-	★ 500-1300	★ 500-6550	① 0.0004-0.0020 ② Turning N/A ③ Turning N/A	① 0.0008-0.0028 ② Turning N/A ③ Turning N/A	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008	① 0.0012-0.0031 ② 0.0012-0.0024 ③ MAX 0.008
Brass	-	-	-	-	-	-	★ 500-975	★ 650-2625	① 0.0004-0.0016 ② Turning N/A ③ Turning N/A	① 0.0008-0.0024 ② Turning N/A ③ Turning N/A	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008	① 0.0012-0.0028 ② 0.0008-0.0020 ③ MAX 0.008

★ : 1st Recommendation ☆ : 2nd Recommendation

Inserts are sold in 10 piece boxes.

CBN & PCD Tools are sold in 1 piece boxes.

KTGF-F (Without Offset)

α	Insert Grades
20°	PR1115, PR930, KW10
11°	KPD001
6°	TC40N

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

KTGF (With Offset)

α	Insert Grades
20°	PR1115, PR930, KW10
11°	KPD001
6°	TC40N

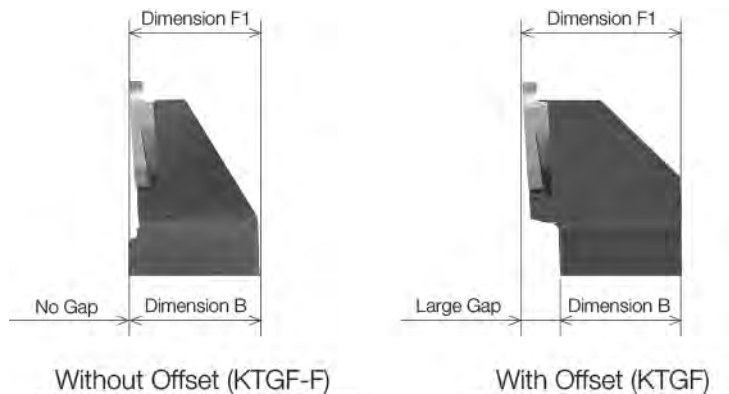
- Right-hand shown
- Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

Toolholder Dimensions

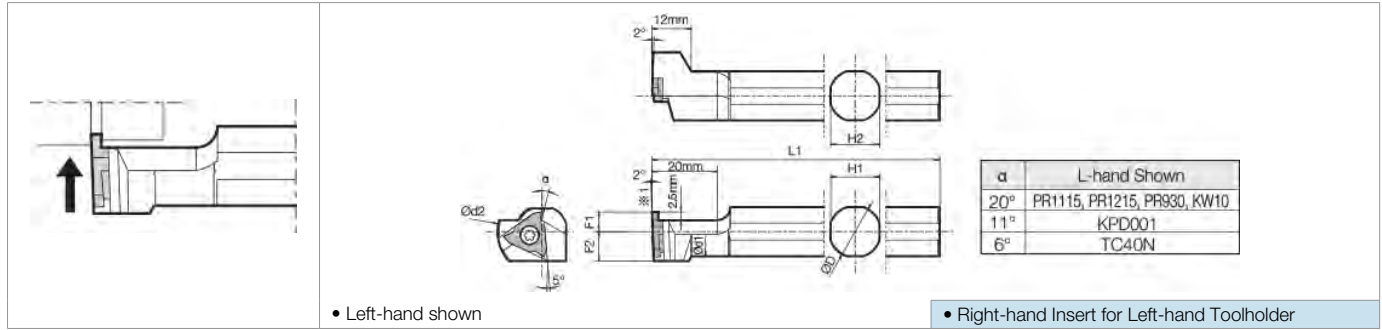
Part Number	Stock		Unit	Dimensions							Spare Parts		Applicable Inserts ● G3
	R	L		H1=h	H2	H3	B	L1	L2	F1	Clamp Screw	Wrench	
KTGF $\frac{3}{8}$ 6-3JXF	●	●	inch	0.375	0.079	0.098	0.375	4.750	0.728	0.383	SB-4070TRW	FT-8	TGF32 $\frac{3}{8}$
8-3JXF	●	●		0.500	-	0.098	0.098	4.750	0.728	0.500			
10-3JXF	●	●		0.625	-	0.098	-	4.750	0.728	0.098			
KTGF $\frac{1}{2}$ 1010JX-16F	○	○	mm	10	2	2.5	10	120	18.5	10	SB-4070TRW	FT-8	
1212JX-16F	○	○		12	-	2.5	12	120	18.5	12			
1616JX-16F	○	○		16	-	2.5	16	120	18.5	16			
KTGF $\frac{1}{2}$ 1212F-16F	○	○		12	-	2.5	12	85	18.5	12	SB-4070TRS	FT-10	
KTGF $\frac{1}{2}$ 1010F-16	○	○		10	4	2.5	10	80	18.5	12			
1212H-16	○	○		12	2	2.5	12	100	18.5	16			
1616H-16	○	○	16	-	2.5	16	100	18.5	20				
2020K-16	○	○	20	-	2.5	20	125	20.0	25				

Usage Difference Between KTGF-F and KTGF Toolholders

It is necessary to use "Without Offset" in operating the automatic lathe.



S-KTGF (Sleeve Holder)



• Left-hand shown

• Right-hand Insert for Left-hand Toolholder

※1 : Dimension B shows available grooving depth

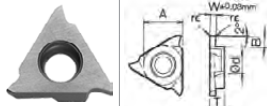
Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Spare Parts		Applicable Inserts G3
			ØD	L1	F1	F2	Ød1	Ød2	H1=H2	Clamp Screw	Wrench	
S12F-KTGFL16	○	mm	12.0	80	6	9.0	11.0	27	11	SB-4070TRS	FT-10	TGF32 ^{1/2}
S14H-KTGFL16	○		14.0	100	6	9.0	13.0	27	13			
S15F-KTGFL16	●	inch	0.625	3.35	0.236	0.354	0.575	1.063	0.591			
S16F-KTGFL16	○	mm	16.0	85	6	9.0	14.6	27	15			
S19G-KTGFL16	●	inch	0.750	3.54	0.236	0.413	0.693	1.063	0.669			
S19K-KTGFL16	●		0.750	4.73	0.236	0.413	0.693	1.063	0.669			
S20G-KTGFL16	○	mm	20.0	90	6	11.0	18.6	27	18			
S20K-KTGFL16	○		20.0	120	6	11.0	18.6	27	18			
S25.0H-KTGFL16	○		25.0	100	10	14.0	23.6	32	23			
S25K-KTGFL16	●	inch	1.000	4.73	3.940	0.551	0.929	1.260	0.906			

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

GBA Inserts (Inch)

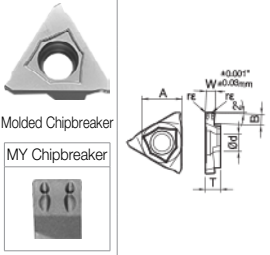
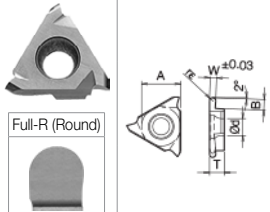
Part Number	A	T	Ød	Material		MEGACOAT Cermet	MEGA COAT	Applicable Toolholders	Ref. Page for Toolholder
				P	M				
GBA32_	0.375	0.125	0.173	P	Carbon Steel / Alloy Steel	●	●	Classification of Usage ● : Light Interruption / 1st Choice ⊙ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : 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)		●		
				H	Hard materials (≥40HRC)				

Insert	Part Number	Previous Part Number	Unit	Dimensions (in)			MEGACOAT Cermet	MEGA COAT	Applicable Toolholders	Ref. Page for Toolholder			
				W	B	rε	PV7040	PR1215					
 <p>Right-handed Insert Shown</p>	GBA32%	031N	-	inch	0.031	0.079	0.002	●	●	KGBA%...3 KGBA%...16 KGBAS%...16			
		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 KGBAS%...22-15
			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 B shows available grooving depth

Inserts are sold in 5 piece boxes.

GBA Inserts (Inch)

Part Number	A	T	Ød	(in)		MEGACOAT Cermet	MEGA COAT	Applicable Toolholders	Ref. Page for Toolholder			
				P	M							
GBA32_	0.375	0.125	0.173	P	Carbon Steel / Alloy Steel	●	●	Classification of Usage ● : 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	Part Number			Previous Part Number	Unit	Dimensions (in)			MEGACOAT Cermet	MEGA COAT	Applicable Toolholders	Ref. Page for Toolholder
Right-handed Insert Shown						W	B	rε	PV7040	PR1215		
 <p>Molded Chipbreaker MY Chipbreaker</p>	GBA43% 078MYN			-	inch	0.078	0.138	0.008		●	KGBA%...4-15 KGBA%...22-15 KGBAS%...22-15	G12 G13
	094MYN			-		0.094	0.157	0.012		●	KGBA%...4-25 KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5	
	125MYN			-		0.125	0.157	0.012		●		
	156MYN			-		0.156	0.197	0.016		●	KGBA%...4-35 KGBA%...22-35 KGBAS%...22-35	
 <p>Full-R (Round)</p>	GBA32R 031R			-	inch	0.062	0.079	0.031		●	KGBA%...3 KGBA%...16 KGBAS%...16	
	047R			-		0.094	0.098	0.047		●		
	062R			-		0.125	0.098	0.062		●		
	GBA43% 031R			-	inch	0.062	0.138	0.031		●	KGBA%...4-15 KGBA%...22-15 KGBAS%...22-15	
	047R			-		0.094	0.157	0.047		●	KGBA%...4-25 KGBA%...22-25 KGBAS%...22-25 KGBA%...22-25T5 KGBAS%...22-25T5	
	062R			-		0.125	0.157	0.062		●		
	078R			-		0.156	0.197	0.078		●	KGBA%...4-35 KGBA%...22-35 KGBAS%...22-35	
	094R			-		0.188	0.197	0.094		●		

• Dimension B shows available grooving depth

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Inserts are sold in 5 piece boxes.

● : U.S. Stock Standard
 ○ : World Express (Shipping: 7-10 Business Days)

(Customer Service) 800.823.7284 - Option 1
 (Technical Support) 800.823.7284 - Option 2
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GBA Inserts (Metric)

Part Number	A	T	Ød	P	Classification of Usage										Applicable Toolholders	Ref. Page for Toolholder						
					●	⊙	⊚	⊛	⊜	⊝	⊞	⊟	⊠	⊡								
GBA32_	9.525	3.18	4.4	P	Carbon Steel / Alloy Steel	●						⊙	⊚									
GBA43_	12.700	4.76	5.5	M	Stainless Steel							●	⊙									
GBA43%480	12.700	5.00	5.5	K	Cast Iron									●								
				N	Non-ferrous Metals																	
				S	Titanium Alloy																	
				H	Hard materials (≤40HRC)							●	⊙									
					Hard materials (≥40HRC)																	
Insert	Part Number	Previous Part Number	Dimensions (mm)			MC ※2	Cermets			MEGACOAT	PVD Coated Carbide			Carbide	Applicable Toolholders	Ref. Page for Toolholder						
			W	B	rε		PV7040	TC40	TN6020		TN90	PR1215	PR1115				PR905	PR930	KW10			
Right-handed Insert Shown																						
	GBA32% 033-005	-	0.33	0.8	0.05																	
	050-005 ※1	GBA32% 050 ※1	0.50	1.0	0.05																	
	050-005 ※1	-	0.50	1.2	0.05																	
	075-005	GBA32% 075	0.75	2.0	0.05	○																
	095-005	095	0.95	2.0	0.05																	
	100-005	100	1.00	2.0	0.05	○																
	110-005	110	1.10	2.0	0.05																	
	120-005	120	1.20	2.0	0.05																	
	125-020	125	1.25	2.0	0.20	○																
	130-020	130	1.30	2.0	0.20																	
	140-020	140	1.40	2.5	0.20																	
	145-020	145	1.45	2.0	0.20																	
	145-020	-	1.45	2.5	0.20																	
	150-020	GBA32% 150	1.50	2.0	0.20	○																
	150-020	-	1.50	2.5	0.20	○																
	160-020	GBA32% 160	1.60	2.5	0.20																	
	170-020	170	1.70	2.5	0.20																	
	175-020	GBA32% 175	1.75	2.0	0.20																	
	175-020	-	1.75	2.5	0.20																	
	200-020	GBA32% 200	2.00	2.5	0.20	○																
	225-020	225	2.25	2.5	0.20																	
	250-020	250	2.50	2.5	0.20																	
	300-020	300	3.00	2.5	0.20																	
		GBA43% 125-010	-	1.25	2.0	0.10																
		125-020	GBA43% 125	1.25	2.0	0.20	○	○														
		140-020	140	1.40	3.5	0.20																
		145-020	145	1.45	2.0	0.20																
		145-020	-	1.45	3.5	0.20																
		150-010	-	1.50	3.5	0.10																
		150-020	GBA43% 150	1.50	3.5	0.20	○	○														
170-020		170	1.70	3.5	0.20																	
175-020		175	1.75	3.5	0.20																	
185-020		185	1.85	3.5	0.20																	
195-020		195	1.95	3.5	0.20																	
200-010		-	2.00	3.5	0.10																	
200-020		GBA43% 200	2.00	3.5	0.20	○	○															
225-020		225	2.25	3.5	0.20																	
230-020		230	2.30	3.5	0.20																	
250-010		-	2.50	5.0	0.10																	
250-030		GBA43% 250	2.50	4.0	0.30	○	○															
250-030		-	2.50	5.0	0.30																	
265-030	GBA43% 265	2.65	4.0	0.30																		
265-030	-	2.65	5.0	0.30																		
280-030	GBA43% 280	2.80	4.0	0.30																		
280-030	-	2.80	5.0	0.30																		
300-010	-	3.00	5.0	0.10																		
300-030	GBA43% 300	3.00	4.0	0.30	○	○																
300-030	-	3.00	5.0	0.30																		
325-030	GBA43% 325	3.25	5.0	0.30																		
330-030	330	3.30	4.0	0.30																		
330-030	-	3.30	5.0	0.30																		

● : Dimension B shows available grooving depth.
 ※1 : The edge width tolerance of GBA32R/L050 with mark ※1 is different.
 ※2 : MC stands for MEGACOAT Cermets
 ★1: KGBA%...22-25T5, KGBAS%...22-25T5
 ★2: KGBA%...22-25T5, KGBAS%...22-25T5, KGBA%...22-25, KGBAS%...22-25

Recommended Cutting Conditions G11

Inserts are sold in 10 piece boxes.

GBA Inserts (Metric)

Part Number	A	T	Ød	(mm)			P	M	K	N	S	H	Classification of Usage										Applicable Toolholders	Ref. Page for Toolholder		
				W	B	rε							MC ※1	Cermet	MEGA COAT	PVD Coated Carbide	Carbide	● : Light Interruption / 1st Choice	○ : Light Interruption / 2nd Choice	● : Continuous / 1st Choice	○ : Continuous / 2nd Choice					
GBA32_	9.525	3.18	4.4				Carbon Steel / Alloy Steel																			
GBA43_	12.70	4.76	5.5				Stainless Steel																			
GBA43% 480	12.70	5.00	5.5				Cast Iron																			
							Non-ferrous Metals																			
							Titanium Alloy																			
							Hard materials (≤40HRC)																			
							Hard materials (≥40HRC)																			
Insert Right-handed Insert Shown	Part Number	Previous Part Number	Dimensions (mm)			MC ※1	Cermet			MEGA COAT		PVD Coated Carbide		Carbide	Applicable Toolholders	Ref. Page for Toolholder										
			W	B	rε		TC40	TN6020	TN90	PR1215	PR1115	PR905	PR930				KW10									
	GBA43% 350-010	-	3.50	5.0	0.10						●	○														
	350-030	GBA43% 350	3.50	5.0	0.30		○		○		●	○	○	●	○											
	400-010	-	4.00	5.0	0.10						●	○														
	400-040	GBA43% 400	4.00	5.0	0.40	○	○		○		●	○	○	●	○											
	430-040	430	4.30	5.0	0.40		○		○		●	○	○	●	○											
	450-040	450	4.50	5.0	0.40		○		○		●	○	○	●	○											
	480-040	480	4.80	5.0	0.40		○		○		●	○	○	●	○											
<p>NEW</p> <p>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</p> <p>MY Chipbreaker</p>	GBA43% 175-020MY	GBA43% 175MY	1.75	3.5	0.20			○		●	○		○													
	185-020MY	185MY	1.85	3.5	0.20			○		●	○		○													
	200-020MY	200MY	2.00	3.5	0.20			Ⓡ		●	○		Ⓡ													
	230-020MY	230MY	2.30	3.5	0.20			○		●	○		○													
	250-030MY	GBA43% 250MY	2.50	4.0	0.30			Ⓡ							★2											
	250-030MY	-	2.50	5.0	0.30					●	○		Ⓡ		★1											
	265-030MY	GBA43% 265MY	2.65	4.0	0.30			○							★2											
	265-030MY	-	2.65	5.0	0.30					●	○		○		★1											
	300-030MY	GBA43% 300MY	3.00	4.0	0.30			○							★2											
	300-030MY	-	3.00	5.0	0.30					●	○		Ⓡ		★1											
	330-030MY	GBA43% 330MY	3.30	4.0	0.30			Ⓡ							★2											
	330-030MY	-	3.30	5.0	0.30					●	○		Ⓡ		★1											
	350-030MY	GBA43% 350MY	3.50	5.0	0.30			○		●	○		○		KGBA%...22-35 KGBAS%...22-35											
400-040MY	400MY	4.00	5.0	0.40			○		●	○		Ⓡ		KGBA%...22-35 KGBAS%...22-35												

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

• Dimension B shows available grooving depth.
 ※1 : MC stands for MEGACOAT Cermet
 ★1 : KGBA%...22-25T5, KGBAS%...22-25T5
 ★2 : KGBA%...22-25T5, KGBAS%...22-25T5, KGBA%...22-25, KGBAS%...22-25

Recommended Cutting Conditions **G11**

GBA-GM Rake Angle after Installment of GBA(α)

α (°)	Insert Part Number
10°	GBA43% 150-020GM
15°	GBA43% 175-020GM
	GBA43% 265-030GM
12°	GBA43% 300-030GM
	GBA43% 400-040GM

GBA-MY Rake Angle after Installment of GBA-MY(α)

α (°)	Insert Part Number
15°	GBA43% 175-020MY
	GBA43% 350-030MY
14°	GBA43% 400-040MY

• α indicates the rake angle at the center of the edge width after installing insert.

Inserts are sold in 10 piece boxes.

● : U.S. Stock Ⓡ : U.S. Stock (R-hand Only) Ⓛ : U.S. Stock (L-hand Only)
 ○ : World Express (Shipping: 7-10 Business Days) Ⓢ : World Express (R-hand Only) Ⓣ : World Express (L-hand Only)

GBA Inserts (Metric)

				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)																			
Part Number	A	T	Ød																					
GBA32_	9.525	3.18	4.4																					
GBA43_	12.70	4.76	5.5																					
GBA43%480	12.70	5.00	5.5																					

Insert	Part Number	Previous Part Number	Dimensions (mm)			MC ※1	Cermet			MEGA COAT	PVD Coated Carbide			Carbide	Applicable Toolholders	Ref. Page for Toolholder
			W	B	rε		PV7040	TC40N	TN6020		TN90	PR1215	PR1115			
	GBA32% 200-100R	-	2.00	2.5	1.00									KGBAR...16	G12 G13	
	300-150R	-	3.00	2.5	1.50									KGBASL...16		
	GBA43% 100-050R	GBA43% 050R	1.00	2.0	0.50	○				Ⓜ	Ⓜ			KGBA%...22-15		
	150-075R	075R	1.50	3.5	0.75	○				Ⓜ	Ⓜ			KGBAS%...22-15		
	200-100R	100R	2.00	3.5	1.00	○				Ⓜ	Ⓜ			KGBA%...22-25		
	250-125R	125R	2.50	4.0	1.25					Ⓜ	Ⓜ			KGBAS%...22-25T5		
	300-150R	150R	3.00	4.0	1.50					Ⓜ	Ⓜ			KGBAS%...22-25T5		
	400-200R	200R	4.00	5.0	2.00					Ⓜ	Ⓜ			KGBA%...22-35		

• Dimension B shows available grooving depth.
 ※1 : MC stands for MEGACOAT Cermet

GBA Inserts (Metric)

				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)															
Part Number	A	T	Ød																	
GBA32_	9.525	3.18	4.4																	
GBA43_	12.700	4.76	5.5																	
GBA43%480	12.700	5.00	5.5																	

Insert	Part Number	Previous Part Number	Dimensions (mm)			CBN		PCD		Applicable Toolholders	Ref. Page for Toolholder
			W	B	rε	KBN510	KBN525	KPD001	KPD010		
	GBA32% 125-010	GBA32% 125	1.25	2.0	0.1				Ⓜ	KGBAR...16	G12 G13
	150-010	150	1.50	2.0	0.1				Ⓜ	KGBASL...16	
	GBA43% 125-010	GBA43% 125	1.25	2.0	0.1				○	KGBA%...22-15	
	125-020	125	1.25	2.0	0.2	○	Ⓜ			KGBAS%...22-15	
	150-010	150	1.50	3.5	0.1				○		
	150-020	150	1.50	3.5	0.2	Ⓜ	Ⓜ				
	200-010	200	2.00	3.5	0.1				○		
	200-020	200	2.00	3.5	0.2	Ⓜ	○				
	250-010	250	2.50	4.0	0.1				○	KGBA%...22-25	
	250-020	250	2.50	4.0	0.2	○	○			KGBAS%...22-25	

• Dimension B shows available grooving depth

GBA Rake Angle after Installment of GBA(α)

For GBA32%○○○-○○○		For GBA43%○○○-○○○		For GBA43%○○○-○○○ R(Full-R)		
α (°)	Insert Grade	α (°)	Insert Grade	α (°)	Insert Grade	Full-R
10°	TN90,PV7040,PR930 PR1115,PR1215,PR905 KPD001,KPD010	0°	KBN510, KBN525	10°	TN90,PV7040,PR930 PR1115,PR1215,PR905	050R-150R
		10°	TC40N,TN90,PV7040,PR930 PR1115,PR1215,PR905 KPD001, KPD010		TN90,PV7040,PR930 PR1115,PR1215,PR905	200R
20°	KW10	20°	KW10	14°	KW10	050R~200R

• α indicates the rake angle of the edge width after installing the insert

RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions

GBA Type Insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)										① f (feed) during Grooving (ipr) ② f (feed) during Traversing (ipr) ③ D.O.C. during Traversing (in)					Remarks
	MC ※1	Cermet				MEGA COAT	PVD Coated Carbide	Carbide	CBN	PCD	GBA○○% 033 ~ 100	GBA○○% 125 ~ 200	GBA○○% 230 ~ 300	GBA○○% 330 ~ 400	GBA○○% 400 ~ 480	
	PV7040	TC40	TN90	PR1215	PR930	PR1115	PR905	KW10	KBN510 KBN525	KPD001 (KPD010)						
Carbon Steel (SxxC, etc.)	★	☆	☆	★	☆	☆	-	-	-	-	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 0.032	
Alloy Steel (SCM, etc.)	★	☆	☆	★	☆	☆	-	-	-	-	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 0.0020~0.0039 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 0.032	
Stainless Steel (SUS304, etc.)	-	-	☆	☆	☆	★	-	-	-	-	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 0.032	
Cast Iron (FC/FCD, etc.)	-	-	-	-	-	-	★	☆	★	-	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 0.032	
Aluminum	-	-	-	-	-	-	-	★	-	★	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 0.032	① 0.0031~0.0059 ② 0.0031~0.0059 ③ MAX 0.032	① 0.0031~0.0059 ② 0.0031~0.0059 ③ MAX 0.032	
Brass	-	-	-	-	-	-	-	★	-	★	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 0.032	① 0.0031~0.0059 ② 0.0031~0.0059 ③ MAX 0.032	① 0.0031~0.0059 ② 0.0031~0.0059 ③ MAX 0.032	
Hard Materials	-	-	-	-	-	-	-	-	★	-	-	① 0.0008~0.0500 ② Traversing N/A ③ Traversing N/A	① 0.0012~0.0028 ② 0.0100~0.0400 ③ MAX 0.004	-	-	

• Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation
※1 : MC stands for MEGACOAT Cermet

GBA Type Insert (GM Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)		① f (feed) during Grooving (ipr) ② f (feed) during Traversing (ipr) ③ D.O.C. during Traversing (in)				Remarks
	MEGACOAT		GBA43% 150~ 020GM	GBA43% 175-020GM~ 230-020GM	GBA43% 250-030GM~ 350-030GM	GBA43% 400-040GM	
	PR1215						
Carbon Steel (SxxC, etc.)	250-725		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 0.032	
Alloy Steel (SCM, etc.)	250-650		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 0.032	
Stainless Steel (SUS304, etc.)	200-500		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 0.032	

• Above cutting condition is for external grooving. Set both cutting speed and feed 20% higher for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

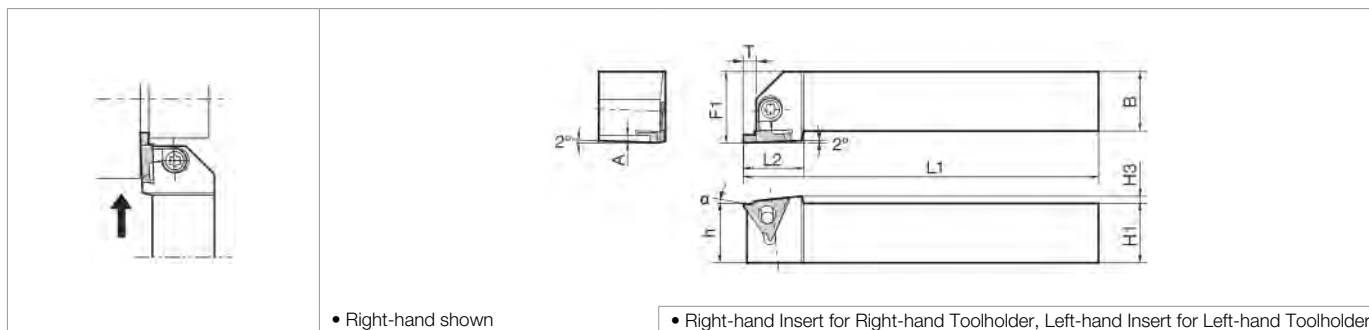
GBA Type Insert (MY Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr) ② f (feed) during Traversing (ipr) ③ D.O.C. during Traversing (in)					Remarks			
	Cermet		MEGA COAT	PVD Coated Carbide	Carbide	CBN	PCD	GBA43% 175MY~ 200MY	GBA43% 230MY~ 265MY	GBA43% 300MY	GBA43% 330MY~ 350MY	GBA43% 400MY					
	TN6020	TC40	PR1215	PR930	PR1115	KW10	KBN510						KPD001 (KPD010)				
Carbon Steel (SxxC, etc.)	☆	-	★	☆	☆	-	-	-	-	-	-	-	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 0.032
Alloy Steel (SCM, etc.)	☆	-	★	☆	☆	-	-	-	-	-	-	-	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 0.032
Stainless Steel (SUS304, etc.)	☆	-	☆	☆	★	-	-	-	-	-	-	-	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 0.032

• Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. ★ : 1st Recommendation ☆ : 2nd Recommendation

CBN & PCD Inserts are sold in 1 piece boxes.

■ KGBA



• Right-hand shown

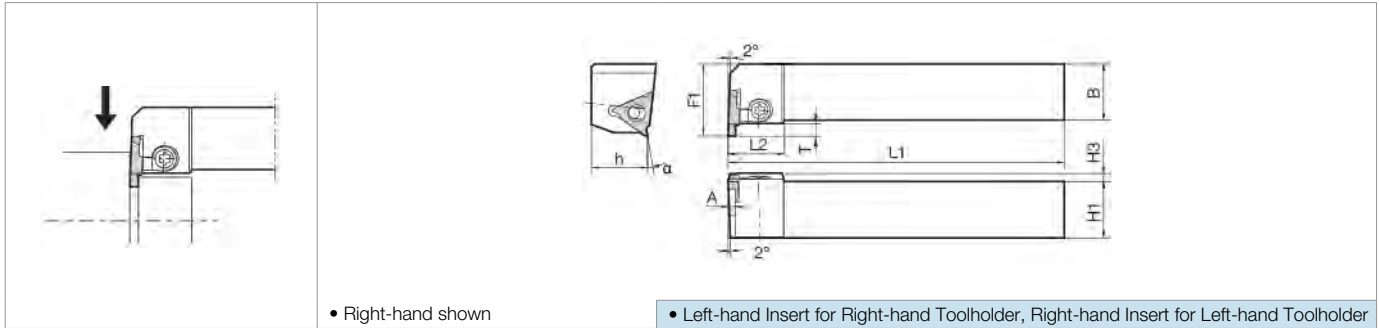
• Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder

● Toolholder Dimensions



Part Number	Stock		Unit	Dimensions								Spare Parts		Applicable Insert ● G6- ● G10
	R	L		H1=h	H3	B	L1	L2	F1	A	T	Clamp Set	Wrench	
KGBA% 12-3 12-4-15 12-4-25 12-4-25T 12-4-35	●	●	inch	0.750	0.160	0.750	5.00	0.945	1.000	-	0.098	LGBA-16% S	FT-15	GBA32% Type
	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.039	0.157			
	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.079	0.177	LGBA-22% S	FT-15	GBA43% Type
	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.079	0.217			
	●	●		0.750	0.160	0.750	5.00	1.004	1.000	0.118	0.217			
KGBA% 2020K-16 2020K22-15 2020K22-25 2020K22-25T5 2020K22-35 2020H22-15 2020H22-25 2020H22-35	○	○	mm	20	4.0	20	125	24	25	-	2.5	LGBA-16% S	FT-15	GBA32% Type
	○	○		20	4.0	20	125	25.5	25	1.0	4.0			
	○	○		20	4.0	20	125	25.5	25	2.0	4.5	LGBA-22% S	FT-15	GBA43% Type
	○	○		20	4.0	20	125	25.5	25	2.0	5.5			
	○	○		20	4.0	20	100	25.5	25	3.0	5.5			
	○	○		20	4.0	20	100	25.5	25	1.0	4.0			
	○	○		20	4.0	20	100	25.5	25	2.0	4.5			
	○	○		20	4.0	20	100	25.5	25	3.0	5.5			

- Dimension T shows the distance from the Toolholder to the cutting edge Dimension B shows available grooving depth.
- Clamp Set : KGBA%...LGBA-ORS for Right-hand Toolholder, and LGBA-OLS for Left-hand Toolholder
- KGBAS%...LGBA-OLS for Right-hand Toolholder, and LGBA-ORS for Left-hand Toolholder

KGBAS



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions								Spare Parts		Applicable Insert G6- G10
	R	L		H1=h	H3	B	L1	L2	F1	A	T			
KGBAS% 12-3	●		inch	0.750	0.152	0.750	5.000	0.984	0.984	-	0.098	LGBA-16LS	FT-15	GBA32L Type
12-4-15	●			0.750	0.160	0.750	5.000	0.984	1.062	0.039	0.157	LGBA-22LS	FT-15	GBA43L Type
12-4-25	●			0.750	0.160	0.750	5.000	0.984	1.062	0.079	0.177			
12-4-35	●			0.750	0.160	0.750	5.000	0.984	1.062	0.118	0.217			
KGBAS% 2020K-16	○	○	mm	20	4.0	20	125	25	25	-	2.5	LGBA-16%LS	FT-15	GBA32%L Type
2020K22-15	○	○		20	4.5	20	125	25	27	1.0	4.0	LGBA-22%LS	FT-15	GBA43%L Type
2020K22-25	○	○		20	4.5	20	125	25	27	2.0	4.5			
2020K22-25T5	○	○		20	4.5	20	125	25	27	2.0	5.5			
2020K22-35	○	○		20	4.5	20	125	25	27	3.0	5.5			

- Dimension T shows the distance from the Toolholder to the cutting edge Dimension B shows available grooving depth.
- Clamp Set : KGBA%...LGBA-ORS for Right-hand Toolholder. and LGBA-OLS for Left-hand Toolholder
KGBAS%...LGBA-OLS for Right-hand Toolholder. and LGBA-ORS 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 KGBAR2020H22-○○ (Overall length 100mm) is available., meaning it is no longer necessary for users to cut-down the shank.

GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GROOVING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

KGD Insert Lineup

Smooth Chip Control

Introducing new chipbreakers designed to cover a variety of workpiece materials.

High Precision Edge Preparation

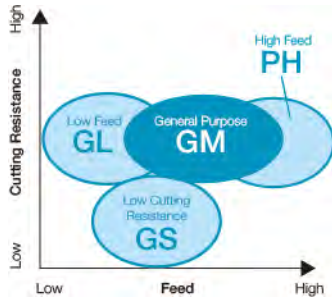
High precision molding technology with tolerance $\pm 0.03\text{mm}$ (2, 3, 4mm types).

MEGACOAT Technology

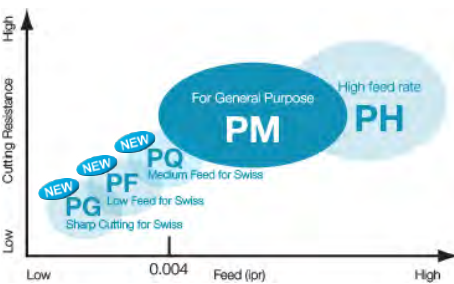
Long tool life and high efficiency machining achieved by superior oxidation and wear resistance.

Application Map

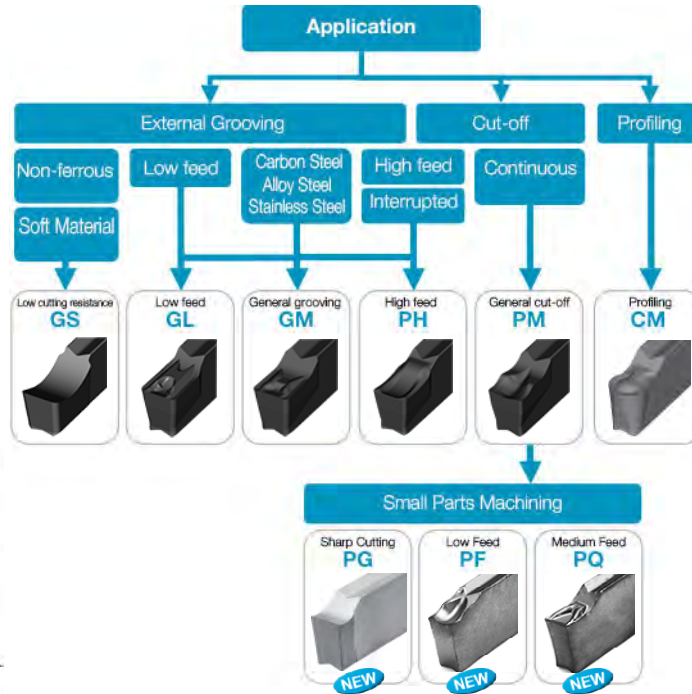
External Grooving & Traversing



Cut-off

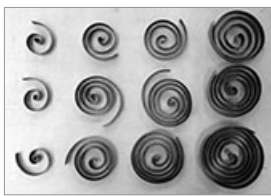


Chipbreaker Selection



PF / PQ / PG / PM / PH Cut-Off Inserts and Applicable Toolholders H12- H13

Cutting Conditions - SCM415 $V_c=500\text{sfm}$, $f=0.006\text{ipr}$



GM Chipbreaker



Competitor A



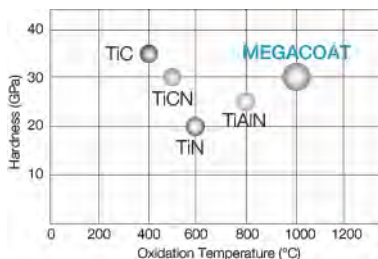
Competitor B

Better chip control than competitors

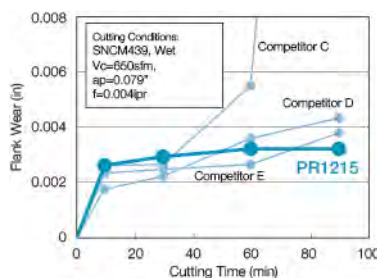


Reduces damage of cutting edge caused by crushing chips

MEGACOAT Features



Wear Resistance Comparison



PR1225

1st recommendation for cut-off, grooving, and traversing

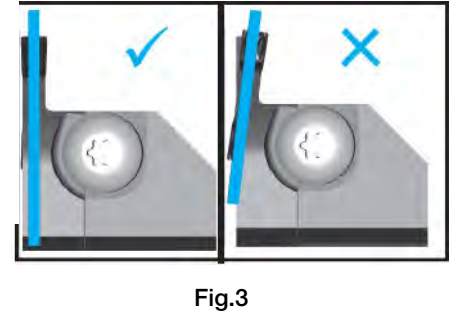
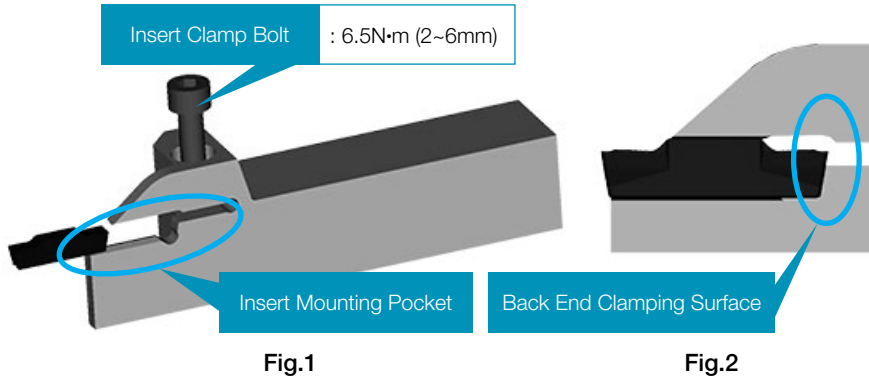
PR1215

Superior wear resistance, recommended for grooving and cut-off under stable conditions.

1st recommendation for machining of cast iron

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.2, Fig.3)
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)



Guide for External Machining

Point (I)

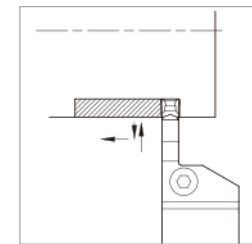
1. Grooving Depths Over 0.5mm : At Roughing (Fig.1)
Before traversing, pull the tool back about 0.1mm after grooving, instead of traversing subsequent to grooving.
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)
2. Grooving Depths Under 0.5mm : At Finishing (Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary)

Point (II)

When widening the groove width, apply the "Step Turning" as shown in Fig.3

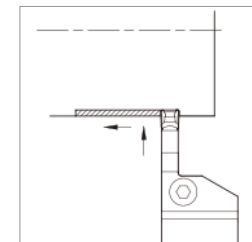
The widened groove and side walls should be finished last.
(For better chip control, D.O.C. over 0.5mm is recommended.)

Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



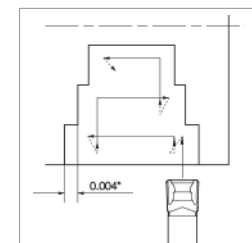
Before traversing, pull the tool back about 0.1mm after grooving.
(Grooving depth over 0.5mm : At roughing)

Fig.1



Traversing subsequent to grooving.
(Grooving depth under 0.5mm : At Finishing)

Fig.2



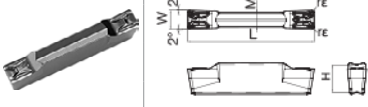
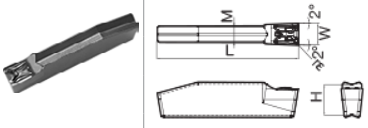
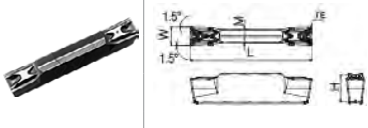
GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

GROOVING & CUT-OFF INSERTS

GDM / GDMS / GDG

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

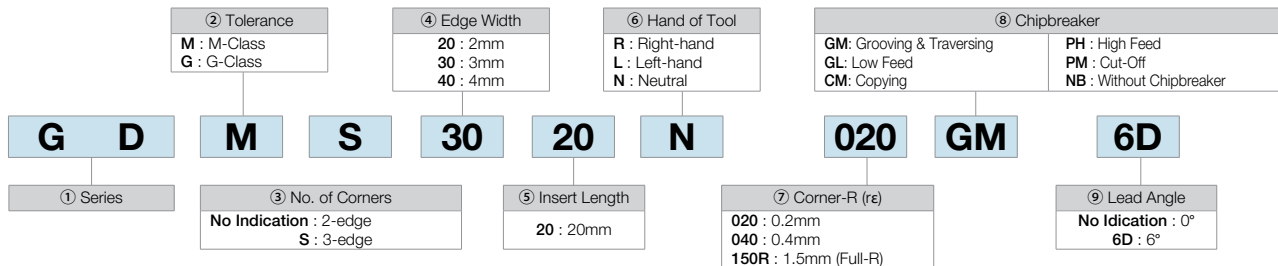
P	Carbon Steel / Alloy Steel	●	●	○	●
M	Stainless Steel		●	○	
K	Cast Iron			●	
N	Non-ferrous Metals				●
S	Titanium Alloy				●
H	Hard materials (≤40HRC)		○		
	Hard materials (≥40HRC)				

Insert Right-handed Insert Shown	Part Number	Dimensions (inch)								Cermet	MAGA COAT NANO	MEGACOAT	Carbide	Ref. Page for Toolholder				
		W			rε	M	L	H	TN90						PR1535	PR1225	PR1215	GW15
		inch	mm	Tolerance														
 General Purpose 2-edge	GDM 2420N-020GM	0.094	2.4	±0.0012	0.008	0.077	0.787	0.169	○		●	●		G19 G20 G21				
	3020N-020GM	0.118	3.0		0.008	0.091	0.787	0.169	○		●	●						
	3020N-040GM	0.118	3.0		0.016	0.091	0.787	0.169	○		●	●						
	4020N-020GM	0.157	4.0		0.008	0.130	0.787	0.169	○		●	●						
	4020N-040GM	0.157	4.0		0.016	0.130	0.787	0.169	○		●	●						
	4020N-080GM	0.157	4.0		0.032	0.130	0.787	0.169	○		●	●						
	 General Purpose 1-edge	5020N-040GM	0.197	5.0	±0.0016	0.016	0.165	0.787	0.169	○		●	●					
		5020N-080GM	0.197	5.0		0.032	0.165	0.787	0.169	○		●	●					
		6020N-040GM	0.236	6.0		0.016	0.205	0.787	0.169	○		●	●					
		6020N-080GM	0.236	6.0		0.032	0.205	0.787	0.169	○		●	●					
 Low feed 2-edge	GDM 2420N-020GL	0.094	2.4	±0.0012	0.008	0.077	0.787	0.169	○		●	●						
	3020N-020GL	0.118	3.0		0.008	0.091	0.787	0.169	○		●	●						
	3020N-040GL	0.118	3.0		0.016	0.091	0.787	0.169	○		●	●						
	4020N-020GL	0.157	4.0	±0.0016	0.008	0.130	0.787	0.169	○		●	●						
	4020N-040GL	0.157	4.0		0.016	0.130	0.787	0.169	○		●	●						
	5020N-040GL	0.197	5.0		0.016	0.165	0.787	0.169	○		●	●						
6020N-040GL	0.236	6.0	0.016	0.205	0.787	0.169	○		●	●								

PH Chipbreaker inserts and applicable toolholders for cut-off **H13**

Recommended Cutting Conditions **G22**

Insert Identification System



Inserts are sold in 10 piece boxes.

GDM / GDMS / GDG

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)				

Insert Right-handed Insert Shown	Part Number	Dimensions (inch)							Cermet	MAGA COAT NANO	MEGACOAT	Carbide	Ref. Page for Toolholder					
		W			rε	M	L	H						TN90	PR1595	PR1225	PR1215	GW15
		inch	mm	Tolerance														
Grooving Low cutting force 2-edge	GDG 2520N-020GS	0.098	2.5	±0.0008	0.008	0.079	0.787	0.169	○		●	●	●					
	3020N-020GS	0.118	3.0		0.008	0.091	0.787	0.169	○		●	●	●					
	3520N-020GS	0.138	3.5		0.008	0.110	0.787	0.169	○		●	●	●					
	4020N-040GS	0.157	4.0		0.016	0.130	0.787	0.169	○		●	●	●					
	5020N-040GS	0.197	5.0		0.016	0.165	0.787	0.169	○		●	●	●					
	6020N-040GS	0.236	6.0		0.016	0.205	0.787	0.169	○		●	●	●					
Full R / Copying 2-edge	GDM 3020N-150R-CM	0.118	3.0	±0.0012	0.059	0.091	0.787	0.169	○		●	●	● G19 ● G20 ● G21					
	4020N-200R-CM	0.157	4.0		0.079	0.130	0.787	0.169	○		●	●						
	5020N-250R-CM	0.197	5.0	±0.0016	0.098	0.165	0.787	0.169	○		●	●						
	6020N-300R-CM	0.236	6.0		0.120	0.205	0.787	0.169	○		●	●						
Grooving & Traversing High feed 2-edge High feed 1-edge	GDM 2020N-020PH	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169		○	●	●						
	3020N-030PH	0.118	3.0		0.012	0.091	0.787	0.169		○	●	●						
	4020N-030PH	0.157	4.0		0.012	0.130	0.787	0.169		○	●	●						
	GDMS 2020N-020PH	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169		○	●	●						
	3020N-030PH	0.118	3.0		0.012	0.091	0.787	0.169		○	●	●						
	4020N-030PH	0.157	4.0		0.012	0.130	0.787	0.169		○	●	●						

PH Chipbreaker inserts and applicable toolholders for cut-off ● H13

Recommended Cutting Conditions ● G22

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 (mm)								Angle	MEGA CBN	CBN	PCD	Ref. Page for Toolholder				
		W			rε	M	L	H	S						θ	KBN05M	KBN570	KPD001
		inch	mm	Tolerance														
Grooving 1-Edge	GDGS 2020N-020NB	0.079	2.0	±0.02	0.2	1.8	20	4.3	2.9	-		○	○	● G19 ● G20 ● G21				
	3020N-020NB	0.118	3.0		0.2	2.3	20	4.3	2.9	-		○	○					
	3020N-040NB	0.118	3.0		0.4	2.3	20	4.3	2.9	-	●		○					
	4020N-020NB	0.158	4.0		0.2	3.3	20	4.3	2.9	-			○					
	4020N-040NB	0.158	4.0		0.4	3.3	20	4.3	2.9	-	○	○						
	5020N-020NB	0.197	5.0		0.2	4.2	20	4.3	2.9	-			○					
	5020N-040NB	0.197	5.0		0.4	4.2	20	4.3	2.9	-	○	○						
	6020N-020NB	0.236	6.0		0.2	5.2	20	4.3	2.9	-			○					
	6020N-040NB	0.236	6.0		0.4	5.2	20	4.3	2.9	-	○	○						

Recommended Cutting Conditions ● G22

Inserts are sold in 10 piece boxes.

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

◆ KGD • KGM Combinations

● Insert Setting Angle of KGD / KGM Toolholders



Features of KGD Series for Small Diameter

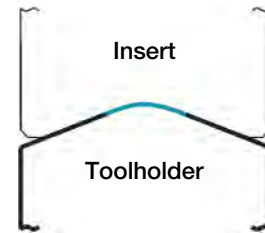
1 New Slit Design



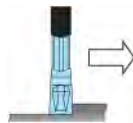
Toolholder clamps insert equally and firmly

The insert clamping force is improved by firmly fastening the front side (insert side) of the toolholder.

2 Radial-Shaped Surface on Toolholder



The insert clamping force and installation are improved by increasing the contact area between the insert and toolholder.



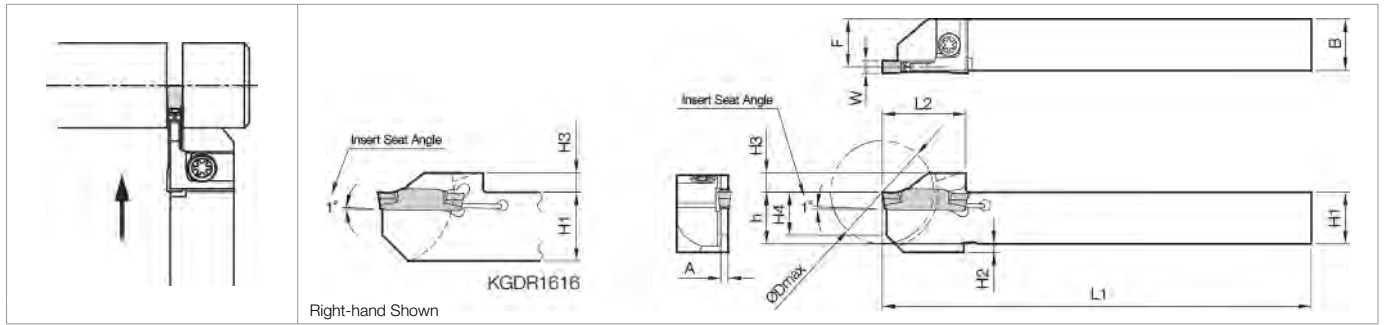
[Cutting Conditions]
 $n=2,550\text{min}^{-1}$, $f=0.008\text{--}0.012\text{ipr}$, D.O.C.= $0.039\text{''--}0.118\text{''}$
 Workpiece: W1-9 ($\varnothing 10\text{mm}$) WET (Oil base)

KGD
 Excellent Clamping Force

● Clamping Test (Traversing)

D.O.C.	0.039"		0.059"		0.079"		0.098"		0.118"	
Feed Rate	0.010ipr	0.012ipr	0.010ipr	0.012ipr	0.010ipr	0.012ipr	0.010ipr	0.012ipr	0.010ipr	0.012ipr
KGD Series for Swiss Tools	○									
Conventional	×									
Competitor 1	×									
Competitor 2	×									

KGD (Swiss)



Toolholder Dimensions (Inch Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (inch)									Insert Width W (mm)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN	MAX	Clamp Screw
KGD% 6-1.5JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.351	0.047	-	0.059	SB-40120TR	LTW-15S
8-1.5JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.476	0.047	-	0.059		
KGD% 6-2JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.342	0.067	0.078	0.118	SB-40120TR	LTW-15S
8-2JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.467	0.067	0.078	0.118		
10-2JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.592	0.067	0.078	0.118		
KGD% 6-2.4JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.336	0.079	0.094	0.118	SB-40120TR	LTW-15S
8-2.4JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.461	0.079	0.094	0.118		
10-2.4JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.586	0.079	0.094	0.118		
KGD% 8-3JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.453	0.094	0.118	0.118	SB-40120TR	LTW-15S
10-3JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.578	0.094	0.118	0.157		
KGD% 10-3D38JX	●	●	1.496	0.625	-	0.236	0.394	0.625	4.75	1.142	0.578	0.094	0.118	0.157	SE-50125TR	LTW-20
12-3D42JX	●	●	1.653	0.750	-	0.236	0.551	0.750	4.75	1.220	0.703	0.094	0.118	0.157		
43-3D42JX	●	●	1.653	0.750	-	0.236	0.551	0.500	4.75	1.220	0.453	0.094	0.118	0.157		

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G16~G17**

Toolholder Dimensions (Metric Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (mm)									Insert Width W (mm)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN	MAX	Clamp Screw
KGD% 1010JX-1.3	○	○	20	10	2	4.5	8	10	120	18.0	9.50	1.0	1.3	1.5	SB-40120TR	LTW-15S
1212JX-1.3	○	○	24	12	2	4.5	10	12	120	19.5	11.50	1.0	1.3	1.5		
KGD% 1010JX-1.5	○	○	20	10	2	4.5	8	10	120	18.0	9.40	1.2	-	1.5	SB-40120TR	LTW-15S
1212JX-1.5	○	○	24	12	2	4.5	10	12	120	19.5	11.40	1.2	-	1.5		
KGD% 1010JX-2	○	○	20	10	2	4.5	8	10	120	18.0	9.15	1.7	2.0	3.0	SB-40120TR	LTW-15S
1212JX-2	○	○	24	12	2	4.5	10	12	120	19.5	11.15	1.7	2.0	3.0		
1616JX-2	○	●	32	16	-	4.5	10	16	120	24.5	15.15	1.7	2.0	3.0		
KGD% 1010JX-2.4	○	○	20	10	2	4.5	8	10	120	18.0	9.00	2.0	2.4	3.0	SB-40120TR	LTW-15S
1212JX-2.4	○	○	24	12	2	4.5	10	12	120	19.5	11.00	2.0	2.4	3.0		
1616JX-2.4	○	○	32	16	-	4.5	10	16	120	24.5	15.00	2.0	2.4	3.0		
KGD% 1212JX-3	○	○	24	12	2	4.5	10	12	120	19.5	10.80	2.4	3.0	3.0	SB-40120TR	LTW-15S
1616JX-3	○	○	32	16	-	4.5	10	16	120	24.5	14.80	2.4	3.0	4.0		
KGD% 1616JX-3D38	○	○	38	16	-	6.0	10	16	120	29.0	14.80	2.4	3.0	4.0	SE-50125TR	LTW-20
2020JX-3D42	○	○	42	20	-	6.0	14	20	120	31.0	18.80	2.4	3.0	4.0		
2012JX-3D42	○	○	42	20	-	6.0	14	12	120	31.0	10.80	2.4	3.0	4.0		
KGD% 1212F-1.3	○	○	24	12	2	4.5	10	12	85	19.5	11.50	1.0	1.3	1.5	SB-40120TR	LTW-15S
1212F-1.5	○	○	24	12	2	4.5	10	12	85	19.5	11.40	1.2	-	1.5	SB-40120TR	LTW-15S
1212F-2	○	○	24	12	2	4.5	10	12	85	19.5	11.15	1.7	2.0	3.0	SB-40120TR	LTW-15S
1212F-2.4	○	○	24	12	2	4.5	10	12	85	19.5	11.00	2.0	2.4	3.0	SB-40120TR	LTW-15S

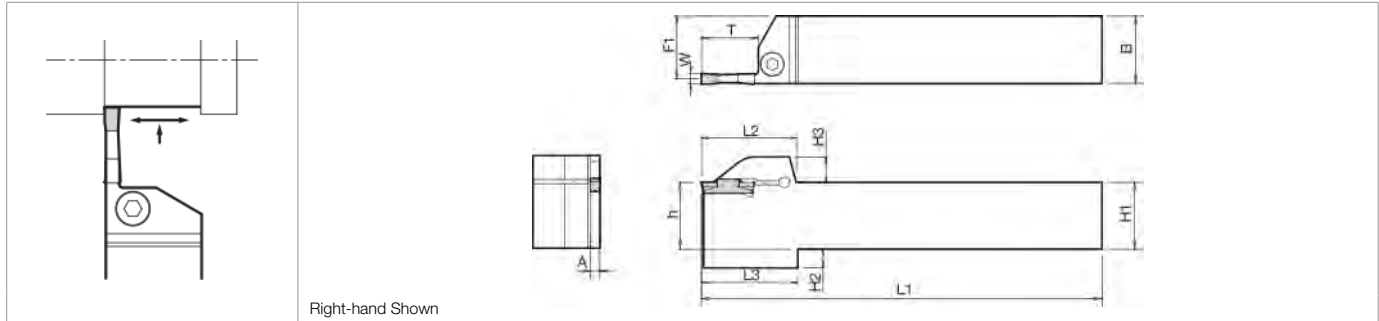
Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G16~G17**

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

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T

KGD (Integral-Style)



Right-hand Shown

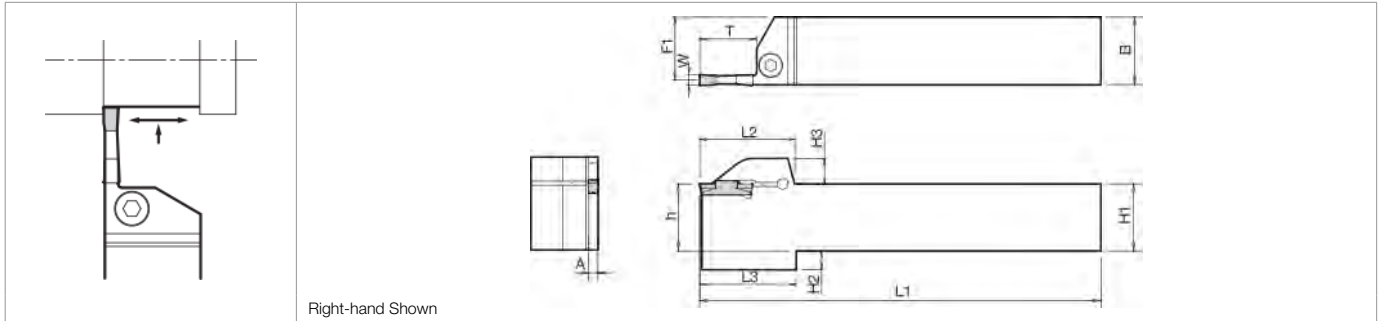
Toolholder Dimensions (Inch Size)

Width (mm)	Max Grooving Depth (mm)	Part Number	Stock		Dimensions (inch)										Insert Width W (mm)		Spare Parts	
			R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T*	MIN	MAX	Clamp Bolt	Wrench
2	0.669 (17mm)	KGD ^{1/2} 12-2T17	●	●	0.75	-	0.374	0.75	4.92	1.28	-	0.71	0.067	0.669 (17mm)	2.0	3.0	HH5X16	LW-4
		16-2T17	●	●	1.00	-	0.374	1.00	5.90	1.28	-	0.96	0.067		2.0	3.0	HH5X25	
3	0.393 (10mm)	KGD ^{1/2} 12-3T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.70	0.094	0.393 (10mm)	3.0	4.0	HH5X16	
		16-3T10	●	●	1.00	-	0.374	1.00	5.90	1.20	-	0.95	0.094		3.0	4.0	HH5X25	
3	0.787 (20mm)	KGD ^{1/2} 12-3T20	●	●	0.75	-	0.374	0.75	4.92	1.35	-	0.70	0.094	0.787 (20mm)	3.0	4.0	HH5X16	
		16-3T20	●	●	1.00	-	0.374	1.00	5.90	1.39	-	0.95	0.094		3.0	4.0	HH5X25	
4	0.393 (10mm)	KGD ^{1/2} 12-4T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.68	0.133	0.393 (10mm)	4.0	5.0	HH5X16	
		16-4T10	●	●	1.00	-	0.374	1.00	5.90	1.20	-	0.93	0.133		4.0	5.0	HH5X25	
4	0.787 (20mm)	KGD ^{1/2} 12-4T20	●	●	0.75	-	0.374	0.75	4.92	1.35	-	0.68	0.133	0.787 (20mm)	4.0	5.0	HH5X16	
		16-4T20	●	●	1.00	-	0.374	1.00	5.90	1.39	-	0.93	0.133		4.0	5.0	HH5X25	
5	0.393 (10mm)	KGD ^{1/2} 12-5T10	●	●	0.75	-	0.374	0.75	4.92	1.20	-	0.66	0.173	0.393 (10mm)	5.0	6.0	HH5X16	
		16-5T10	●	●	1.00	-	0.374	1.00	5.90	1.20	-	0.91	0.173		5.0	6.0	HH5X25	
5	0.669 (17mm)	KGD ^{1/2} 12-5T17	●	●	0.75	-	0.374	0.75	4.92	1.47	-	0.66	0.173	0.669 (17mm)	5.0	6.0	HH5X16	
		16-5T17	●	●	1.00	-	0.374	1.00	5.90	1.47	-	0.91	0.173		5.0	6.0	HH5X25	

* T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, the maximum grooving depth is 18mm.)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G16-** **G17**

KGD (Integral-Style)



Right-hand Shown

Toolholder Dimensions (Metric Size)

Width (mm)	Max. Grooving Depth (mm)	Part Number	Stock		Dimensions (inch)										Insert Width W (mm)		Spare Parts	
			R	L	H1=h	H2	H3	B	L1	L2	L3	F1	A	T*	MIN	MAX	Clamp Bolt	Wrench
2.0	6	KGD% 1616H-2T06	○	○	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4
		2020K-2T06	○	○	20	-	9.5	20	125	28.0	-	19.2	1.7	6	2.0	3.0		
	10	KGD% 1616H-2T10	○	○	16	4.0	9.5	16	100	30.2	30.5	15.2	1.7	10	2.0	3.0		
		2020K-2T10	○	○	20	-	9.5	20	125	30.5	-	19.2	1.7	10	2.0	3.0		
	17	KGD% 1616H-2T17	○	●	16	4.0	9.5	16	100	31.2	31.5	15.2	1.7	17	2.0	3.0		
			2012K-2T17	○	○	20	-	9.5	12	125	32.5	-	11.2	1.7	17	2.0		
2020K-2T17		○	○	20	-	9.5	20	125	32.5	-	19.2	1.7	17	2.0	3.0			
2.4	17	KGD% 2012K-2.4T17	○	○	20	-	9.5	12	125	32.5	-	11.0	2.0	17	2.4	3.0	HH5X16	LW-4
		2020K-2.4T17	○	○	20	-	9.5	20	125	32.5	-	19.0	2.0	17	2.4	3.0		
3.0	6	KGD% 1616H-3T06	○	○	16	4.0	9.5	16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16	LW-4
		2020K-3T06	○	○	20	-	9.5	20	125	28.0	-	18.8	2.4	6	3.0	4.0		
	10	KGD% 1616H-3T10	○	○	16	4.0	9.5	16	100	30.2	30.5	14.8	2.4	10	3.0	4.0		
		2020K-3T10	○	○	20	-	9.5	20	125	30.5	-	18.8	2.4	10	3.0	4.0		
	20	KGD% 1616H-3T20	○	○	16	4.0	9.5	16	100	34.2	34.5	14.8	2.4	20	3.0	4.0		
		2012K-3T20	○	○	20	-	9.5	12	125	34.5	-	10.8	2.4	20	3.0	4.0		
4.0	20	2020K-3T20	○	○	20	-	9.5	20	125	34.5	-	18.8	2.4	20	3.0	4.0		
		KGD% 2020K-4T10	○	○	20	-	9.5	20	125	30.5	-	18.3	3.4	10	4.0	5.0	HH5X16	LW-4
5.0	10	KGD% 2020K-4T20	○	○	20	-	9.5	20	125	34.5	-	18.3	3.4	20	4.0	5.0		
		17	KGD% 2020K-5T10	○	○	20	-	9.5	20	125	30.5	-	17.8	4.4	10	5.0	6.0	HH5X16
KGD% 2020K-5T17	○		○	20	-	9.5	20	125	37.5	-	17.8	4.4	17	5.0	6.0	HH5X25		

* T dimension shows the distance from the toolholder to the cutting edge. (When using 2-edge insert, the maximum grooving depth is 18mm.)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G16~G17**

GRADES **A**

INSERTS **B**

CBN & POD **C**

TURNING **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

SOLID END MILLS **L**

MILLING **M**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

RECOMMENDED CUTTING CONDITIONS

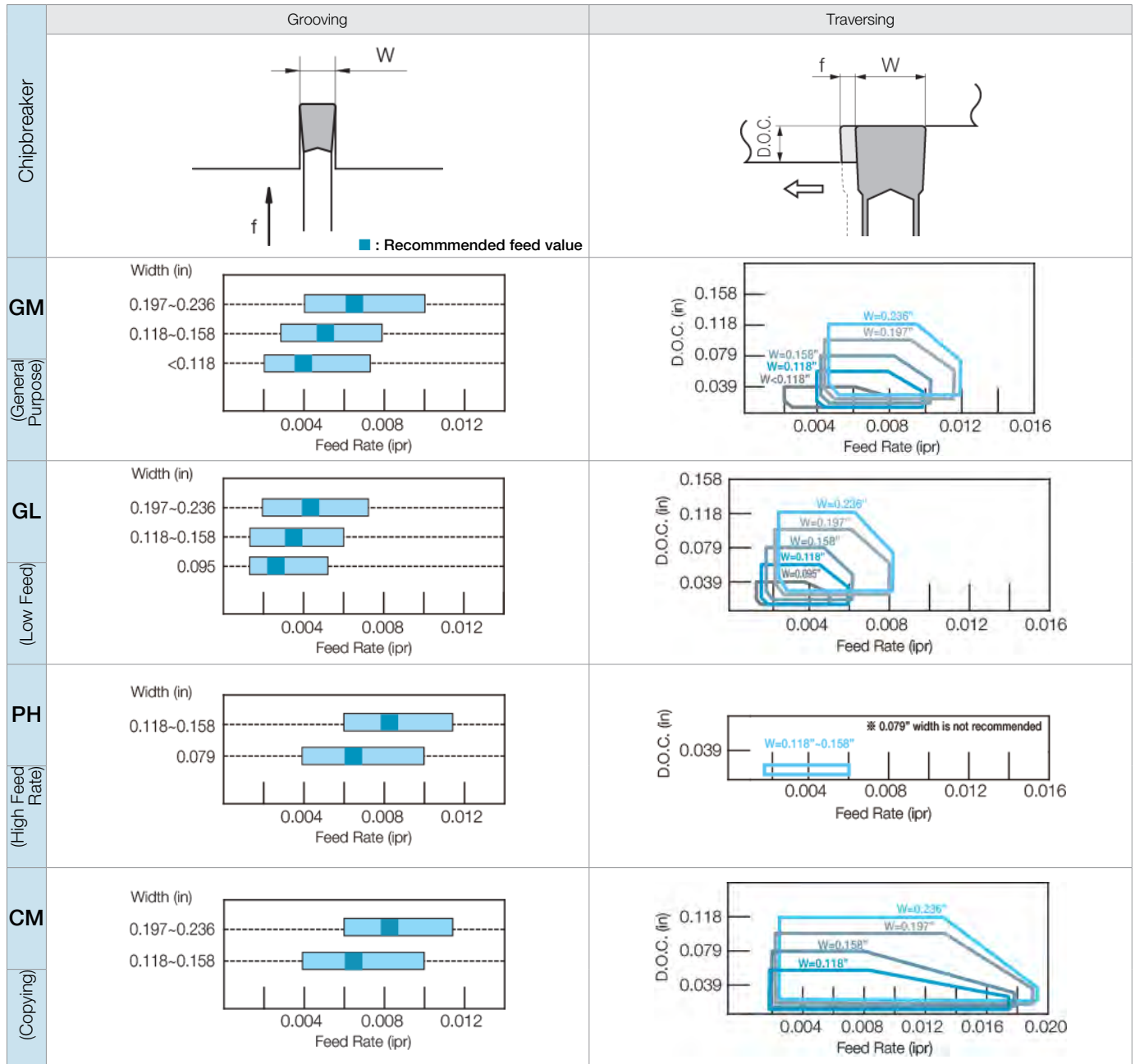
◆ Recommended Cutting Conditions (Vc)

A GRADES	Workpiece Material	Chipbreaker	Recommended Insert Grade (Vc : sfm)						Remarks	
			Cermet	MEGACOAT		Carbide	MEGACOAT CBN	CBN		PCD
			TN90	PR1225	PR1215	GW15	KBN05M	KBN570		KPD001
B INSERTS	Carbon Steel	GM GL CM PH GS PM	☆ 325-725	★ 250-650	☆ 325-650	-	-	-	-	Wet
	Alloy Steel		☆ 250-650	★ 225-600	☆ 250-600	-	-	-	-	
	Stainless Steel		☆ 225-600	★ 200-500	☆ 200-500	-	-	-	-	
	Cast Iron		-	-	★ 325-650	-	-	-	-	
C CBN & PCD	Aluminum	GS NB	-	-	-	☆ 650-1650	-	-	★ 500-6550	
	Brass		-	-	-	☆ 325-650	-	-	★ 650-2625	
	Hardened Material	NB	-	-	-	-	★ 250-500	-	-	
Powdered Steel	-		-	-	-	-	★ 325-825	-		

★ : 1st Recommendation ☆ : 2nd Recommendation

◆ Recommended Cutting Conditions (Feed Rate • D.O.C.)

(Workpiece Material : 1049)



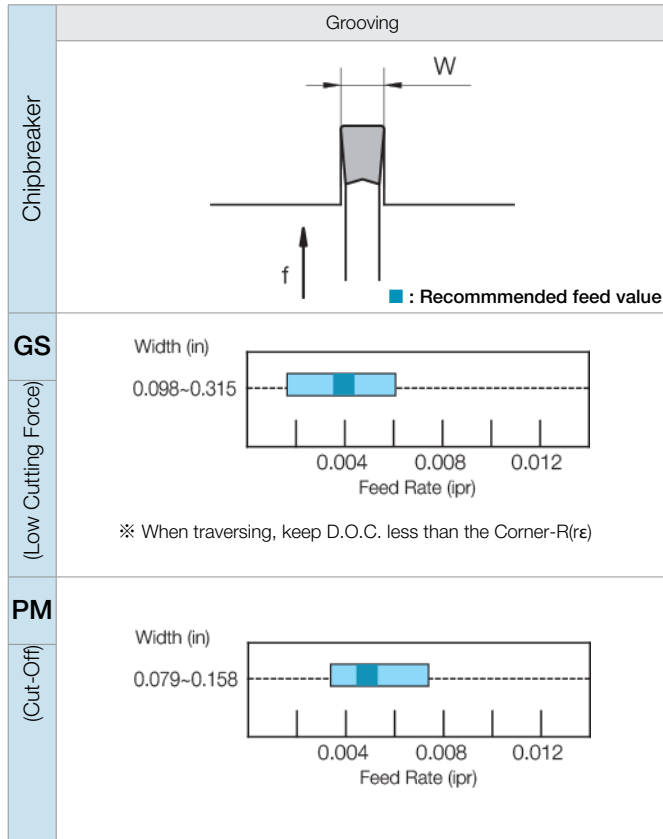
1) The above values reflect a T dimension that is 0.669" (17mm) or less.

2) If the toolholder is not for the 8mm width insert and its T dimension is over 0.669" (17mm), set the values for longitudinal turning to less than 90% of those above.

RECOMMENDED CUTTING CONDITIONS

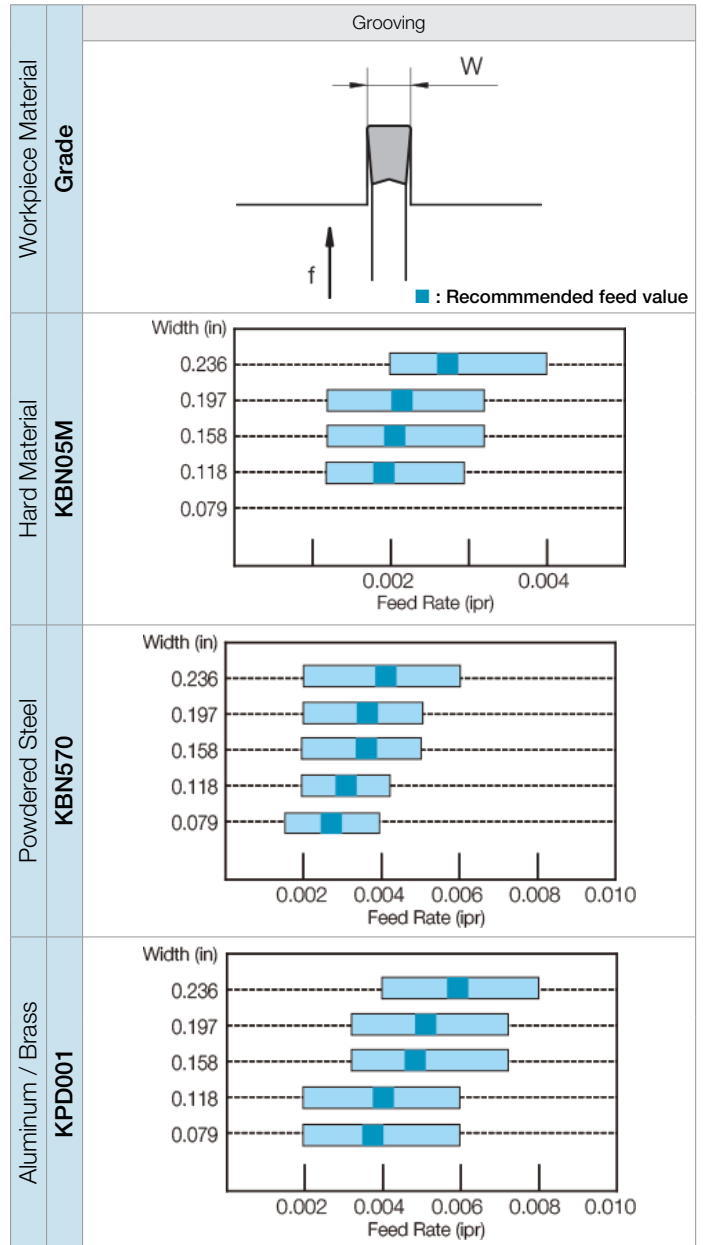
◆ Recommended Cutting Conditions (Feed Rate • D.O.C.)

(Workpiece Material : 1049)



1) The above values reflect a T dimension that is 0.669" (17mm) or less.

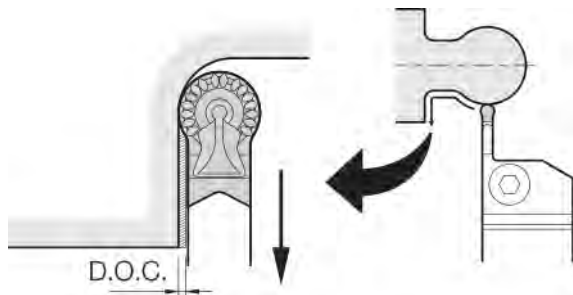
◆ Recommended Cutting Conditions (Feed Rate)



◆ CM Chipbreakers (Back Turning)

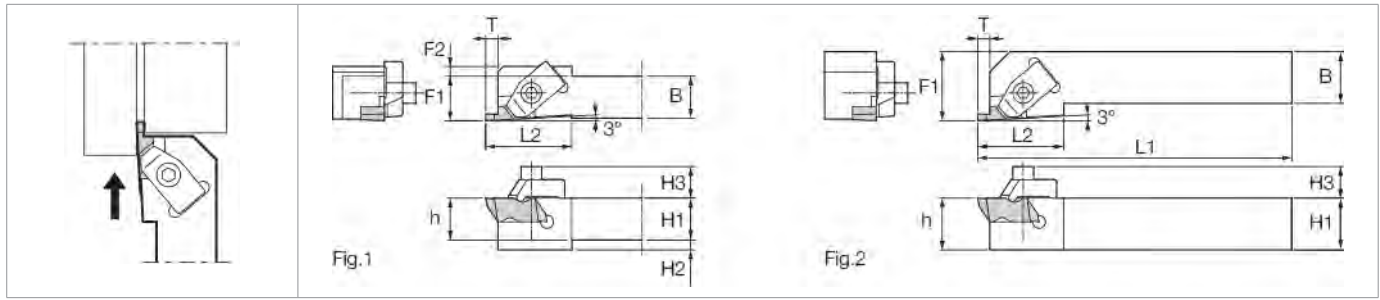
- Estimated maximum cutting amount (D.O.C.) for back copying

Part Number	Max. D.O.C. (in)				
	Toolholder Part No.				
	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



GRADES	A
INSERTS	B
CBN & PCBN	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

■ KKC



● Toolholder Dimensions (Inch Size)

Part Number	Stock		Unit	Dimensions									Fig	Spare Parts		
	R	L		H1=h	H2	H3	B	L1	L2	F1	F2	T*		Clamp	Clamp Bolt	Wrench
KKC% 1212M-2-150F	●		mm	12	-	9.2	12	150	19.05	12.25	-	3.5	1	CKC-2 %	SKC-2	(7/64 hex)
KKC% 6-2X	●	●	inch	0.375	-	0.362	0.375	2.500	0.750	0.562	-	0.138	2	CKC-2 %	SKC-2	(7/64 hex)
6-2CF	●	●		0.375	0.125	0.362	0.375	5.000	0.750	0.385	0.125	0.138	1			
8-2X	●	●		0.500	-	0.362	0.500	3.500	0.750	0.750	-	0.138	2			
8-2DF	●	●		0.500	-	0.362	0.500	6.000	0.750	0.510	-	0.138	1			
10-2DF	●	●		0.625	-	0.362	0.625	6.000	0.750	0.635	-	0.138	1			

* T dimension shows the distance from the toolholder to the cutting edge.

Applicable Inserts ● G25

- Note: Right hand bars require right hand inserts and clamps
- Left hand bars require left hand inserts and clamps

KCG / KCGP / KCRP

Insert	Part Number	Dimensions (in)							Cermet		MEGA COAT CVD	Carbide			Ceramic
		W ^{±0.001*}	B	R	A	L	H	E	TC40	TC60	PR1215	PR660	PR930	KW10	A65
	KCG 2062%	0.062	0.110	0.008	0.150	0.350	0.219	0.270							●
	2125%	0.125	0.110	0.008	0.150	0.350	0.219	0.270							●
	KCGP 2031%	0.031	0.050	0.003	0.150	0.350	0.219	0.270	●	●	●	●	●	●	
	2041%	0.041	0.050	0.003	0.150	0.350	0.219	0.270	●	●	●		●		
	2047%	0.047	0.050	0.003	0.150	0.350	0.219	0.270	●	●	●	●	●	●	
	KCGP 2058%	0.058	0.110	0.008	0.150	0.350	0.219	0.270	●		●		●		
	2062%	0.062	0.110	0.008	0.150	0.350	0.219	0.270	●	●	●	●	●	●	
	KCGP 2094%	0.094	0.110	0.008	0.150	0.350	0.219	0.270	●		●	●	●	●	
	KCRP 2031%	0.062	0.094	0.031	0.150	0.350	0.219	0.270		Ⓡ	●	Ⓡ	Ⓡ		
	2039%	0.078	0.110	0.039	0.150	0.350	0.219	0.270					●		
	2047%	0.094	0.150	0.047	0.150	0.350	0.219	0.270			●				
	2062%	0.125	0.150	0.062	0.150	0.350	0.219	0.270		Ⓡ	●				

Applicable Toolholders **G24**

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 = 0.003~0.008ipr



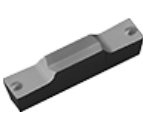
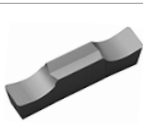


MULTI-FUNCTION / GROOVING (CUT-OFF)

GMM / GMG

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

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)													

Insert	Part Number	Previous Part Number	Dimensions (mm)										Cermet	PVD Coated Carbide					Ref. Page for Toolholder	
			W		rε	M	L	H	TN90	CR9025	PR915	PR930		PR905	KW10					
			inch	mm																
 Chip Control Oriented M-Class	GMM 2420-020MW	GMM 2420-02	0.095	2.4	0.2	1.9	20	4.3			●	●	○	○	○	○	○	○		
	3020-020MW	3020-02	0.118	3.0	0.2	2.3	20	4.3			○	○	○	○	○	○	○	○		
	3020-040MW	3020-04	0.118	3.0	0.4	2.3	20	4.3			●		○	●	○	○	○	○		
	4020-020MW	4020-02	0.158	4.0	0.2	3.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-040MW	4020-04	0.158	4.0	0.4	3.3	20	4.3			●	●	●	●	○	○	○	○		
	4020-080MW	4020-08	0.158	4.0	0.8	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-040MW	5020-04	0.197	5.0	0.4	4.2	20	4.3			○	○	●	○	○	○	○	○		
	5020-080MW	5020-08	0.197	5.0	0.8	4.2	20	4.3			○	●	○	●	○	○	○	○		
	6020-040MW	6020-04	0.236	6.0	0.4	5.2	20	4.3				○	○	○	○	○	○	○		
6020-080MW	6020-08	0.236	6.0	0.8	5.2	20	4.3			●	○	○	○	○	○	○	○			
 Sharp Cutting Oriented M-Class	GMM 3020-020MS	GMM 3020-02MS	0.118	3.0	0.2	2.3	20	4.3			○	○	○	○	○	○	○	○		
	3020-040MS	3020-04MS	0.118	3.0	0.4	2.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-040MS	4020-04MS	0.158	4.0	0.4	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-040MS	5020-04MS	0.197	5.0	0.4	4.2	20	4.3			○		●	○	○	○	○	○		
	6020-040MS	6020-04MS	0.236	6.0	0.4	5.2	20	4.3			○	○	○	○	○	○	○	○		
	6020-04MS	6020-04MS	0.236	6.0	0.4	5.2	20	4.3			○	○	○	○	○	○	○	○		
 Sharp Cutting Oriented Precision Class	GMG 3020-000MS	GMG 3020-00	0.118	3.0	0.0	2.3	20	4.3			○	○	○	○	○	○	○	○		
	3020-020MS	3020-02	0.118	3.0	0.2	2.3	20	4.3			○	○	○	○	○	○	○	○		
	3020-040MS	3020-04	0.118	3.0	0.4	2.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-020MS	4020-02	0.158	4.0	0.2	3.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-040MS	4020-04	0.158	4.0	0.4	3.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-080MS	4020-08	0.158	4.0	0.8	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-040MS	5020-04	0.197	5.0	0.4	4.2	20	4.3			○	○	○	○	○	○	○	○		
	5020-080MS	5020-08	0.197	5.0	0.8	4.2	20	4.3			○	○	○	○	○	○	○	○		
	6020-040MS	6020-04	0.236	6.0	0.4	5.2	20	4.3			○	○	○	○	○	○	○	○		
6020-080MS	6020-08	0.236	6.0	0.8	5.2	20	4.3			○	○	○	○	○	○	○	○			
 Sharp Cutting Oriented Ground Chipbreaker	GMG 2520-030MG	GMG 2520-03MG	0.098	2.5	0.3	2.0	20	4.3			○	○	○	○	○	○	○	○		
	3020-030MG	3020-03MG	0.118	3.0	0.3	2.3	20	4.3			○	○	○	○	○	○	○	○		
	3520-030MG	3520-03MG	0.138	3.5	0.3	2.8	20	4.3			○	○	○	○	○	○	○	○		
	4020-040MG	4020-04MG	0.158	4.0	0.4	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-040MG	5020-04MG	0.197	5.0	0.4	4.2	20	4.3			○	○	○	○	○	○	○	○		
	6020-040MG	6020-04MG	0.236	6.0	0.4	5.2	20	4.3			○	○	○	○	○	○	○	○		
 Chip Control Oriented M-Class	GMM 3020-150R	GMM 3020-15R	0.118	3.0	1.5	2.3	20	4.3			●	●	○	○	○	○	○	○		
	4020-200R	4020-20R	0.158	4.0	2.0	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-250R	5020-25R	0.197	5.0	2.5	4.2	20	4.3			○	○	○	○	○	○	○	○		
	6020-300R	6020-30R	0.236	6.0	3.0	5.2	20	4.3			●	○	○	○	○	○	○	○		
 Sharp Cutting Oriented Full-R / Copying	GMG 3020-150R	GMG 3020-15R	0.118	3.0	1.5	2.3	20	4.3			○	○	○	○	○	○	○	○		
	4020-200R	4020-20R	0.158	4.0	2.0	3.3	20	4.3			○	○	○	○	○	○	○	○		
	5020-250R	5020-25R	0.197	5.0	2.5	4.2	20	4.3			○	○	○	○	○	○	○	○		
	6020-300R	6020-30R	0.236	6.0	3.0	5.2	20	4.3			○	○	○	○	○	○	○	○		

G31

Recommended Cutting Conditions G29








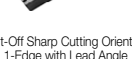
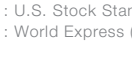
Inserts are sold in 10 piece boxes.

MULTI-FUNCTION / GROOVING (CUT-OFF)

GMM / GMN / GM^{RL}

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)

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)						Angle (°)	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	Ref. Page for Toolholder				
		W		rε	M	L	H				θ	TN90			CR9025	PR915	PR930	KW10
		inch	mm															
 Deep Grooving / Cut-Off Sharp Cutting Oriented	GMM 1520-MT	0.059	1.5	0.00	1.2	20	4.3	-				●	●					
	2020-MT	0.059	1.5	0.05	1.2	20	4.3	-			●							
	2520-MT	0.079	2.0	0.00	1.5	20	4.3	-			●	●	○					
	3020-MT	0.079	2.0	0.05	1.5	20	4.3	-			○	○						
	3020-MT	0.098	2.5	0.00	1.9	20	4.3	-			○	○						
 Cut-Off Sharp Cutting Oriented with Lead Angle	GMM 1520^{RL}-MT-15D	0.059	1.5	0.00	1.2	20	4.3	15°				●	●	Ⓡ				
	2020^{RL}-MT-15D	0.059	1.5	0.05	1.2	20	4.3	15°			Ⓡ							
	2520^{RL}-MT-15D	0.079	2.0	0.00	1.5	20	4.3	15°			○	Ⓡ	●	○				
	3020^{RL}-MT-15D	0.079	2.0	0.05	1.5	20	4.3	15°			○	Ⓡ	●	○				
	3020^{RL}-MT-15D	0.098	2.5	0.00	1.9	20	4.3	15°			○	Ⓡ	●	○				
 Deep Grooving / Cut-Off Sharp Cutting Oriented Without Chipbreaker	GMM 1520-NB	0.059	1.5	0.00	1.2	20	4.3	-					○	○				
	2020-NB	0.059	1.5	0.05	1.2	20	4.3	-					○	○				
	2520-NB	0.079	2.0	0.00	1.5	20	4.3	-			○		○	○				
	3020-NB	0.079	2.0	0.05	1.5	20	4.3	-			○		○	○				
	3020-NB	0.098	2.5	0.00	1.9	20	4.3	-			○		○	○				
 Deep Grooving / Cut-Off Stability Oriented	GMM 2020-TK	0.079	2.0	0.20	1.5	20	4.3	-			○	●	○					
	2520-TK	0.098	2.5	0.20	1.9	20	4.3	-			○	○	○	○				
	3020-TK	0.098	2.5	0.20	1.9	20	4.3	-			○	○	○	○				
 Cut-Off Stability Oriented With Lead Angle	GMM 2020^{RL}-TK-8D	0.079	2.0	0.20	1.5	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ					
	2520^{RL}-TK-8D	0.098	2.5	0.20	1.9	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ	Ⓡ				
	3020^{RL}-TK-8D	0.098	2.5	0.20	1.9	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ	Ⓡ				
 Cut-Off Stability Oriented 1-Edge	GMN 2-TK	0.079	2.0	0.20	1.5	20	4.3	-			○	○	○					
	3-TK	0.118	3.0	0.25	2.3	20	4.3	-			○	○	○	○				
	4-TK	0.158	4.0	0.30	3.3	20	4.3	-			○	○	○	○				
 Cut-Off Stability Oriented 1-Edge with Lead Angle	GM^{RL} 2-TK-8D	0.079	2.0	0.20	1.5	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ					
	3-TK-8D	0.118	3.0	0.25	2.3	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ	Ⓡ				
	4-TK-8D	0.158	4.0	0.30	3.3	20	4.3	8°			Ⓡ	Ⓡ	Ⓡ	Ⓡ				
 Deep Grooving / Cut-Off 1-Edge	GMN 2.2	0.087	2.2	0.17	1.8	20	4.3	-	○	●		○	●					
	3	0.118	3.0	0.20	2.3	20	4.3	-	○	●		●	●					
	4	0.158	4.0	0.25	3.3	20	4.3	-	○			●	●					
	5	0.197	5.0	0.80	4.2	20	4.3	-	○	○		○	○					
	6	0.236	6.0	0.80	5.2	20	4.3	-	○	○		○	○					
 Cut-Off Sharp Cutting Oriented 1-Edge with Lead Angle	GM^{RL} 2.2-8D	0.087	2.2	0.17	1.8	20	4.3	8°	Ⓡ	Ⓡ		Ⓡ	●					
	2.2-15D	0.087	2.2	0.00	1.8	20	4.3	15°	Ⓡ	○		○	○					
	3-4D	0.118	3.0	0.20	2.3	20	4.3	4°	Ⓡ	●		○	Ⓡ					
	4-4D	0.158	4.0	0.25	3.3	20	4.3	4°		○		Ⓡ						

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

➔ G31

Recommended Cutting Conditions ➔ G29

Inserts are sold in 10 piece boxes.

● : U.S. Stock Standard
 ○ : World Express (Shipping: 7-10 Business Days)

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



Multi-Function CERACUT Plunge & Turn Chipbreakers

Name	Shape	Advantages
GMM...MW		Excellent chip evacuation during grooving, traversing, and cut-off
GMG...MG		Low cutting forces with ground chipbreaker
GMG...MS GMM...MS		Grooving, traversing and cut-off operations are minimum cutting forces with positive edge
GMM...MT		Small corner-R(re) minimizes the core which remains in the center of the face
GMM...TK		Large corner-R(re) with stable performance during cut-off
GMM...NB		Flat rake face without chipbreaker. Good performance for brass.

Edge Preparation

Edge Preparation	Chamfered + Honed Cutting Edge	Chamfered + Honed Cutting Edge
	Corner-R(re) 0.05	Sharp Edge
Edge Preparation		
Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Preparation	Chamfered + Honed Cutting Edge	Sharp Edge
	Corner-R(re) 0.20-0.30	Corner-R(re) 0.20-0.30
Edge Preparation		
Chipbreaker	CR9025 / PR915	PR930 / KW10
Edge Preparation	Honed Cutting Edge	Sharp Edge
	Corner-R(re)	Sharp Corner
Edge Preparation		
Without Chipbreaker	CR9025	PR930 / KW10

• Sharp edge spec. can reduce cutting resistance 40% less than that of chamfer edge

GMM / GMG

Classification of Usage
 ● : Light Interruption / 1st Choice
 ○ : Light Interruption / 2nd Choice
 ● : Continuous / 1st Choice
 ○ : Continuous / 2nd Choice

Insert	Part Number	Dimensions (mm)						Angle (°)	CBN		PCD		Ref. Page for Toolholder
		W		rε	M	L	H		S	KBN510	KBN525	KPD001	
		inch	mm										
	GMN 2	0.079	2.0	0.2	1.8	20	4.3	2.9					G31
	3	0.079	2.0	0.4	1.8	20	4.3	2.9	○	○	○	○	
	4	0.118	3.0	0.2	2.3	20	4.3	2.9	○	○	○	○	
	5	0.118	3.0	0.4	2.3	20	4.3	2.9	○	○	○	○	
	6	0.158	4.0	0.2	3.3	20	4.3	2.9	○	○	○	○	
	6	0.158	4.0	0.4	3.3	20	4.3	2.9	○	○	○	○	
	5	0.197	5.0	0.2	4.2	20	4.3	2.9	○	○	○	○	
	5	0.197	5.0	0.4	4.2	20	4.3	2.9	○	○	○	○	
	6	0.236	6.0	0.2	5.2	20	4.3	2.9	○	○	○	○	
	6	0.236	6.0	0.4	5.2	20	4.3	2.9	○	○	○	○	

GMN Cutting Conditions (CBN / PCD)

Workpiece Material	Recommended Insert Grade (Vc fpm)		① f (feed) during Grooving (ipr) ② f (feed) during Turning (ipr) ③ D.O.C. during Turning (in)				Remarks
	PCD		GMN2	GMN3	GMN4 GMN5	GMN6	
	KBN510 KBN525	KPD001 (KPD010)					
Aluminum	-	★ 500-6550	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. 0.0315	① 0.0031-0.0071 ② 0.0031-0.0071 ③ Max. 0.0315	① 0.0039-0.0079 ② 0.0039-0.0079 ③ Max. 0.0315	Wet
Brass	-	★ 650-2625	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. 0.0315	① 0.0031-0.0071 ② 0.0031-0.0071 ③ Max. 0.0315	① 0.0039-0.0079 ② 0.0039-0.0079 ③ Max. 0.0315	
Cast Iron	★ 500-1300	-	① 0.0016-0.0035 ② 0.0016-0.0035 ③ Max. 0.0118	① 0.0020-0.0039 ② 0.0020-0.0039 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. 0.0315	
Hard Materials	★ 250-400	-	① 0.0008-0.0020 ② 0.0004-0.0012 ③ Max. 0.0039	① 0.0012-0.0028 ② 0.0004-0.0020 ③ Max. 0.0079	① 0.0012-0.0031 ② 0.0012-0.0031 ③ Max. 0.0118	① 0.0020-0.0039 ② 0.0020-0.0039 ③ Max. 0.0157	

★ : 1st Recommendation ☆ : 2nd Recommendation

Inserts are sold in 1 piece boxes.

CERACUT Plunge & Turn Recommended Cutting Conditions

GMG / GMM / GMN Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)						Grooving				Turning				Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	KW10	Width				Width				
			PR9025	PR915			PR930	PR905	0.079"~0.118" (2.0mm~3.0mm)	0.158" (4.0mm)	0.197" (5.0mm)	0.236" (6.0mm)	0.079"~0.118" (2.0mm~3.0mm)	0.158" (4.0mm)	
	TN90	CR9025	PR915	PR930	PR905	KW10	Feed Rate (ipr)				Feed Rate (ipr)				
Carbon Steel	☆ 325-725	☆ 250-650	☆ 250-650	★ 250-650	-	-	0.002-0.006	0.004-0.010	0.006-0.014	0.008-0.014	0.004-0.008	0.006-0.012	0.008-0.016	0.010-0.016	Wet
Alloy Steel	☆ 250-650	☆ 225-600	☆ 225-600	★ 225-600	-	-	0.002-0.006	0.004-0.010	0.006-0.014	0.008-0.014	0.004-0.008	0.006-0.012	0.008-0.016	0.010-0.016	
Stainless Steel	☆ 225-525	☆ 200-500	★ 200-500	☆ 200-500	-	-	0.002-0.006	0.004-0.008	0.006-0.014	0.008-0.014	0.004-0.008	0.006-0.010	0.008-0.016	0.010-0.016	
Cast Iron	-	-	-	-	★ 325-650	☆ 225-500	0.002-0.008	0.004-0.012	0.006-0.016	0.008-0.016	0.004-0.010	0.006-0.014	0.008-0.018	0.010-0.018	
Aluminum	-	-	-	-	-	★ 650-1650	0.002-0.008	0.003-0.010	0.004-0.010	0.005-0.012	0.004-0.008	0.004-0.010	0.004-0.010	0.006-0.012	
Brass	-	-	-	-	-	★ 325-650	0.002-0.006	0.003-0.008	0.004-0.010	0.005-0.012	0.004-0.008	0.004-0.010	0.004-0.010	0.006-0.012	

★ : 1st Recommendation ☆ : 2nd Recommendation

Turning Conditions

① KGM Toolholder

Recommended Cutting Conditions		
D.O.C.(MAX) (in)	Under 80% of Edge Width	D.O.C. ≤ 0.0315w
f(MAX) (ipr)	Under 10% of Edge Width	f ≤ 0.0039w

• (D.O.C.) x (f) should not exceed 1/2 of D.O.C.(MAX) x f(MAX)

Edge Width (in)	0.079"~0.098" (2.0~2.5mm)	0.118" (3.0mm)	0.158" (4.0mm)	0.197" (5.0mm)	0.236" (6.0mm)
Load (in ²)					
D.O.C. x Feed Rate (f)	Under 0.008"	Under 0.014"	Under 0.025"	Under 0.039"	Under 0.057"

• 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

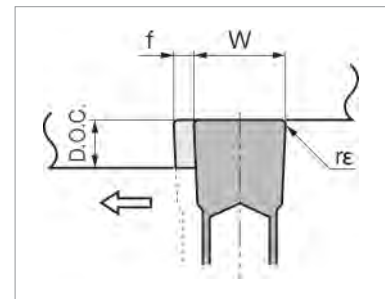


Fig.1

Guide for External Machining

● Point (I) (Turning After Grooving)

- Grooving Depths Over 0.020" : At Roughing (Fig.1)
Before traversing, pull the tool back about 0.004" after grooving, instead of traversing subsequent to grooving.
(Failure to pull the tool back before traverse cutting will result in an unbalanced load applied on only one side of the cutting edge.)

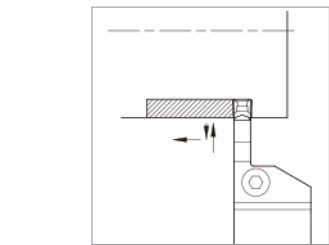
- Grooving Depths Under 0.020" : At Finishing (Fig.2)
Traversing subsequent to grooving is possible because shallow groove depths relate a small load on the cutting edge.
(Dwell-motion is not necessary)

● Point (II)

When widening the groove width, apply the "Step Turning" as shown in Fig.3

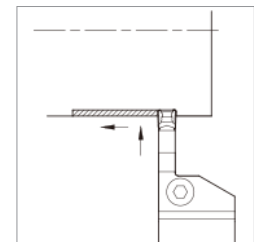
The widened groove and side walls should be finished last.
(For better chip control, D.O.C. over 0.020" is recommended.)

Note: If the workpiece is not supported at the center, reduce the feed rate when grooving towards center



Before traversing, pull the tool back about 0.004" after grooving.
(Grooving depth over 0.020" : At roughing)

Fig.1



Traversing subsequent to grooving.
(Grooving depth under 0.020" : At Finishing)

Fig.2

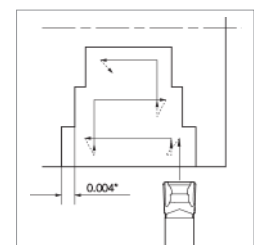


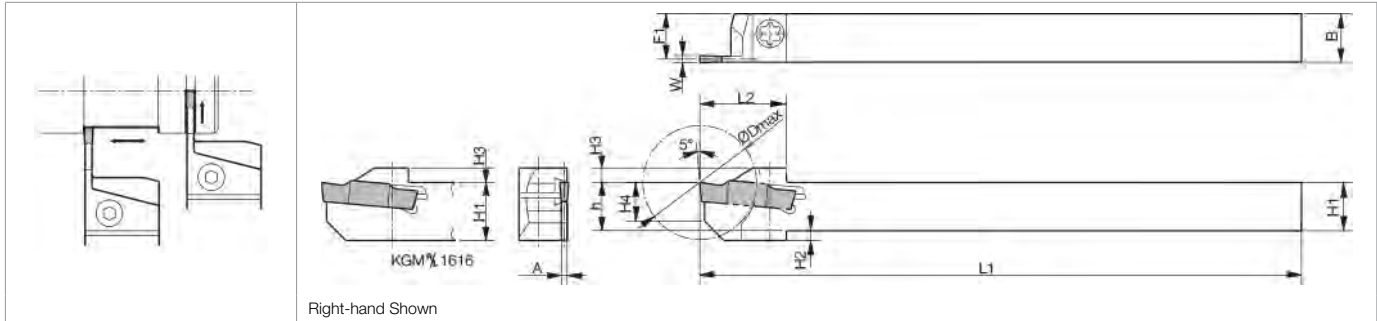
Fig.3

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

MULTI-FUNCTION / GROOVING TOOLHOLDER

KGM (Swiss)

Width : 1.5mm ~ 4.0mm



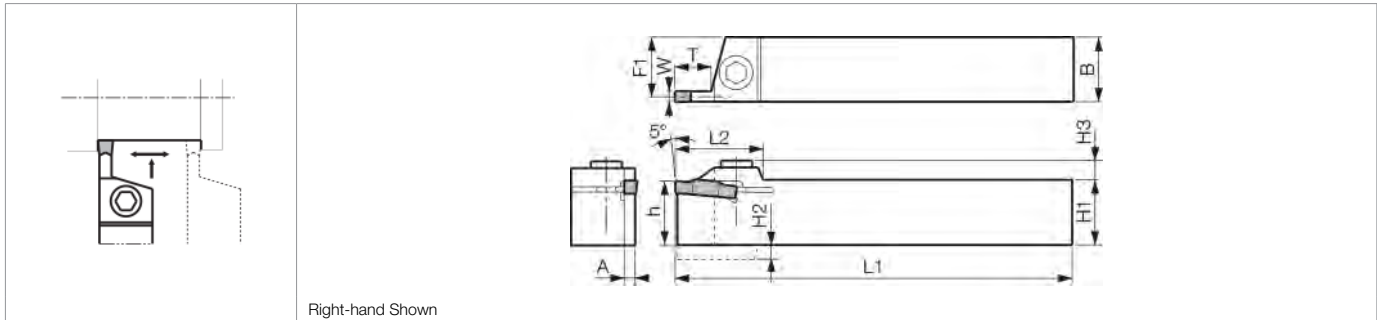
Toolholder Dimensions

Part Number	Stock		Cutting Dia. ØDmax	Dimensions (mm)								Insert Width W (mm)		Spare Parts		
	R	L		H1=h	H2	H3	H4	B	L1	L2	F1	A	MIN	MAX	Clamp Bolt	Wrench
KGM% 1010JX-1.5	○	○	20	10	2	3	8	10	120	18.0	9.40	1.2	1.5	2.0	SE-40120TR	LTW-15S
1212JX-1.5	○	○	25	12	2	4	10	12	120	19.0	11.40	1.2	1.5	2.0		
KGM% 1010JX-2	○	○	20	10	2	3	8	10	120	18.0	9.15	1.7	2.0	3.0	SE-40120TR	LTW-15S
1212JX-2	○	○	25	12	2	4	10	12	120	19.0	11.15	1.7	2.0	3.0		
1616JX-2	●	●	32	16	-	4	9	16	120	24.5	15.15	1.7	2.0	3.0	SE-50125TR	LTW-20
KGM% 1010JX-2.5	○	○	20	10	2	3	8	10	120	18.0	9.00	2.0	2.4	3.0	SE-40120TR	LTW-15S
1212JX-2.5	○	○	25	12	2	4	10	12	120	19.0	11.00	2.0	2.4	3.0		
1616JX-2.5		●	32	16	-	4	9	16	120	24.5	15.00	2.0	2.4	3.0	SE-50125TR	LTW-20
KGM% 1616JX-3	○	○	32	16	-	4	9	16	120	24.5	14.80	2.4	3.0	4.0	SE-50125TR	LTW-20
KGM% 1212F-1.5-85	○		25	12	2	4	10	12	85	19.0	11.40	1.2	1.5	2.0	SE-40120TR	LTW-15S
KGM% 1212F-2-85	○		25	12	2	4	10	12	85	19.0	11.15	1.7	2.0	3.0	SE-40120TR	LTW-15S
KGM% 1212F-2.5-85	○		25	12	2	4	10	12	85	19.0	11.00	2.0	2.4	3.0	SE-40120TR	LTW-15S

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [G26-](#) [G28](#)

KGM

Width : 3.0mm ~ 6.0mm



Toolholder Dimensions

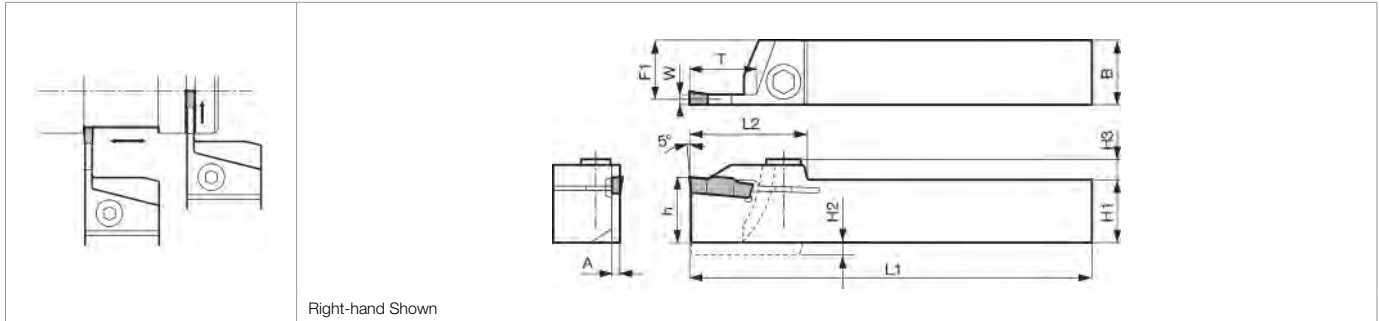
Part Number	Stock		Unit	Dimensions								Insert Width W (mm)		Spare Parts				
	R	L		H1=h	H2	H3	B	L1	L2	F1	A	T	MIN	MAX	Screw	Wrench		
KGM% 12-3	●		inch	0.75	-	0.217	0.75	5.0	1.07	0.702	0.094	0.354	3.0	4.0	-	HH5X16	-	LW-4
16-3	●			1.00	-	0.217	1.00	6.0	1.07	0.953	0.094	0.354	3.0	4.0	-	HH5X25	-	LW-4
KGM% 1212H-3	○	○	mm	12	4	6	12	100	27	10.8	2.4	9	3.0	3.0	SB-5TR	-	LTW-20	-
1616H-3	●	○		16	4	7	16	100	27	14.8	2.4	9	3.0	4.0	-	HH5X16	-	LW-4
2020K-3	○	○		20	-	7	20	125	27	18.8	2.4	9	3.0	4.0	-	HH5X16	-	LW-4
KGM% 2020K-4	○	○		20	-	7	20	125	27	18.3	3.4	10	4.0	5.0	-	HH5X16	-	LW-4
KGM% 2020K-5	○	○		20	-	7	20	125	27	17.8	4.4	10	5.0	6.0	-	HH5X16	-	LW-4

- Dimension T 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 [G26-](#) [G28](#)

KGM-T (Deep Grooving)

Width : 2.0mm ~ 5.0mm



Right-hand Shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Insert Width W (mm)		Spare Parts			
	R	L		H1=h	H2	H3	B	L1	L2	F1	A	T	MIN	MAX	Screw	Wrench		
KGM% 12-2T	●	●	inch	0.75	-	0.24	0.75	5.0	1.30	0.717	0.067	0.669	2.0	3.0	-	HH5X16	-	LW-4
16-2T	●			1.00	-	0.24	1.00	6.0	1.30	0.967	0.067	0.669	2.0	3.0	-	HH5X25	-	LW-4
12-3T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.702	0.094	0.790	3.0	4.0	-	HH5X16	-	LW-4
16-3T	●	●		1.00	-	0.24	1.00	6.0	1.42	0.953	0.094	0.790	3.0	4.0	-	HH5X25	-	LW-4
12-4T	●	●		0.75	-	0.24	0.75	5.0	1.42	0.683	0.134	0.790	4.0	5.0	-	HH5X16	-	LW-4
16-4T	●			1.00	-	0.24	1.00	6.0	1.22	0.933	0.134	0.990	4.0	5.0	-	HH5X25	-	LW-4
16-5T	●	●		1.00	-	0.24	1.00	6.0	1.22	0.913	0.173	0.990	5.0	6.0	-	HH5X25	-	LW-4
KGM% 2012K-2T17	○	○	mm	20	-	7.0	12	125	33	11.15	1.7	17	2.0	3.0	SB-5TR	-	LTW-20	-
2020K-2T17	○	○		20	-	7.0	20	125	33	19.15	1.7	17	2.0	3.0	-	HH5X16	-	LW-4
KGM% 1616H-3T20	●	●		16	4	7.0	16	100	36	14.80	2.4	20	3.0	4.0	-	HH5X16	-	LW-4
2012K-3T20	○	○		20	-	7.0	12	125	36	10.80	2.4	20	3.0	4.0	SB-5TR	-	LTW-20	-
2020K-3T20	○	○		20	-	7.0	20	125	36	18.80	2.4	20	3.0	4.0	-	HH5X16	-	LW-4
KGM% 2020K-4T20	○	○	20	-	7.5	20	125	36	18.30	3.4	20	4.0	5.0	-	HH5X16	-	LW-4	

- Dimension T shows the distance from the toolholder to the cutting edge. Refer to table on **G32** for relationship between available grooving depth and cutting diameter
- When using GMG / GMM type 2-edge insert, set groove depth under 15mm

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **G26~ G28**

Applicable Inserts

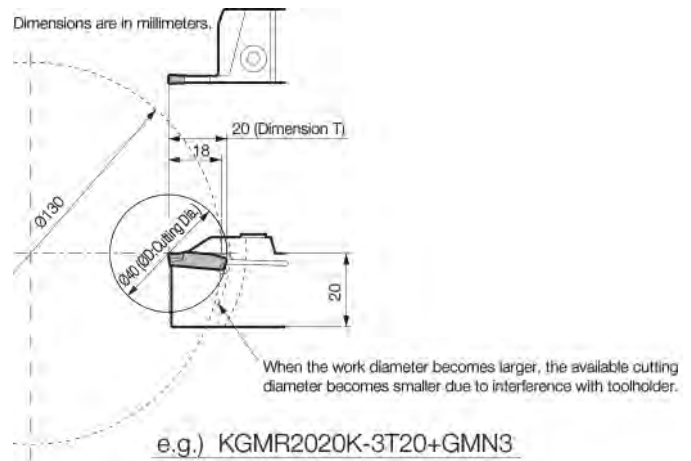
Application	Grooving / Traversing	Grooving / Traversing	Grooving	Full-R / Copying	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving / Cut-Off	Deep Grooving
Ref. Page	G26	G26	G26	G26	G27	G27	G27	G27	G27	G28
Shape	MW	MS	MG		MT	NB	TK	TK		CBN • 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(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 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 GMM3020...MS GMG4020...MS GMM4020...MS	GMG3020...MG GMG3520...MG GMG4020...MG	GMG3020...R GMM3020...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	GMM4020...MW GMM5020...MW	GMG4020...MS GMM4020...MS GMG5020...MS GMM5020...MS	GMG4020...MG GMG5020...MG	GMG4020...R GMM4020...R GMG5020...R GMM5020...R	-	-	-	GMN4...TK GM%4...TK	GMN4 GMN5 GM%4	GMN4 GMN5
KGM%...5	GMM5020...MW GMM6020...MW	GMG5020...MS GMM5020...MS GMG6020...MS GMM6020...MS	GMG5020...MG GMG6020...MG	GMG5020...R GMM5020...R GMG6020...R GMM6020...R	-	-	-	-	GMN5 GMN6	GMN5 GMN6

- If using a full-R insert, you need to modify the corner of insert adapter part (dimension A) of toolholder

Recommended Cutting Conditions **G29**
Recommended Cutting Conditions (CBN / PCD) **G28**

KGM • KGM-T Available Cutting Diameter

There is a limit to available grooving depth depending on the workpiece diameter



KGM Available Cutting Diameter Table

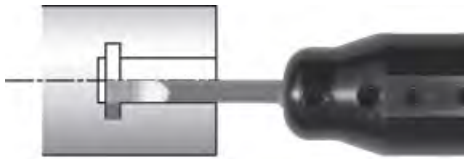
Toolholders		ØD (Cutting Diameter)																	
KGM %	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32
	1010○-1.5...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-1.5...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞	∞		
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32		
	1010○-2...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-2...	-	-	-	-	25	26	28	50	∞	∞	∞	∞	∞	∞	∞	∞		
	1616○-2...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞		
	1010○-2.5...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-2.5...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞	∞		
	1616○-2.5...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞		
	1616○-3...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞		
	Available Grooving Depth T (mm)		16	15	14	13	12.5	12	11	10	9	8	7	6	5	4	3	2	1

KGM-T Available Cutting Diameter Table (GMN, GM % When Using 1-edge Insert)

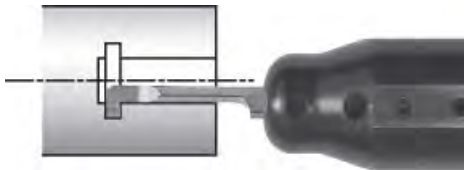
Toolholders		ØD (Cutting Diameter)												
KGM %	2012K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	2020K-2T17	-	-	-	-	-	-	-	-	66	80	130	260	∞
	1616H-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	∞
	2012K-3T20	-	-	-	-	-	40	54	70	100	180	∞	∞	∞
	2020K-3T20	-	-	-	-	-	40	90	130	240	∞	∞	∞	∞
2020K-4T20	-	-	-	-	-	40	90	130	240	∞	∞	∞	∞	
Available Grooving Depth T (mm)		30	27	25	23	22	20	19	18	17	16	15	14	13

Small Diameter Internal Grooving (➔ G34~ ➔ G37)

EZ Bar / Double-Sided Micro Bar / Swiss IQ Bar



Type	EZG
Min. Bore Dia.	0.197"~0.315" (5.0mm~8.0mm)
Width (mm)	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth (mm)	0.059"~0.079" (1.5mm ~ 2.0mm)
Ref. Page	➔ G34



Type	HPG
Min. Bore Dia.	0.158"~0.276" (4.0mm~7.0mm)
Width (mm)	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth (mm)	0.039"~0.079" (1.0mm ~ 2.0mm)
Ref. Page	➔ G36

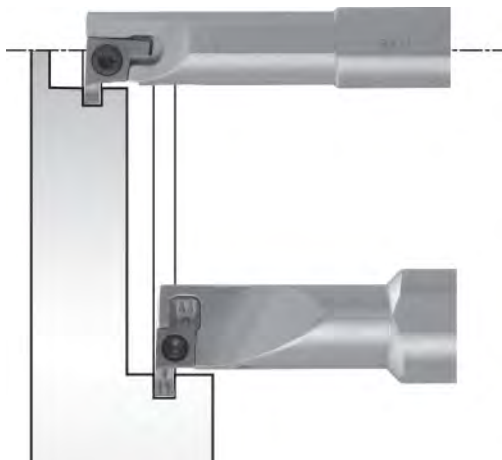


Type	VNG
Min. Bore Dia.	0.158"~0.276" (4.0mm~7.0mm)
Width (mm)	0.039"~0.079" (1.0mm ~ 2.0mm)
Grooving Depth (mm)	0.032"~0.079" (0.8mm ~ 2.0mm)
Ref. Page	➔ G37

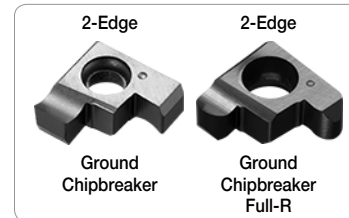


Internal Grooving (➔ G38~ ➔ G43)

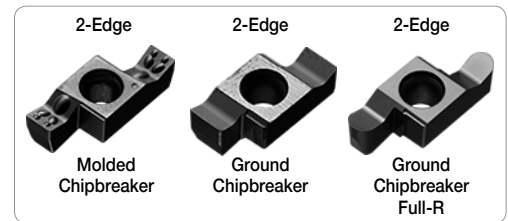
Shallow Grooving



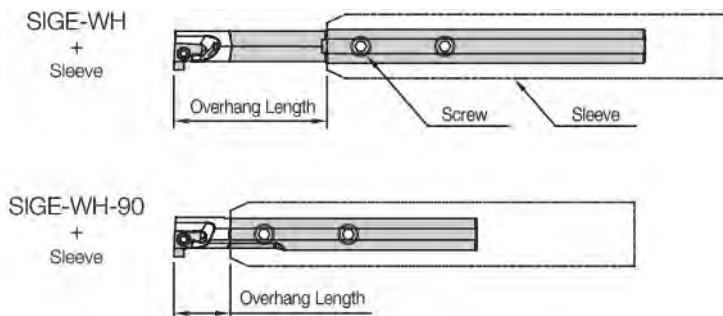
Type	SIGE
Min. Bore Dia.	0.315"~0.472" (8.0mm~12.0mm)
Width	0.039"~0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.059"~0.087" (1.5mm ~ 2.2mm)
Ref. Page	➔ G40



Type	SIGE
Min. Bore Dia.	0.551"~0.630" (14.0mm~16.0mm)
Width	0.039"~0.138" (1.0mm~3.5mm)
Grooving Depth	0.098" (2.5mm)
Ref. Page	➔ G41



How to Select SIGE-WH and SIGE-WH-90 ➔ G41~ ➔ G42

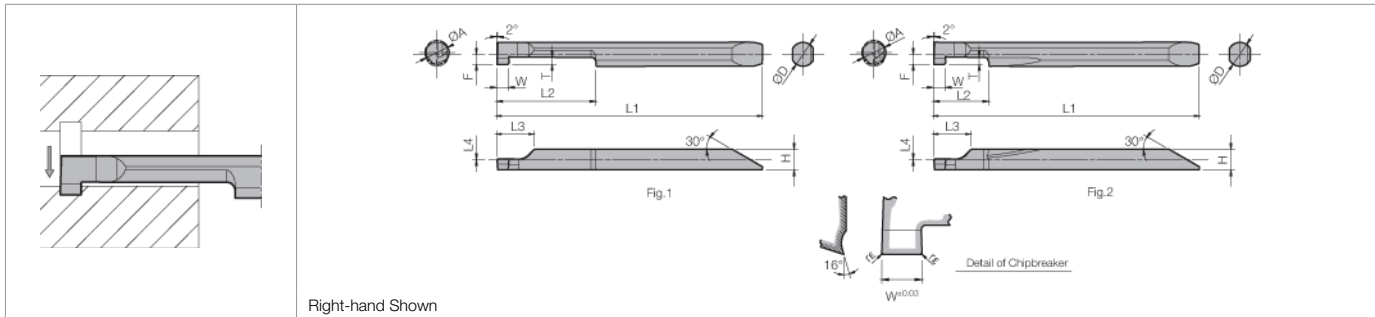


The SIGE-WH-90 type is recommended for automatic lathe cutting, because the overhang length can be shorter.

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZ BAR

EZG (Internal Grooving) NEW



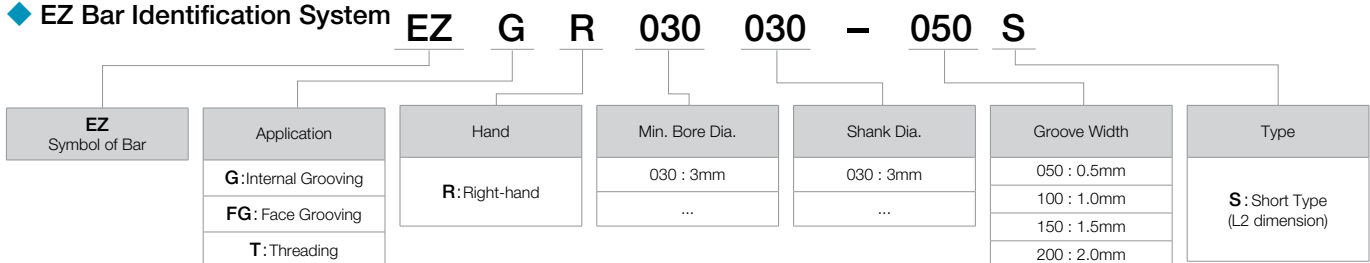
Micro Bar Dimensions

Part Number	Min. Bore Dia.		Dimensions (mm)									Drawing	MEGACOAT PR1225	Applicable Sleeves	
	ØA	W ^{±0.03*}	r _e	ØD	H	L1	L2	L3	L4	F	T				
EZGR 040040-050	4	0.5	±0.013 0.05	4	3.45	44.7	12	6.2	0	1.70	1.0	Fig.2	●	EZH040.. PSH04..	
040040-100	4	1.0		4	3.45	44.7	12	6.2	0	1.70	1.0	Fig.2	●		
040040-150	4	1.5		4	3.45	44.7	12	6.2	0	1.70	1.0	Fig.2	●		
040040-200	4	2.0		4	3.45	44.7	12	6.2	0	1.70	1.0	Fig.2	●		
050050-100	5	1.0		5	4.30	52.8	20	6.7	0	2.15	1.5	Fig.1	●	EZH050.. PSH05..	
050050-150	5	1.5		5	4.30	52.8	20	6.7	0	2.15	1.5	Fig.1	●		
050050-200	5	2.0		5	4.30	52.8	20	6.7	0	2.15	1.5	Fig.1	●		
060060-100	6	1.0		±0.013 0.05	6	5.15	60.7	20	7.6	0	2.65	2.0	Fig.2	●	EZH060.. PSH06..
060060-150	6	1.5			6	5.15	60.7	20	7.6	0	2.65	2.0	Fig.2	●	
060060-200	6	2.0			6	5.15	60.7	20	7.6	0	2.65	2.0	Fig.2	●	
070070-100	7	1.0	7		6.20	63.7	25	7.6	0	3.05	2.0	Fig.2	●	EZH070.. PSH07..	
070070-150	7	1.5	7		6.20	63.7	25	7.6	0	3.05	2.0	Fig.2	●		
070070-200	7	2.0	7		6.20	63.7	25	7.6	0	3.05	2.0	Fig.2	●		
080070-100	8	1.0	7	6.20	63.7	25	7.6	0	3.45	2.0	Fig.2	●			
080070-150	8	1.5	7	6.20	63.7	25	7.6	0	3.45	2.0	Fig.2	●	EZH070.. PSH07..		
080070-200	8	2.0	7	6.20	63.7	25	7.6	0	3.45	2.0	Fig.2	●			
EZGR 030030-050S	3	0.5	±0.013 0.05	3	2.50	38.7	5	4.8	0	1.25	0.8	Fig.2	●	EZH030.. PSH03..	
030030-100S	3	1.0		3	2.50	38.7	5	4.8	0	1.25	0.8	Fig.2	●		
040040-050S	4	0.5		4	3.45	44.7	8	6.2	0	1.70	1.0	Fig.2	●	EZH040.. PSH04..	
040040-100S	4	1.0		4	3.45	44.7	8	6.2	0	1.70	1.0	Fig.2	●		
040040-150S	4	1.5		4	3.45	44.7	8	6.2	0	1.70	1.0	Fig.2	●		
040040-200S	4	2.0		4	3.45	44.7	8	6.2	0	1.70	1.0	Fig.2	●	EZH050.. PSH05..	
050050-100S	5	1.0		5	4.30	52.8	10	6.7	0	2.15	1.5	Fig.2	●		
050050-150S	5	1.5		5	4.30	52.8	10	6.7	0	2.15	1.5	Fig.2	●		
050050-200S	5	2.0		5	4.30	52.8	10	6.7	0	2.15	1.5	Fig.2	●		
060060-100S	6	1.0		±0.013 0.05	6	5.15	60.7	10	7.6	0	2.65	2.0	Fig.2	●	EZH060.. PSH06..
060060-150S	6	1.5	6		5.15	60.7	10	7.6	0	2.65	2.0	Fig.2	●		
060060-200S	6	2.0	6		5.15	60.7	10	7.6	0	2.65	2.0	Fig.2	●		
070070-100S	7	1.0	7		6.20	63.7	10	7.6	0	3.05	2.0	Fig.2	●	EZH070.. PSH07..	
070070-150S	7	1.5	7		6.20	63.7	10	7.6	0	3.05	2.0	Fig.2	●		
070070-200S	7	2.0	7		6.20	63.7	10	7.6	0	3.05	2.0	Fig.2	●		
080070-100S	8	1.0	7	6.20	63.7	10	7.6	0	3.45	2.0	Fig.2	●			
080070-150S	8	1.5	7	6.20	63.7	10	7.6	0	3.45	2.0	Fig.2	●	EZH070.. PSH07..		
080070-200S	8	2.0	7	6.20	63.7	10	7.6	0	3.45	2.0	Fig.2	●			

Dimension T: Available grooving depth
*S" in description denotes stub length

Applicable Sleeves G35

EZ Bar Identification System



EZ Bars are sold in 1 piece boxes.

● Applicable Sleeves

Sleeve Part Number			EZ Bar Part Number				Applicable Machine Manufacturer	
EZH-CT (Adjustable with Coolant Hole) ● F21	EZH-HP (Adjustable) ● F22~ ● F23	EZH-ST ● F24~ ● F25	Sleeve Shank Dia. ØD1 (mm)	EZG	HPG	Shank Dia		
						ØD (mm)		
-	-	EZH 03012ST-80	12.00	EZGR ...030-...	-	3	General Machines	
		04012ST-80		...040-...	HPG%	0404-...		4
		05012ST-80		...050-...		0505-...		5
		06012ST-80		...060-...		0606-...		6
		07012ST-80		...070-...		0707-...		7
-	EZH 03016HP-100	EZH 03016ST-100	16.00	EZGR ...030-...	-	3	General Machines	
	04016HP-100	04016ST-100		...040-...	HPG%	0404-...		4
	05016HP-100	05016ST-100		...050-...		0505-...		5
	06016HP-100	06016ST-100		...060-...		0606-...		6
	07016HP-100	07016ST-100		...070-...		0707-...		7
EZH 03019CT-120	EZH 03019HP-120	EZH 03019ST-120	19.05	EZGR ...030-...	-	3	CITIZEN MACHINERY MIYANO CO., LTD.	
04019CT-120	04019HP-120	04019ST-120		...040-...	HPG%	0404-...		4
05019CT-120	05019HP-120	05019ST-120		...050-...		0505-...		5
06019CT-120	06019HP-120	06019ST-120		...060-...		0606-...		6
07019CT-120	07019HP-120	07019ST-120		...070-...		0707-...		7
EZH 03020CT-120	EZH 03020HP-120	EZH 03020ST-120	20.00	EZGR ...030-...	-	3	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines	
04020CT-120	04020HP-120	04020ST-120		...040-...	HPG%	0404-...		4
05020CT-120	05020HP-120	05020ST-120		...050-...		0505-...		5
06020CT-120	06020HP-120	06020ST-120		...060-...		0606-...		6
07020CT-120	07020HP-120	07020ST-120		...070-...		0707-...		7
EZH 03022CT-135	EZH 03022HP-135	EZH 03022ST-135	22.00	EZGR ...030-...	-	3	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd.	
04022CT-135	04022HP-135	04022ST-135		...040-...	HPG%	0404-...		4
05022CT-135	05022HP-135	05022ST-135		...050-...		0505-...		5
06022CT-135	06022HP-135	06022ST-135		...060-...		0606-...		6
07022CT-135	07022HP-135	07022ST-135		...070-...		0707-...		7
EZH 03025.0CT-135	EZH 03025.0HP-135	EZH 03025.0ST-135	25.00	EZGR ...030-...	-	3	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines	
04025.0CT-135	04025.0HP-135	04025.0ST-135		...040-...	HPG%	0404-...		4
05025.0CT-135	05025.0HP-135	05025.0ST-135		...050-...		0505-...		5
06025.0CT-135	06025.0HP-135	06025.0ST-135		...060-...		0606-...		6
07025.0CT-135	07025.0HP-135	07025.0ST-135		...070-...		0707-...		7
EZH 03025.4CT-120	EZH 03025.4HP-120	EZH 03025.4ST-120	25.40	EZGR ...030-...	-	3	CITIZEN MACHINERY MIYANO CO., LTD.	
04025.4CT-120	04025.4HP-120	04025.4ST-120		...040-...	HPG%	0404-...		4
05025.4CT-120	05025.4HP-120	05025.4ST-120		...050-...		0505-...		5
06025.4CT-120	06025.4HP-120	06025.4ST-120		...060-...		0606-...		6
07025.4CT-120	07025.4HP-120	07025.4ST-120		...070-...		0707-...		7

- Choose sleeves (Ød1) to meet with ØD dimension of EZG bars.
- Adjustment pin cannot be installed in EZH-ST sleeves. To adjust overhang of EZB insert, please use EZH-HP sleeves.
- Machine manufacturers in random order.

Applicable EZBars ● G34

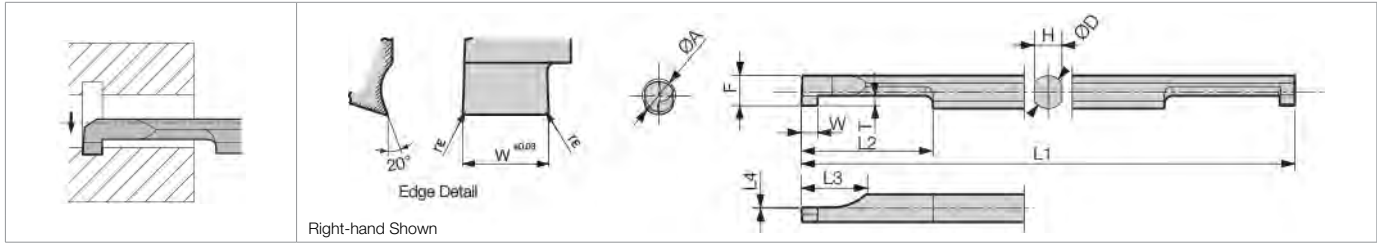
◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)	EZGR030030-S	EZGR040040 EZGR050050 EZGR040040-S EZGR050050-S	EZGR060060 EZGR070070 EZGR080070 EZGR060060-S EZGR070070-S EZGR080070-S	Remarks
	MEGACOAT				
	PR1225				
Carbon Steel / Alloy Steel	★ 100~330	~0.0008	~0.0012	~0.0020	Wet
Stainless Steel	★ 100~260	~0.0004	~0.0008	~0.0012	

★ : 1st Recommendation ☆ : 2nd Recommendation

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

HPG (Small Diameter Internal Grooving)



Micro Bar Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)											PVD Coated Carbide	Carbide	
		ØA	W=0.0012"	W=0.03mm	rε	ØD	H	L1	L2	L3	L4	F	T	PR930	KW10
			inch	mm										PR930	KW10
HPG% 0404-10	4	0.039	1	0.05	4	3.35	60	15	8	0	3.65	1.0	○	Ⓡ	
0404-20	4	0.079	2		4	3.35	60	15	8	0	3.65	1.0	○	Ⓡ	
0505-10	5	0.039	1		5	4.30	70	20	8	0	4.55	1.5	○	Ⓡ	
0505-20	5	0.079	2		5	4.30	70	20	8	0	4.55	1.5	○	Ⓡ	
0606-10	6	0.039	1		6	5.20	70	20	10	0	5.50	2.0	○	Ⓡ	
0606-20	6	0.079	2		6	5.20	70	20	10	0	5.50	2.0	○	Ⓡ	
0707-10	7	0.039	1		7	6.20	80	25	10	0	6.45	2.0	○	Ⓡ	
0707-20	7	0.079	2		7	6.20	80	25	10	0	6.45	2.0	○	Ⓡ	

Dimension T: Available grooving depth

Description of Micro Bar and Applicable Sleeve

Micro Bar Part Number	Applicable Sleeves
HPG% 0404-...	EZH 04...-
0505-...	05...-
0606-...	06...-
0707-...	07...-

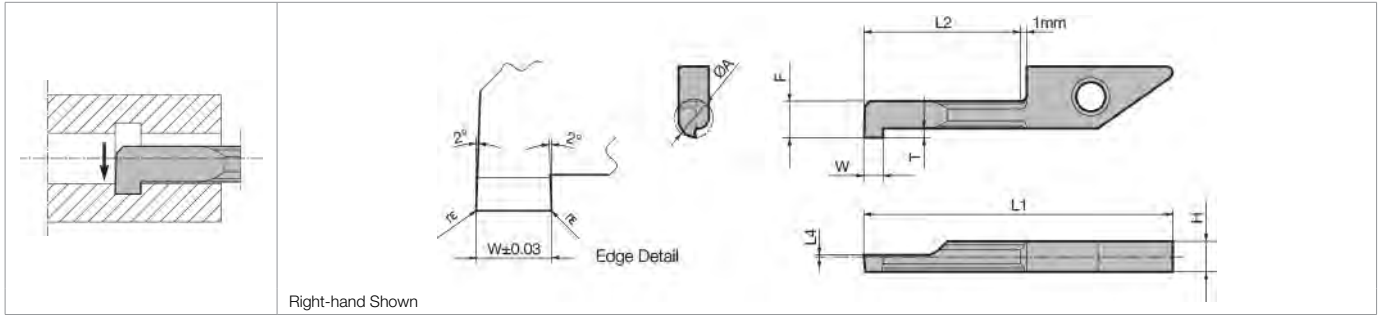
Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfrm)		HPG% 04 HPG% 05	HPG% 06 HPG% 07	Remarks
	PVD Coated Carbide	Carbide			
	PR1225	PR1225	Feed Rate (ipr)		
Carbon Steel / Alloy Steel	★ 100~325	-	~0.0012	~0.0020	Wet
Stainless Steel	★ 100~250	-	~0.0008	~0.0012	
Non-ferrous Metals	-	★ ~975	~0.0020	~0.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

Micro Bars are sold in 1 piece boxes.

VNG



Right-hand Shown

Insert Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)											Cermet	PVD Coated Carbide	Carbide	Ref. Page for Toolholder	
		ØA	W		rε	ØD	H	L1	L2	L3	L4	F	T	TC60	PR930		KW10
			inch	mm													
VNGR 0410-11	4	0.039	1.0	0.05	-	3.9	30.8	11	-	0.1	3.5	0.8		●	●	F32 F33	
0420-11	4	0.079	2.0	0.10	-	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	0.10	-	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	0.10	-	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	0.10	-	3.9	39.8	20	-	0.3	6.2	2.0	○	●	●		

Dimension T : Available grooving depth

• Dimension L4 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	Remarks
	Cermet	MEGACOAT	PVD	Carbide			
	TC60	PR1225	PR930	KW10	Feed Rate (ipr)		
Carbon Steel / Alloy Steel	☆ 200~400	★ 100~325	☆ 100~100	-	~0.0012	~0.0020	Wet
Stainless Steel	☆ 150~325	★ 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.

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

SIGE INTERNAL GROOVING

Applicable Inserts

A	GRADES	Part Number					Dimensions					C	CBN & PCD	E	TURNING	F	BORING	G	GROOVING	H	CUT-OFF	J	THREADING	L	SOLID END MILLS	M	MILLING	P	SPARE PARTS	R	TECHNICAL	T	INDEX					
		A	L	H	Ød	Unit																																
		Right-handed Insert Shown					W	B	C	rε	Cermet																							MEGACOAT	PVD Coated Carbide	Carbide		
							inch	mm			TN6020																							PR1225	PR1025	GW15	KW10	
B	INSERTS	GE%...-A	6.69	6.5	2.58	2.5	P Carbon Steel / Alloy Steel					●	⊕						Classification of Usage ● : Light Interruption / 1st Choice ⊕ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Ref. Page for Toolholder																		
		GER...-AR					M Stainless Steel					●	⊕																									
		GE%...-B	8.46	8.2	3.18	2.7	K Cast Iron																															
		GER...-BR					N Non-ferrous Metals																															
							S Titanium Alloy																															
							H Hard materials (≤40HRC)						●	○																								
							H Hard materials (≥40HRC)																															
							Cermets																															
							MEGACOAT																															
							PVD Coated Carbide																															
							Carbide																															
							Applicable Toolholders																															
							Right-handed Insert Shown																															
							Unit																															
					W																																	
					B																																	
					C																																	
					rε																																	
					TN6020																																	
					PR1225																																	
					PR1025																																	
					GW15																																	
					KW10																																	
					GE% 031-002A					0.031	-	0.037	0.071	0.002			●																					
					041-002A					0.041	-	0.059	0.071	0.002			●																					
					047-002A					0.047	-	0.059	0.071	0.002			●																					
					058-002A					0.058	-	0.059	0.071	0.002			●																					
					062-004A					0.062	-	0.059	0.071	0.004			●																					
					072-004A					0.072	-	0.059	0.071	0.004			●																					
					078-004A					0.078	-	0.059	0.071	0.004			Ⓡ																					
					GE% 100-005A					0.039	1.00	1.5	1.8	0.05	●	○	Ⓡ																					
					120-005A					0.047	1.20	1.5	1.8	0.05	●	○	Ⓛ																					
					125-005A					0.049	1.25	1.5	1.8	0.05	Ⓛ	○																						
					150-010A					0.059	1.50	1.5	1.8	0.10	●	○	Ⓡ																					
					200-010A					0.079	2.00	1.5	1.8	0.10	Ⓛ	○	Ⓡ																					
					GE% 031-002B					0.031	-	0.044	0.102	0.002			●																					
					041-002B					0.041	-	0.087	0.102	0.002			●																					
					047-002B					0.047	-	0.087	0.102	0.002			●																					
					058-002B					0.058	-	0.087	0.102	0.002			●																					
					062-004B					0.062	-	0.087	0.102	0.004			●																					
					072-004B					0.072	-	0.087	0.102	0.004			●																					
					078-004B					0.078	-	0.087	0.102	0.004			●																					
					088-004B					0.088	-	0.087	0.102	0.004			●																					
					094-004B					0.094	-	0.087	0.102	0.004			●																					
					097-004B					0.097	-	0.087	0.102	0.004			●																					
					105-008B					0.105	-	0.087	0.102	0.008			●																					
					110-008B					0.110	-	0.087	0.102	0.008			●																					
					122-008B					0.122	-	0.087	0.102	0.008			●																					
					GE% 100-005B					0.039	1.00	2.2	2.6	0.05	Ⓛ	○																						
					120-005B					0.047	1.20	2.2	2.6	0.05	Ⓛ	○	Ⓛ																					
					125-005B					0.049	1.25	2.2	2.6	0.05	●	○	●																					
					145-010B					0.057	1.45	2.2	2.6	0.10	Ⓛ	○	●																					
					150-010B					0.059	1.50	2.2	2.6	0.10	Ⓡ	○	●																					
					200-010B					0.079	2.00	2.2	2.6	0.10	●	○	Ⓡ																					
					250-020B					0.098	2.50	2.2	2.6	0.20	●	○	Ⓡ																					
					300-020B					0.118	3.00	2.2	2.6	0.20	●	○	●																					
					GER 100-050AR					0.039	1.00	1.5	1.8	0.50		○	○																					
					200-100AR					0.079	2.00	1.5	1.8	1.00		○	○																					
					GER 100-050BR					0.039	1.00	2.2	2.6	0.50		○	○																					
					200-100BR					0.079	2.00	2.2	2.6	1.00		○	○																					


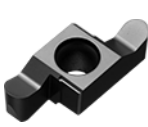

Dimension B : Available grooving depth

Recommended Cutting Conditions ● G43

Inserts are sold in 10 piece boxes.

SIGE INTERNAL GROOVING

Applicable Inserts

					P	M	K	N	S						Classification of Usage		Ref. Page for Toolholder
					(mm)											● : Light Interruption / 1st Choice ○ : Light Interruption / 2nd Choice ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	
Part Number	A	L	H	Ød													
GE%...-A	6.69	6.5	2.58	2.5													
GER...-AR																	
GE%...-B	8.46	8.2	3.18	2.7													
GER...-BR																	
Insert Right-handed Insert Shown	Part Number	Unit	Dimensions					Cermet TN6020	MEGACOAT PR1225	PVD Coated Carbide PR1025	Carbide		Applicable Toolholders				
			W		B	C	rε				GW15	KW10					
			inch	mm													
 2-Edge	GE% 100-005C	mm	0.039	1.00	2.5	2.7	0.05	○	○	●	○		SIGE%...C-EH SIGE%...C-WH SIGER...C-WH-90	G40 G41 G42			
	120-005C		0.047	1.20	2.5	2.7	0.05	Ⓡ	○	○	Ⓡ						
	125-005C		0.049	1.25	2.5	2.7	0.05	○	Ⓡ	○	○						
	140-005C		0.055	1.40	2.5	2.7	0.05	Ⓡ	Ⓡ	○	Ⓡ						
	145-010C		0.057	1.45	2.5	2.7	0.10	○	Ⓡ	○	○						
	150-010C		0.059	1.50	2.5	2.7	0.10	○	○	○	○						
	170-010C		0.067	1.70	2.5	2.7	0.10	Ⓡ	Ⓡ	○	Ⓡ						
	185-010C		0.073	1.85	2.5	2.7	0.10	Ⓡ	Ⓡ	○	Ⓡ						
	195-010C		0.077	1.95	2.5	2.7	0.10	Ⓡ	Ⓡ	○	Ⓡ						
	200-010C		0.079	2.00	2.5	2.7	0.10	○	○	○	○						
	250-020C		0.098	2.50	2.5	2.7	0.20	○	○	○	○						
	300-020C		0.118	3.00	2.5	2.7	0.20	○	○	○	○						
350-020C	0.138	3.50	2.5	2.7	0.20	○	Ⓡ	○	○								
 Full-R	GER 200-100CR	mm	0.079	2.00	2.5	2.7	1.00		○	○	○		SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G40 G41 G42			
	250-125CR		0.098	2.50	2.5	2.7	1.25		○	○	○						
	300-150CR		0.118	3.00	2.5	2.7	1.50		○	○	○						
 2-Edge Molded Chipbreaker	GER 150-010CM	mm	0.059	1.50	2.5	2.7	0.10		○	●			SIGER...C-EH SIGER...C-WH SIGER...C-WH-90	G40 G41 G42			
	200-010CM		0.079	2.00	2.5	2.7	0.10		○	●							
	250-020CM		0.098	2.50	2.5	2.7	0.20		○	●							
	300-020CM		0.118	3.00	2.5	2.7	0.20		○	●							
	350-020CM		0.138	3.50	2.5	2.7	0.20		○	●							

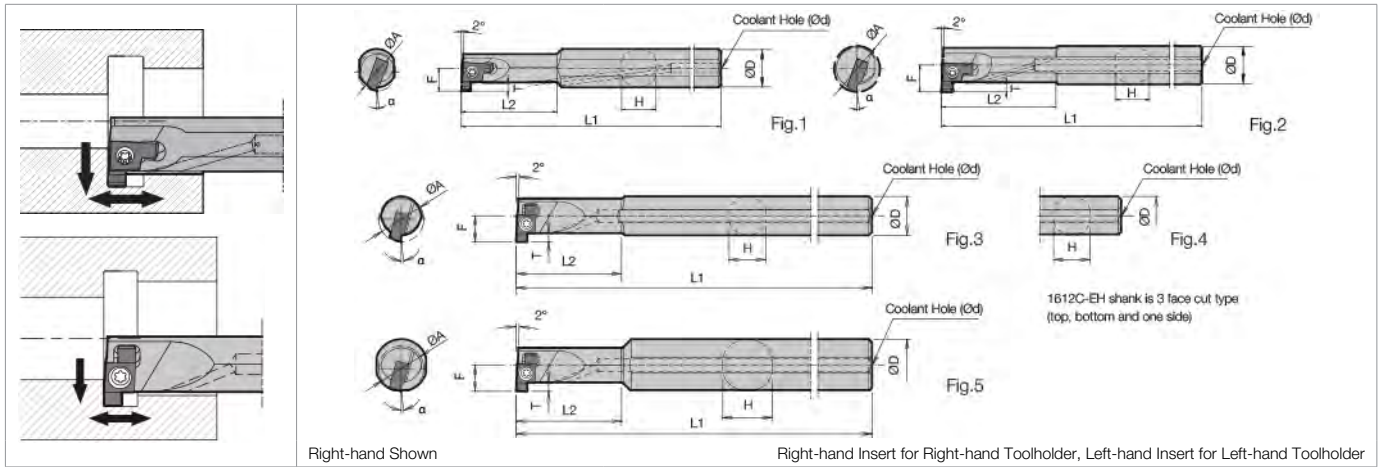
Dimension B : Available grooving depth

Recommended Cutting Conditions → G43

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

SIGE INTERNAL GROOVING

SIGE-EH Excellent Bar (With Coolant Hole)



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions							Shape	Spare Parts			Applicable Inserts ● G38~ ● G39	
	R	L		Unit	ØA	ØD	H	L1	L2	F		T	Ød	Clamp Screw		Wrench
SIGE% 05EH	●	●	inch	0.313	0.315	0.283	3.940	0.787	0.177	0.059	0.158	Fig.1	SB-2045TRN	FT-6	-	GE% 100-005A-GE% 200-010A GER100-050AR-GER200-100AR
	●	●		0.375	0.394	0.354	4.920	0.984	0.232	0.087	0.158	Fig.1	SB-2255TR	-	DT-7	GE% 100-005B-GE% 300-020B GER100-050BR-GER200-100BR
	●	●		0.551	0.500	0.460	5.900	1.300	0.315	0.098	0.158	Fig.2	SB-2570TR	FT-8	-	GE% 100-005C-GE% 350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR
	●	●		0.630	0.500	0.460	5.900	0.788	0.335	0.098	0.158	Fig.3				
SIGE% 0808A-EH	○	○	mm	8	8	7.2	100	20	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE% 100-005A-GE% 200-010A GER100-050AR-GER200-100AR
	○	○		10	10	9.0	125	25	6.2	2.2	3	Fig.1	SB-2255TR	-	DT-7	GE% 100-005B-GE% 300-020B GER100-050BR-GER200-100BR
	○	○		12	10	9.0	125	30	7.0	2.2	3	Fig.2				
	○	○		14	12	11.4	150	33	8.0	2.5	4	Fig.3	SB-2570TR	FT-8	-	GE% 100-005C-GE% 350-020C GER150-010CM-GER350-020CM GER200-100CR-GER300-150CR
	○	○		16	12	11.4	150	20	8.5	2.5	4	Fig.4				
	○	○		16	16	15.0	160	36	9.0	2.5	5	Fig.5				

Dimension T: Available grooving depth

- 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 3-D molded chipbreaker (GER...M)



- Chip Evacuation Comparison (Molded Chipbreaker)

Toolholder	Shape	SCM415 (Min. Bore Dia.)			Evaluation
		0.002"	0.003"	0.004"	
SIGER1612C-EH GER300-020CM (PR1025)					Good Chip Control
Competitor A (Width 0.118")				Insert Cracks	Unstable Chip Control and Biting
Competitor B (Width 0.118")					Unstable Chip Control and Biting

(Vc=325sfm, D.O.C.=0.079", Wet)

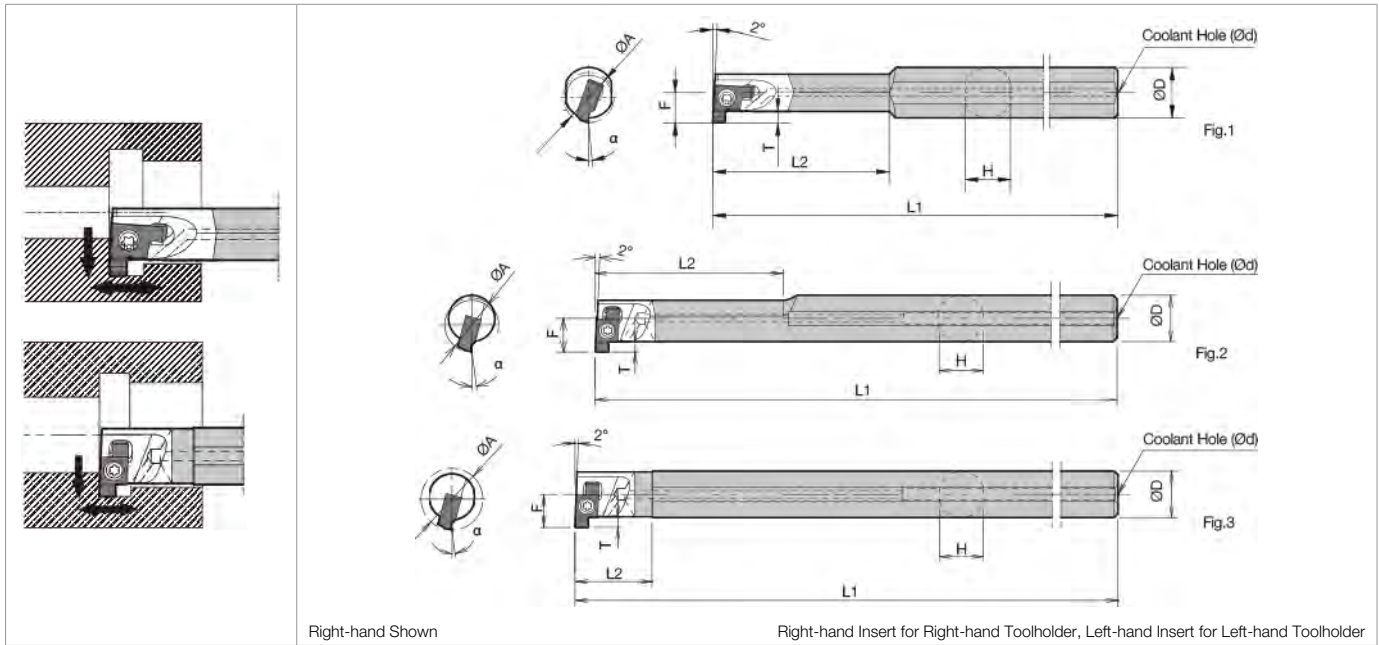
- Chip Evacuation Comparison (Min. Cutting Dia. Ø0.315")

Toolholder	Shape	SCM415	Evaluation
		0.0008	
SIGER0808A-EH GER200-010A (PR1025)			Good Chip Control
Competitor C (Width 0.079")			Unstable Chip Control and Biting

(Vc=175sfm, D.O.C.=0.049", Wet)

(Internal Evaluation)

■ SIGE-WH Carbide Anti-Vibration Bar (With Coolant Hole)



● Toolholder Dimensions

Part Number	Stock		Min. Bore Dia.	Dimensions (mm)							Shape	Spare Parts			Applicable Inserts ➔ G38- ➔ G39
	R	L		ØA	ØD	H	L1	L2	F	T		Ød	Clamp Screw	Wrench	
														FT 	
SIGE 0808A-WH	○	○	8	8	7.2	125	28	4.8	1.5	3	Fig.1	SB-2045TRN	FT-6	-	GE% 100-005A-GE% 200-010A GER100-050AR-GER200-100AR
1010B-WH	●	○	10	10	9.0	125	35	6.2	2.2	3	Fig.1	SB-2255TR	-	DT-7	GE% 100-005B-GE% 300-020B GER100-050BR-GER200-100BR
1210B-WH	○	○	12	10	9.0	140	45	7.0	2.2	3	Fig.1				
1412C-WH	○	○	14	12	11.4	150	50	8.7	2.5	4	Fig.2	SB-2570TR	FT-8	-	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	4	Fig.3				

Dimension T: Available grooving depth

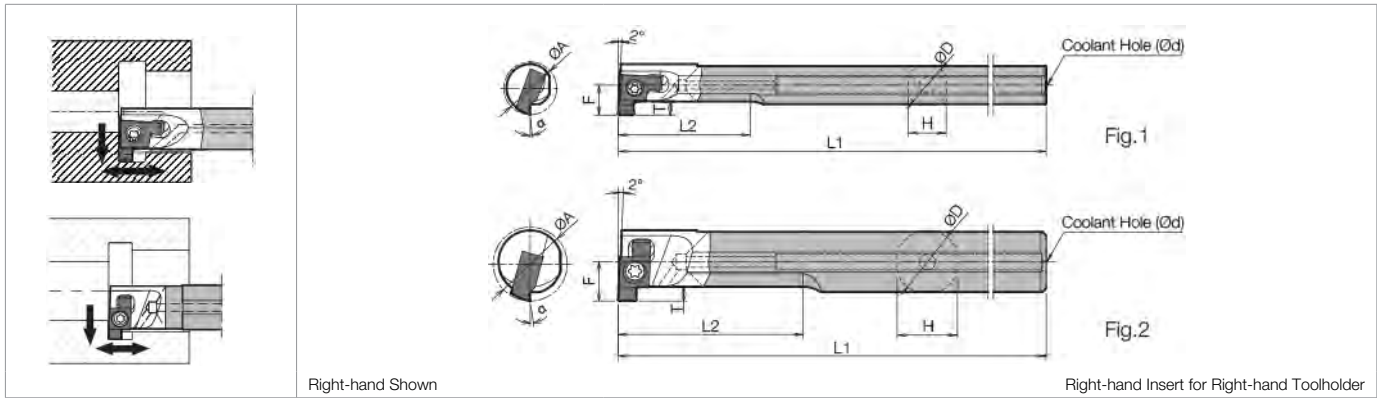
● Applicable Inserts and Rake Angle (α) After Installment of Insert

Toolholder	Ground Chipbreaker		α (°)	Molded Chipbreaker		α (°)
	Insert	Insert		Insert	Insert	
SIGE 0808A-EH	GE% 100-005A-GE% 200-010A	GER100-050AR-GER200-100AR	5°	-	-	-
	GE% 100-005A-GE% 300-020B	GER100-050BR-GER200-100BR	5°	-	-	-
	GE% 100-005C-GE% 350-020C	GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM		10°
SIGE 0808A-WH	GE% 100-005A-GE% 200-010A	GER100-050AR-GER200-100AR	5°	-	-	-
	GE% 100-005A-GE% 300-020B	GER100-050BR-GER200-100BR	5°	-	-	-
	GE% 100-005C-GE% 350-020C	GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM		10°
	GE% 100-005A-GE% 300-020B	GER100-050BR-GER200-100BR	5°	-	-	-
	GE% 100-005C-GE% 350-020C	GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM		10°
	GE% 100-005C-GE% 350-020C	GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM		10°
	GE% 100-005C-GE% 350-020C	GER200-100CR-GER300-150CR	8°	GER150-010CM-GER350-020CM		10°

• α indicates the rake angle at the center of the edge width, after installing insert

GRADES
A
INSERTS
B
CBN & POD
C
TURNING
E
BORING
F
GROOVING
G
CUT-OFF
H
THREADING
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SOLID END MILLS
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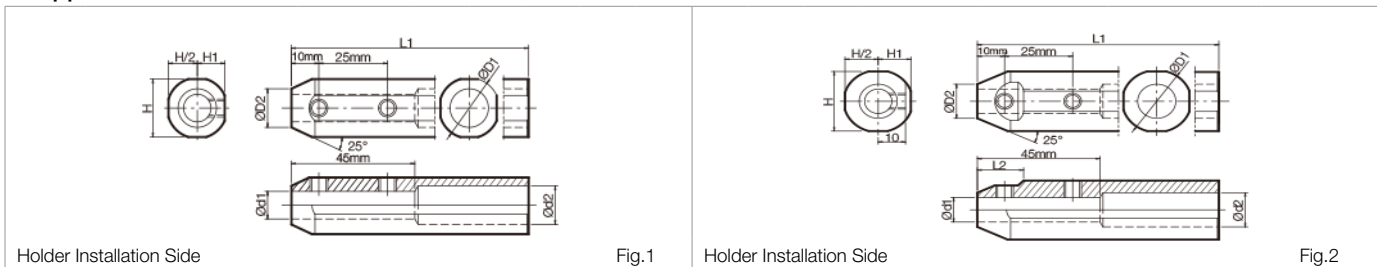
■ SIGE-WH Carbide Anti-Vibration Bar (With Coolant Hole)



● Toolholder Dimensions

Part Number	Stock	Min. Bore Dia.	Dimensions (mm)							Shape	Spare Parts		Applicable Inserts ● G38~ ● G39
			ØA	ØD	H	L1	L2	F	T		Ød	Clamp Screw	
SIGER 1008B-WH-90	○	10	8	7.2	90	25	5.6	2.2	3	Fig.1	SB-2255TR	FT-7	GER100-005B~GE%300-020B GER100-050BR~GER200-100BR
1210B-WH-90	○	12	10	9.4	90	30	6.6	2.2	3	Fig.1			
1412C-WH-90	○	14	12	11.4	90	35	7.4	2.5	3	Fig.2	SB-2570TR	FT-8	GER100-005C~GE%350-020C GER150-010CM~GER350-020CM GER200-100CR~GER300-150CR

● Applicable Sleeves



Part Number	Stock	Dimensions								Shape	Spare Parts		Applicable Machine Manufacturer
		Ød1	ØD1	ØD2	Ød2	H	H1	L1	L2		Screw	Wrench	
SHA 0820-120	○	8	20.00	14	12	19.0	9.25	120	-	Fig.1	HS6x4P	LW-3	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD CITIZEN MACHINERY MIYANO CO., LTD. TSUGAMI CORPORATION
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	HS6x4P	LW-3	CITIZEN MACHINERY MIYANO CO., LTD.
1225.0-135	○	12	25.00	16	14	24.0	11.5	135	17	Fig.2			
SHA 0819-120	○	8	19.05	14	12	18.0	8.75	120	-	Fig.1			
1019-120	○	10	19.05	14	12	18.0	8.75	120	-	Fig.1	HS6x4P	LW-3	CITIZEN MACHINERY MIYANO CO., LTD.
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	12.00	120	17	Fig.2	HS6x4P	LW-3	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd.
1025.4-120	○	10	25.40	14	14	24.4	12.00	120	17	Fig.2			
1225.4-120	○	12	25.40	16	14	24.4	12.00	120	17	Fig.2			
SHA 0822-125	○	8	22.00	14	14	21.0	10.00	125	-	Fig.1	HS6x4P	LW-3	Nomura VTC Automatic Lathe Co., Ltd.
1022-125	○	10	22.00	14	14	21.0	10.00	125	-	Fig.1			
1222-125	○	12	22.00	16	14	21.0	10.00	125	-	Fig.1			
SHA 0823-120	○	8	23.00	14	14	22.0	10.50	120	16	Fig.2	HS6x4P	LW-3	Nomura VTC Automatic Lathe Co., Ltd.
1023-120	○	10	23.00	14	14	22.0	10.50	120	16	Fig.2			
1223-120	○	12	23.00	16	14	22.0	10.50	120	16	Fig.2			

※ : Length of Ød1...45mm (All types)

- Choose sleeves (Ød1) to meet with ØD dimension of Double-Sided Micro-Bar.
- Machine manufacturers are in random order.

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)			Remarks
					② f (feed) during Traversing (ipr)			
	Cermet	MEGACOAT	PVD Coated Carbide	Carbide	③ D.O.C. during Traversing (in)			
TN6020	PR1225	PR1025	KW10	GE% 100-200-010A 100-200-100AR	GE% 100-200-010B 100-200-100BR	GE% 250-300-020B		
Carbon Steel	☆ 175-250	★ 175-250	☆ 175-250	-	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	Wet
Alloy Steel	☆ 175-250	★ 175-250	☆ 175-250	-	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	-	★ 175-250	☆ 175-250	-	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	-	-	-	★ 175-250	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	-	-	-	★ 175-325	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	-	-	-	★ 175-325	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 1mm. (GE%100-005A/100-005B) ★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (Ground Chipbreaker : GE%...C(R))

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)		Remarks
					② f (feed) during Traversing (ipr)		
	Cermet	MEGACOAT	PVD Coated Carbide	Carbide	③ D.O.C. during Traversing (in)		
TN6020	PR1225	PR1025	GW15	GE% 100-200-010C 200-100CR	GE% 250-350-020C 250-300-150CR		
Carbon Steel	☆ 400-600	★ 200-425	☆ 200-425	-	① 0.03-0.08 ② 0.03-0.08 ③ Max. 0.30	① 0.03-0.08 ② 0.03-0.08 ③ Max. 0.30	Wet
Alloy Steel	☆ 325-525	★ 200-400	☆ 200-400	-	① 0.03-0.07 ② 0.03-0.10 ③ Max. 0.30	① 0.03-0.07 ② 0.03-0.10 ③ Max. 0.30	
Stainless Steel	☆ 225-425	★ 200-350	☆ 200-350	-	① 0.03-0.07 ② 0.03-0.10 ③ Max. 0.30	① 0.03-0.07 ② 0.03-0.10 ③ Max. 0.30	
Cast Iron	-	-	-	★ 200-350	① 0.03-0.08 ② 0.03-0.08 ③ Max. 0.30	① 0.03-0.08 ② 0.03-0.08 ③ Max. 0.30	
Aluminum	-	-	-	★ 500-975	① 0.05-0.12 ② 0.05-0.12 ③ Max. 0.50	① 0.05-0.12 ② 0.05-0.12 ③ Max. 0.50	
Brass	-	-	-	★ 325-825	① 0.05-0.12 ② 0.05-0.12 ③ Max. 0.50	① 0.05-0.12 ② 0.05-0.12 ③ Max. 0.50	

• Use PVD coated grade or uncoated carbide for traversing with edge width 1mm. (GE%100-010C) ★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions (Molded Chipbreaker : GER...CM)

Workpiece Material	Recommended Insert Grade (Vc sfm)				① f (feed) during Grooving (ipr)		Remarks
					② f (feed) during Traversing (ipr)		
	Cermet	MEGACOAT	PVD Coated Carbide	Carbide	③ D.O.C. during Traversing (in)		
TN6020	PR1225	PR1025	GW15	GE% 100-200-010C 200-100CR	GE% 250-350-020C 250-300-150CR		
Carbon Steel	-	★ 200-525	☆ 200-525	-	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	Wet
Alloy Steel	-	★ 200-450	☆ 200-450	-	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	
Stainless Steel	-	★ 200-350	☆ 200-350	-	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	

★ : 1st Recommendation ☆ : 2nd Recommendation

GRADES
A

INSERTS
B

CBN & PCD
C

TURNING
E

BORING
F

GROOVING
G

CUT-OFF
H

THREADING
J

SOLID END MILLS
L

MILLING
M

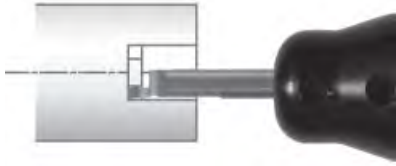
SPARE PARTS
P

TECHNICAL
R

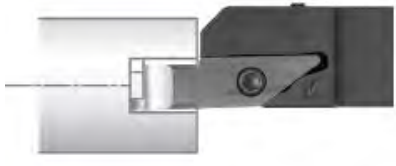
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Small Diameter Face Grooving

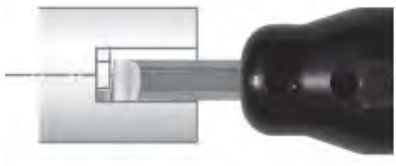
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B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX



Type	EZFG
Min. Face Groove Dia.	0.197", 0.236", 0.315" (5mm, 6mm, 8mm)
Width	0.039"-0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"-0.118" (2.0mm ~ 3.0mm)
Ref. Page	G45



Type	VNFG
Min. Face Groove Dia.	0.315" (8mm)
Width	0.039"-0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"-0.118" (2.0mm ~ 3.0mm)
Ref. Page	G47



Type	HPFG
Min. Face Groove Dia.	0.315" (8mm)
Width	0.039"-0.118" (1.0mm ~ 3.0mm)
Grooving Depth	0.079"-0.118" (2.0mm ~ 3.0mm)
Ref. Page	G47



Minimum Face Groove Diameter Ø6~



Type	STW
Min. Face Groove Dia.	0.236" (6mm)
Width	0.020"-0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"-0.118" (1.0mm ~ 3.0mm)
Ref. Page	G48

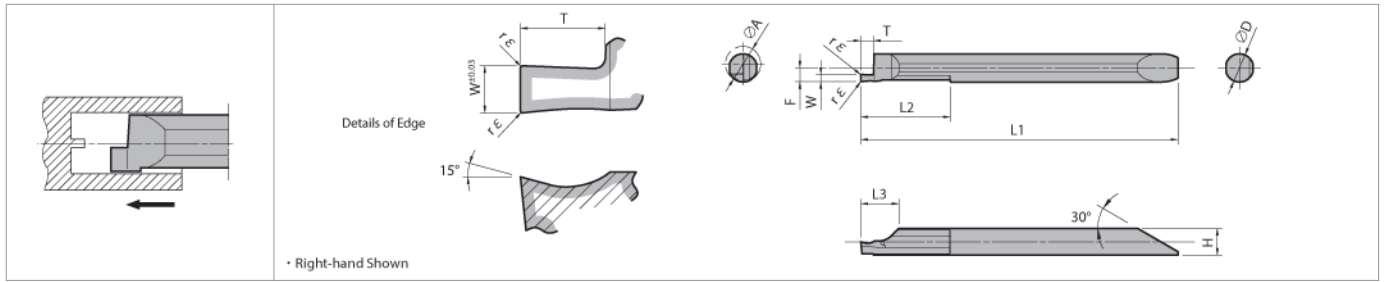


Type	S...-STW
Min. Face Groove Dia.	0.236" (6mm)
Width	0.020"-0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"-0.118" (1.0mm ~ 3.0mm)
Ref. Page	G48



Type	STWS
Min. Face Groove Dia.	0.236" (6mm)
Width	0.020"-0.079" (0.5mm ~ 2.0mm)
Grooving Depth	0.039"-0.118" (1.0mm ~ 3.0mm)
Ref. Page	G49

EZFG (Face Grooving)



Part Number	Min. Bore Dia.										MEGACOAT	Applicable Sleeve G46
	ØA	W ^{+0.03}	r _ε	ØD	H	L1	L2	L3	F	T	PR1225	
EZFGR 050040-100	5	1.0	±0.013 0.05	4	3.8	45.0	12	5.4	1.9	1.5	○	EZH040..
050040-150	5	1.5		4	3.8	45.0	12	5.4	1.9	2.0	○	
EZFGR 060050-100	6	1.0	±0.013 0.05	5	4.8	53.2	25	6.9	2.4	1.5	○	EZH050..
060050-150	6	1.5		5	4.8	53.2	25	6.9	2.4	2.5	○	
060050-200	6	2.0		5	4.8	53.2	25	6.9	2.4	3.0	○	
EZFGR 080070-100	8	1.0	±0.013 0.05	7	6.8	64.2	25	7.9	3.4	2.0	○	EZH070..
080070-150	8	1.5		7	6.8	64.2	25	7.9	3.4	2.5	○	
080070-200	8	2.0		7	6.8	64.2	25	7.9	3.4	3.0	○	
080070-300	8	3.0		7	6.8	64.2	25	7.9	3.4	3.0	○	

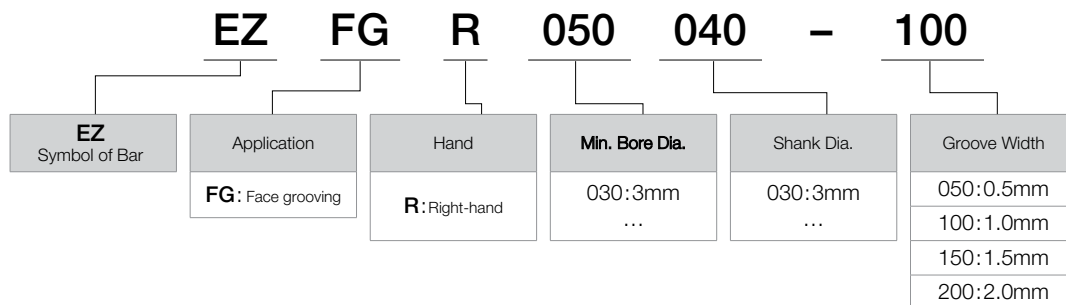
Dimension T : Available grooving depth

Recommended Cutting Conditions

Workpiece Material	Insert Grade (Vc:sfm)	EZFG050040-100 EZFG060050-100 EZFG080070-100	EZFG050040-150 EZFG060050-150 EZFG080070-150	EZFG060050-200 EZFG080070-200	EZFG080070-300	Notes
	MEGACOAT	Feed Rate (ipr)				
	PR1225					
Carbon Steel / Alloy Steel	★ 100~325	~0.0008	~0.0012	~0.0016	~0.0020	Wet
Stainless Steel	★ 100~250	~0.0004	~0.0008	~0.0008	~0.0012	

★ : First Recommendation

EZ-Bar Sleeve Identification System (Face Grooving)



Micro Bars are sold in 1 piece boxes.

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

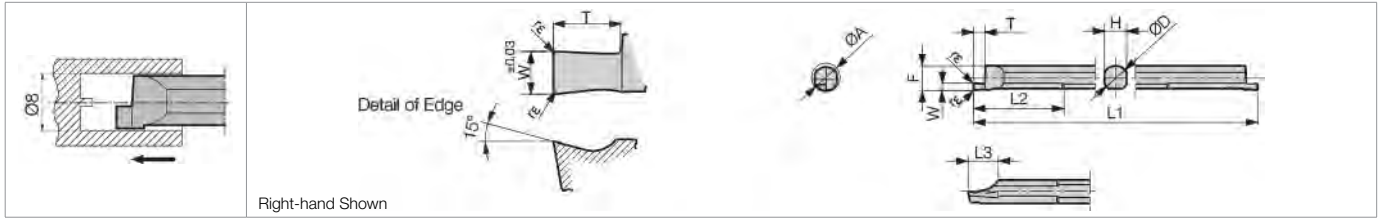
FACE GROOVING EZ-BAR SLEEVES

● Applicable Sleeves

A	GRADES	Sleeve Part Number			EZ Bar Part Number			Applicable Machine Manufacturer	
		EZH-CT (Adjustable with Coolant Hole) F21	EZH-HP (Adjustable) F23	EZH-ST F24~ F25	Sleeve Shank Dia. ØD1 (mm)	EZFG	HPFG		Shank Dia
									ØD (mm)
B	INSERTS	-	-	EZH 04012ST-80	12.00	EZFGR ...040-...	-	4	General Machines
				05012ST-80		...050-...	-	5	
				07012ST-80		...070-...	HPFG 0807-...	7	
C	CBN & PCD	-	EZH 04016HP-100	EZH 04016ST-100	16.00	EZFGR ...040-...	-	4	General Machines
			05016HP-100	05016ST-100		...050-...	-	5	
			07016HP-100	07016ST-100		...070-...	HPFG 0807-...	7	
E	TURNING	EZH 04019CT-120	EZH 04019HP-120	EZH 04019ST-120	19.05	EZFGR ...040-...	-	4	CITIZEN MACHINERY MIYANO CO., LTD.
		05019CT-120	05019HP-120	05019ST-120		...050-...	-	5	
		07019CT-120	07019HP-120	07019ST-120		...070-...	HPFG 0807-...	7	
F	BORING	EZH 04020CT-120	EZH 04020HP-120	EZH 04020ST-120	20.00	EZFGR ...040-...	-	4	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines
		05020CT-120	05020HP-120	05020ST-120		...050-...	-	5	
		07020CT-120	07020HP-120	07020ST-120		...070-...	HPFG 0807-...	7	
G	GROOVING	EZH 04022CT-135	EZH 04022HP-135	EZH 04022ST-135	22.00	EZFGR ...040-...	-	4	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd.
		05022CT-135	05022HP-135	05022ST-135		...050-...	-	5	
		07022CT-135	07022HP-135	07022ST-135		...070-...	HPFG 0807-...	7	
H	CUT-OFF	EZH 04025.0CT-135	EZH 04025.0HP-135	EZH 04025.0ST-135	25.00	EZFGR ...040-...	-	4	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines
		05025.0CT-135	05025.0HP-135	05025.0ST-135		...050-...	-	5	
		07025.0CT-135	07025.0HP-135	07025.0ST-135		...070-...	HPFG 0807-...	7	
H	CUT-OFF	EZH 04025.4CT-120	EZH 04025.4HP-120	EZH 04025.4ST-120	25.40	EZFGR ...040-...	-	4	CITIZEN MACHINERY MIYANO CO., LTD.
		05025.4CT-120	05025.4HP-120	05025.4ST-120		...050-...	-	5	
		07025.4CT-120	07025.4HP-120	07025.4ST-120		...070-...	HPFG 0807-...	7	

- Adjustment pin cannot be installed in EZH-ST sleeves. To adjust overhang of EZB insert, please use EZH-HP sleeves.
- Machine manufacturers in random order.

HPFG (Face Grooving (Small Dia.))



Part Number	Face Grooving Dia. ØA		Dimensions (mm)										Insert Grade					
	MIN	MAX	W ^{#0.001}	W ^{#0.03}	rε	ØD	H	L1	L2	L3	F	T	PVD Coated Carbide		Carbide			
			inch	mm									PR930				KW10	
													R	L	R	L		
HPFG% 0807-10	8 (0)	∞ (∞)	0.039	1	+0 -0.02 0.05	7	6.2	80	25	8.5	6.9	2	○	○	○			
0807-20			0.079	2		7	6.2	80	25	8.5	6.9	3	○	○	○			
0807-30			0.118	3		7	6.2	80	25	8.5	6.9	3	○	○	○			

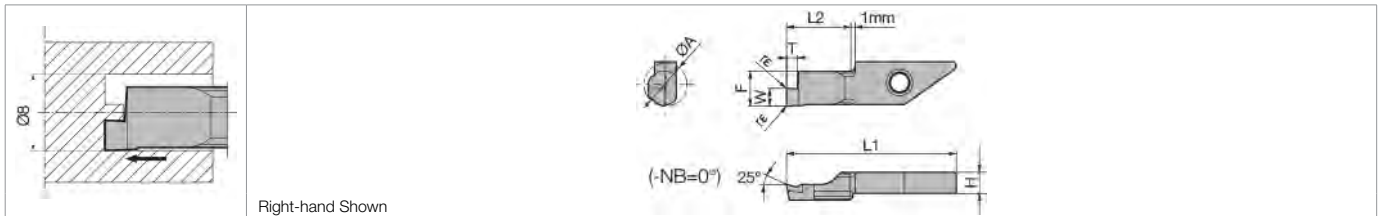
Dimension T : Available grooving depth • Face grooving diameter ØD MIN (0) means that you can make the initial groove within MIN - MAX and then widen it to the center.
 Applicable Sleeves **G46** Micro Bars are sold in 10 piece boxes.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)		HPFG% 0807-10	HPFG% 0807-20	HPFG% 0807-30	Remarks
	PVD Coated Carbide	Carbide				
	PR930	KW10				
Carbon Steel	★ 100~325	-	~0.0008	~0.0016	~0.0020	Wet
Alloy Steel	★ 100~250	-	~0.0004	~0.0008	~0.0012	
Non-ferrous Metals (Aluminum / Brass)	-	★ ~975	~0.0016	~0.0024	~0.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

VNFG (Swiss IQ Bar)



Part Number	Face Grooving Dia. ØA		Dimensions (mm)								Cermet	MEGACOAT	PVD Coated Carbide	Carbide	PCD		Ref. Page for Toolholder
	MIN	MAX	W ^{#0.001}	W ^{#0.03}	rε	H	L1	L2	F	T	TC60	PR1225	PR930	KW10	KPD001	KPD010	
			inch	mm							○		○	○			
VNFR 0810-10	8 (0)	∞ (∞)	0.039	1	0.05	3.9	29.6	10	7.3	2.0	○		○	○			→ F32
0820-10			0.079	2	0.05	3.9	29.6	10	7.3	2.0			○	○			→ F33
0830-10			0.118	3	0.05	3.9	29.6	10	7.3	3.0			○	○			

Dimension T : Available grooving depth • Face grooving diameter ØD MIN (0) means that you can make the initial groove within MIN - MAX and then widen it to the center.

Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)				VNFG0810	VNFG0820	VNFG0830	Remarks
	Cermet	MEGACOAT	PVD Coated Carbide	Carbide				
	TC60	PR1225	PR930	KW10				
Carbon Steel	☆ 200~400	★ 100~325	☆ 100~325	-	~0.0008	~0.00016	~0.0020	Wet
Alloy Steel	☆ 175~325	★ 100~250	☆ 100~250	-	~0.0004	~0.0008	~0.0012	
Non-ferrous Metals (Aluminum / Brass)	-	-	-	★ ~975	~0.0016	~0.0024	~0.0031	

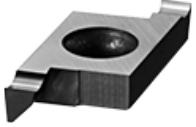
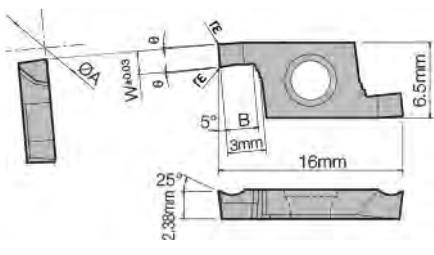
★ : 1st Recommendation ☆ : 2nd Recommendation

Swiss IQ Bars are sold in 5 piece boxes. CBN & PCD Inserts are sold in 1 piece boxes.

GRADES **A**
 INSERTS **B**
 CBN & PCD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

MICRO DIA. FACE GROOVING (TWIN BARS)

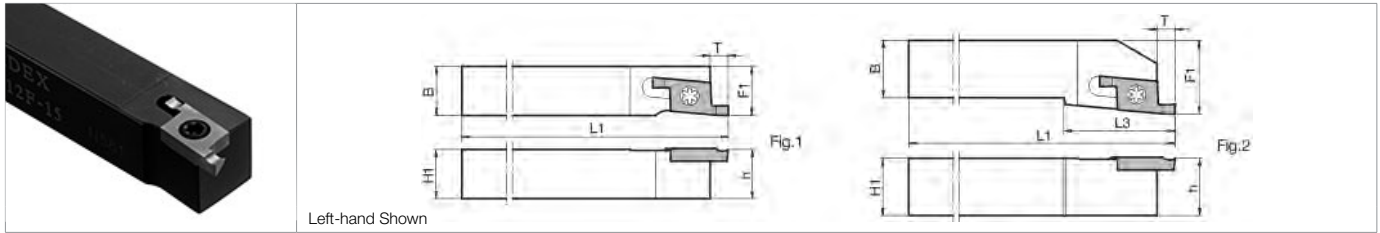
TWFG (Horizontal Type : Insert Specification)

A GRADES	B INSERTS	C CBN & PCD	E TURNING	F BORING	G GROOVING	H CUT-OFF	J THREADING	L SOLID END MILLS	M MILLING	P SPARE PARTS	R TECHNICAL	T INDEX			Part Number TWFG L 050 080 100 125 150 180 200	Face Grooving Dia. ØA MIN MAX 6 (0) (∞)	Dimensions (mm)				Angle (°) θ	Insert Grade	
																	W		rε	B		PR1025	KW10
																	inch	mm					

Dimension T : Available grooving depth

• Face grooving diameter ØD MIN (0) means that you can make the initial groove within MIN - MAX and then widen it to the center.

STW (Square Shank for Horizontal Type)



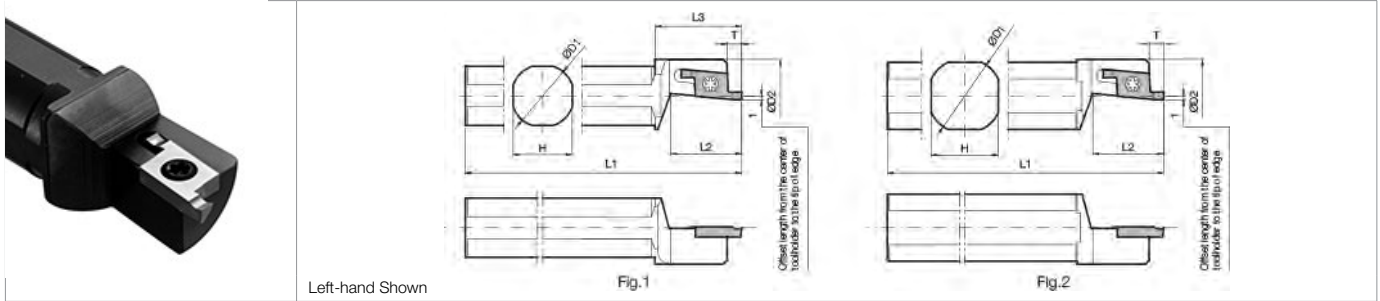
Toolholder Dimensions

Part Number	Stock	Dimensions (mm)										Shape	Spare Parts		Applicable Inserts Above
		H1=h	B	L1	L2	L3	F1	F2	T	F3	Clamp Screw		Wrench		
STWL 1010F-15	○	10	10	85	-	-	10	-	3	-	Fig.1	SB-3080TR	LTW-10S	TWFG L ○○○	
1212F-15	○	12	12	85	-	-	12	-	3	-	Fig.1				
1212K-15	○	12	12	125	-	-	12	-	3	-	Fig.1				
1616K-15	○	16	16	125	-	-	16	-	3	-	Fig.1				
2020K-15	○	20	20	125	-	25	25	-	3	-	Fig.2				
2525M-15	○	25	25	150	-	25	32	-	3	-	Fig.2				

Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth : "B" Dimension of insert

S...-STW (Round Shank for Horizontal Type)

Right-hand toolholder for boring, see Page [F36](#)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)								Shape	Spare Parts		Applicable Inserts Above
		ØD1	ØD2	H	L1	L2	L3	T	Clamp Screw		Wrench		
S12F- STWL15	○	12.000	20.0	11	80	18	22	3	Fig.1	SB-3080TR	LTW-10S	TWFG L ○○○	
S14H- STWL15	○	14.000	20.0	13	100	18	22	3	Fig.1				
S15F- STWL15	○	15.875	20.0	15	85	18	22	3	Fig.1				
S16F- STWL15	○	16.000	20.0	15	85	18	22	3	Fig.1				
S19G- STWL15	○	19.050	18.5	17	90	18	-	3	Fig.2				
S19K- STWL15	○	19.050	18.5	17	120	18	-	3	Fig.2				
S20G- STWL15	○	20.000	19.5	18	90	18	-	3	Fig.2				
S20K- STWL15	○	20.000	19.5	18	120	18	-	3	Fig.2				
S22K- STWL15	○	22.000	21.5	20	125	22	-	3	Fig.2				
S25.0J- STWL15	○	25.000	24.5	23	110	22	-	3	Fig.2				
S25K- STWL15	○	25.400	25.0	23	120	22	-	3	Fig.2				

Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth : "B" Dimension of insert

Micro Bars are sold in 5 piece boxes

MICRO DIA. FACE GROOVING (TWIN BARS)

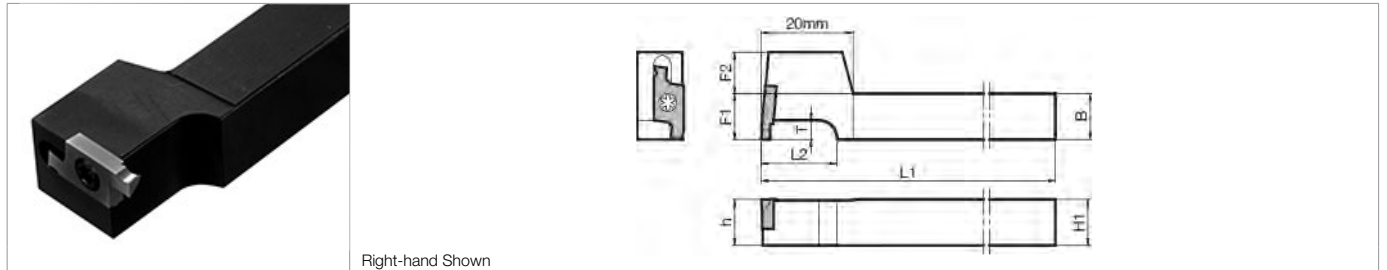
TWFGT (Vertical Type : Insert Specification)

Part Number	Face Grooving Dia. ØA	Dimensions (mm)					Angle (°)	Insert Grade	
		W		rε	B	θ		PVD Coated Carbide	Carbide
		inch	mm						
TWFGTR 050	6 (0) 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°	○	○		

Dimension T : Available grooving depth

• Face grooving diameter ØD MIN (0) means that you can make the initial groove within MIN - MAX and then widen it to the center.

STWS (Square Shank for Vertical Type : L-Shape)



Toolholder Dimensions

Part Number	Stock	Dimensions (mm)										Shape	Spare Parts		Applicable Inserts Above
		H1=h	B	L1	L2	L3	F1	F2	T	F3	Clamp Screw		Wrench		
STWSR 1010JX-15T	○	10	10	120	16	-	10	9	3	-	-	SB-3080TR	LTW-10S	TWFGTR ○○○	
1212JX-15T	○	12	12	120	16	-	12	7	3	-	-				
1616JX-15T	○	16	16	120	20	-	16	3	3	-	-				
STWSR 1010F-15T	○	10	10	85	16	-	10	9	3	-	-	SB-3080TR	LTW-10S	TWFGTR ○○○	
1212F-15T	○	12	12	85	16	-	12	7	3	-	-				

Dimension T shows the distance from the toolholder to the cutting edge. Available groove depth : "B" Dimension of insert

Recommended Cutting Conditions (TWFG / TWFGT)

Workpiece Material	Recommended Insert Grade (Vc sfm)		TWFGLO50 TWFGLO80 TWFGLO100 TWFGTR050 TWFGTR080 TWFGTR100	TWFGTL125 TWFGTL150 TWFGTR125 TWFGTR150	TWFGTL180 TWFGTL200 TWFGTR180 TWFGTR200	Remarks
	PVD Coated Carbide	Carbide				
	PR1025	KW10				
Carbon Steel	★ 100~325	-	~-0.0008	~-0.0012	~-0.0016	Wet
Alloy Steel	★ 100~250	-	~-0.0004	~-0.0008	~-0.0008	
Non-ferrous Metals (Aluminum / Brass)	-	★ ~975	~-0.0012	~-0.0016	~-0.0024	


★ : 1st Recommendation ☆ : 2nd Recommendation

Twin Bars are sold in 5 piece boxes

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

CUT-OFF



H

H1 - H26

PRODUCT LINEUP	H2
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SUMMARY OF CUT-OFF	H3 - H5
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SMALL DIAMETER CUT-OFF TOOLHOLDERS	H6 - H11
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KTKF	Lateral Side Screw Clamp Holders	H8
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KTKFS (SUB SPINDLE)	Lateral Side Screw Clamp Holders	H10
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CUT-OFF TOOLHOLDERS (2-EDGE INSERT)	H12 - H17
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KGD (SWISS)	Integral Toolholders	H16
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KGD	Integral Toolholders	H17
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CUT-OFF TOOLHOLDERS (2-EDGE INSERT CERACUT PLUNGE & TURN)	H18 - H22
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KGM (SWISS)	Integral Toolholders	H20
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KGM	Integral Toolholders	H20
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KGM-T	Integral Toolholders	H21
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CUT-OFF TOOLHOLDERS (1-EDGE INSERT CERACUT CUT-OFF)	H23 - H26
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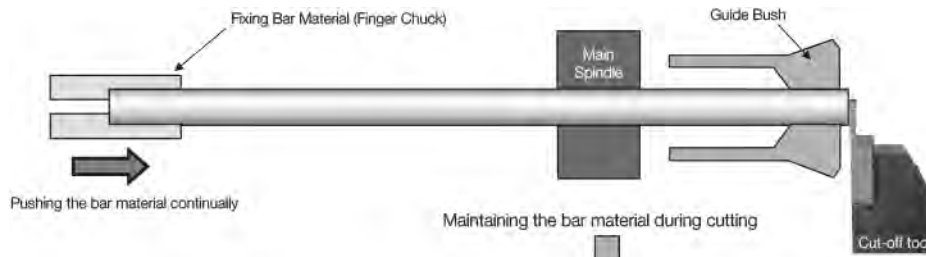
KTKH-S	Integral Toolholders	H24
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Product Lineup

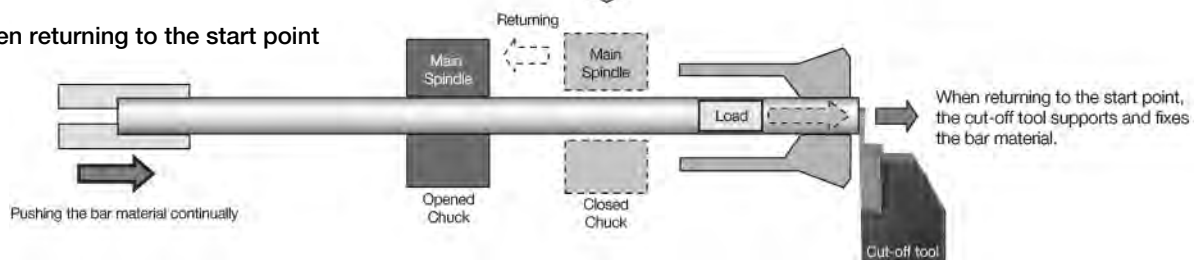
			Advantages												
A GRADES	B INSERTS	C CBN & PCD	E TURNING	F BORING	G GROOVING	H CUT-OFF	J THREADING	L SOLID END MILLS	M MILLING	P SPARE PARTS	R TECHNICAL	T INDEX	<p>Small Diameter Cut-Off</p> <p>Toolholders (Long Shank for Automatic Lathe)</p> <p>Cut-Off Diameter $\varnothing 0.197'' \sim \varnothing 0.472''$ $\sim \varnothing 0.630''$ $(\varnothing 5\text{mm} \sim \varnothing 12\text{mm})$ $(\sim \varnothing 16\text{mm})$</p>	<p>KTKF (H8)</p>  <p>Width : (0.020"~0.079") Width : (0.5mm~2.0mm)</p>	<ol style="list-style-type: none"> ① Insert clamp is side screw type from lateral side ② 2-Edge Insert ③ Max. Cutting Dia. : $\varnothing 0.630''$ ($\varnothing 16\text{mm}$)
														<p>Automatic Lathe For Sub Spindle Tooling</p> <p>Cut-Off Diameter $\varnothing 0.236'' \sim \varnothing 0.472''$ $\varnothing 0.551'' \sim \varnothing 0.630''$ $(\varnothing 6\text{mm} \sim \varnothing 12\text{mm})$ $(\varnothing 14\text{mm} \sim \varnothing 16\text{mm})$</p>	<p>KTKFS (H10)</p>  <p>Width : (0.039"~0.079") Width : (1.0mm~2.0mm)</p>
H CUT-OFF	J THREADING	L SOLID END MILLS	M MILLING	P SPARE PARTS	R TECHNICAL	T INDEX	<p>KGD</p> <p>Bolt Clamp</p> <p>Cut-Off Diameter $\varnothing 0.472'' \sim \varnothing 1.575''$ $(\varnothing 12\text{mm} \sim \varnothing 40\text{mm})$</p>	<p>KGD (H16)</p>  <p>Width : (0.079"~0.158") Width : (2.0mm~4.0mm)</p>	<ol style="list-style-type: none"> ① Insert is clamped from top side ② 1-Edge and 2-Edge Inserts Available ③ Max. Cutting Dia. : $\varnothing 1.575''$ ($\varnothing 40\text{mm}$) 						
							<p>CERACUT Plunge & Turn (2-edge Insert)</p> <p>Cut-Off Diameter $\varnothing 0.709'' \sim \varnothing 1.575''$ $(\varnothing 18\text{mm} \sim \varnothing 40\text{mm})$</p>	<p>KGM (H20) KGM-T (H21)</p>  <p>Width : 0.059"~0.158", 0.118"~0.236" Width : 0.079"~0.197" Width : (1.5mm~4mm, 3mm~6mm) Width : (2mm~5mm)</p>	<ol style="list-style-type: none"> ① Insert is clamped from top side ② 1-Edge and 2-Edge inserts available ③ Max. Cutting Dia. : $\varnothing 1.575''$ ($\varnothing 40\text{mm}$) 						
L SOLID END MILLS	M MILLING	P SPARE PARTS	R TECHNICAL	T INDEX	<p>CERACUT Cut-Off (1-edge Insert)</p> <p>Cut-Off Diameter $\varnothing 1.181'' \sim \varnothing 2.441''$ $(\varnothing 30\text{mm} \sim \varnothing 62\text{mm})$</p>	<p>KTKH-S (H24)</p>  <p>Width : (0.020"~0.079") Width : (0.5mm~2.0mm)</p>	<ol style="list-style-type: none"> ① Self-Clamping System Tap the insert lightly with a plastic hammer to set it in the pocket. ② 1-Edge Insert ③ Max. Cutting Dia. : $\varnothing 2.441''$ ($\varnothing 62\text{mm}$) 								

Cut-Off in Automatic Lathe

1) When a cutting process has just finished

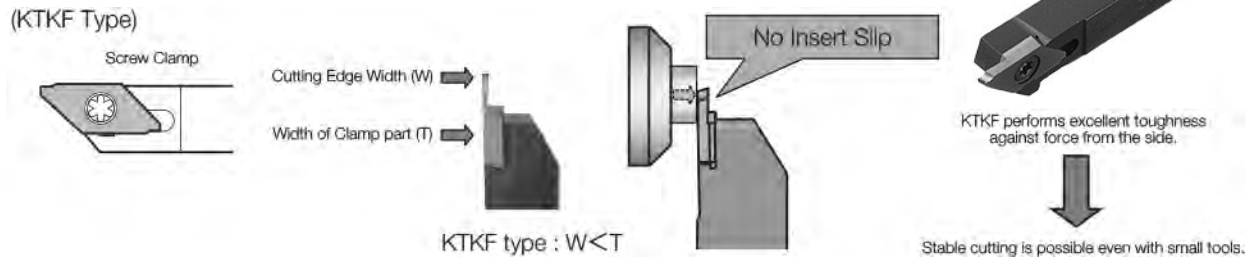


2) When returning to the start point



● For high precision cutting, choose **Screw Clamp toolholder**.

- 1) Improved accuracy of cutting edge position in insert installation → Higher precision even after repeated insert replacements
- 2) Improved rigidity of insert clamp → Improved accuracy of insert and workpiece position



How to Select Cut-Off Inserts

- 1) Use a neutral angle insert, when remaining boss is negligible. (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)

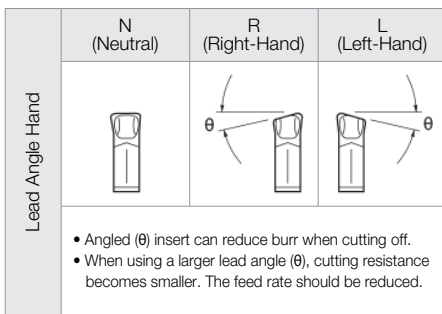


Fig.1

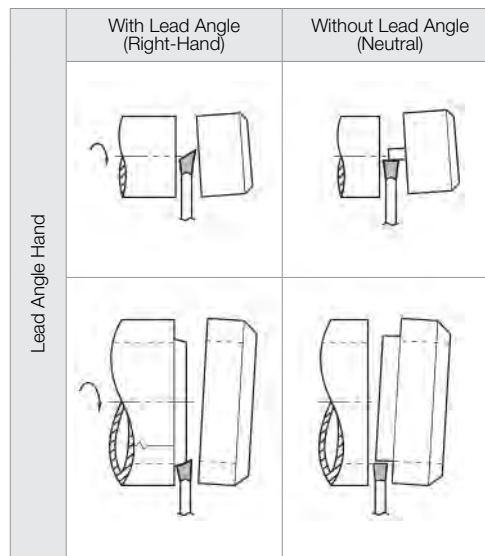


Fig.2

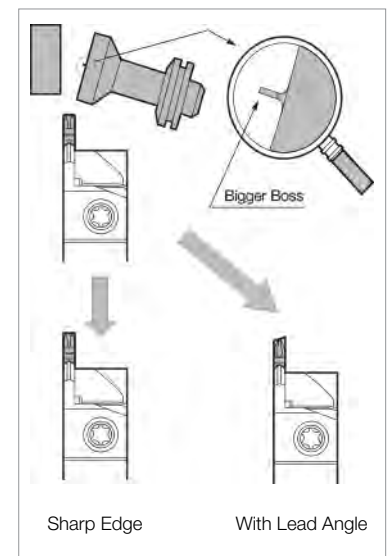


Fig.3

Caution

- 1) Set the cutting edge height 0.1-0.2mm 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 at the near center to prevent chipping

- 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

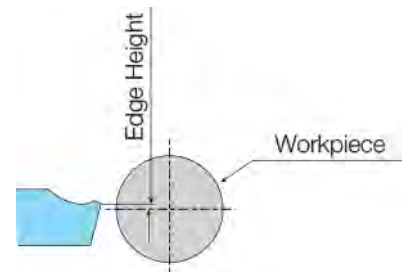
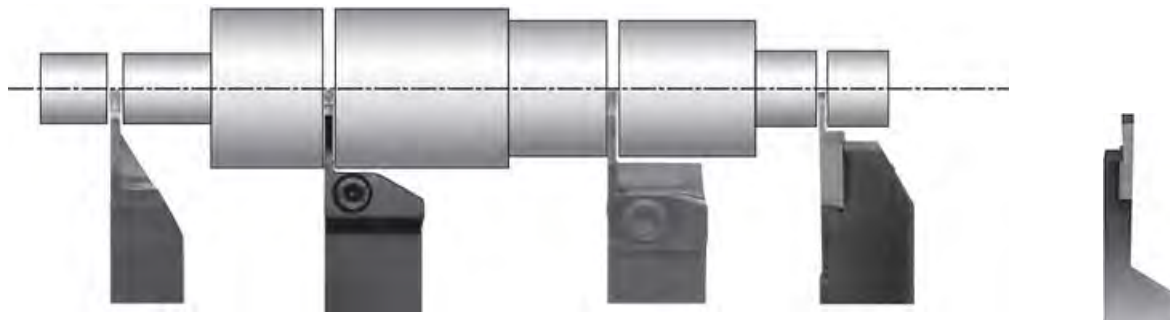


Fig.4

CUT-OFF TOOLS SUMMARY

Small Diameter Cut-Off ~Ø1.77" (45mm)

Small Shank



KTKH-S	KGD	KGM	KTKF	KTKFS
Cut-Off Dia: ~Ø1.30" / 45mm Shank Size: 0.375"-0.500" / 10mm-20mm Edge Width: 0.063"-0.094" / 2.2mm-4.1mm Self Clamp	Cut-Off Dia: ~Ø1.653" / 42mm Shank Size: 0.375"-0.750" / 10mm-20mm Edge Width: 0.059"-0.157" / 1.3mm-4.0mm Top Clamp	Cut-Off Dia: ~Ø0.984" / 32mm Shank Size: 0.375"-0.500" / 10mm-16mm Edge Width: 0.079"-0.118" / 1.5mm-4.0mm Top Clamp	Cut-Off Dia: ~Ø0.625" / 16mm Shank Size: 0.375"-0.625" / 10mm-16mm Edge Width: 0.020"-0.079" / 0.5mm-2.0mm Lateral Side Clamp	Cut-Off Dia: ~Ø0.630" / 16mm Shank Size: 0.375"-0.500" / 10mm-12mm Edge Width: 0.059"-0.098" / 1.0mm-2.0mm Lateral Side Clamp

H24

H16

H20

H8

H10

2-Edge NEW
Medium Feed Rate for Swiss
PQ

2-Edge NEW
Low Feed for Swiss
PF

2-Edge NEW
Sharp Cutting for Swiss
PG

2-Edge
Chipbreaker for Sharp Cutting

2-Edge
Chipbreaker for Stability

1-Edge
Chipbreaker for Stability

2-Edge
Chipbreaker for High Feed

KTKF
KTKFS
2-Edge
Low Resistance Cut-Off Chipbreaker

GDM Inserts for KGD H12~ H13					
Chipbreaker Shape	General Purpose (PM Chipbreaker)	High Feed (PH Chipbreaker)	Medium Feed (PQ Chipbreaker)	Low Feed (PF Chipbreaker)	Sharp Cutting (PG Chipbreaker)
	Chamfered + Honed	Chamfered + Honed	Honed	Honed	Sharp Edge
	Corner-R 0.008"~0.012" / 0.20mm~0.30mm	Corner-R 0.008"~0.012" / 0.20mm~0.30mm	Corner-R 0.004" / 0.10mm	Corner-R 0.0012"~0.0059" / 0.03mm~0.15mm	Corner-R 0.002" / 0.05mm
			NEW	NEW	NEW

CERACUT Plunge & Turn Inserts H18					
Chipbreaker Shape	Sharp Cutting (MT Chipbreaker)		Stable Cutting (TK Chipbreaker)		High Feed (TMR Chipbreaker)
	Chamfered + Honed	Chamfered + Honed	Chamfered + Honed	Sharp Edge	Chamfered + Honed
	Corner-R 0.002" / 0.05mm	Sharp Edge	Corner-R 0.008"~0.012" / 0.20mm~0.30mm	Corner-R 0.008"~0.012" / 0.20mm~0.30mm	Corner-R 0.008" / 0.20mm



KTKH-S (CERACUT Cut-Off) H24
(Set Clamp)



KGD H16
(Top Clamp)

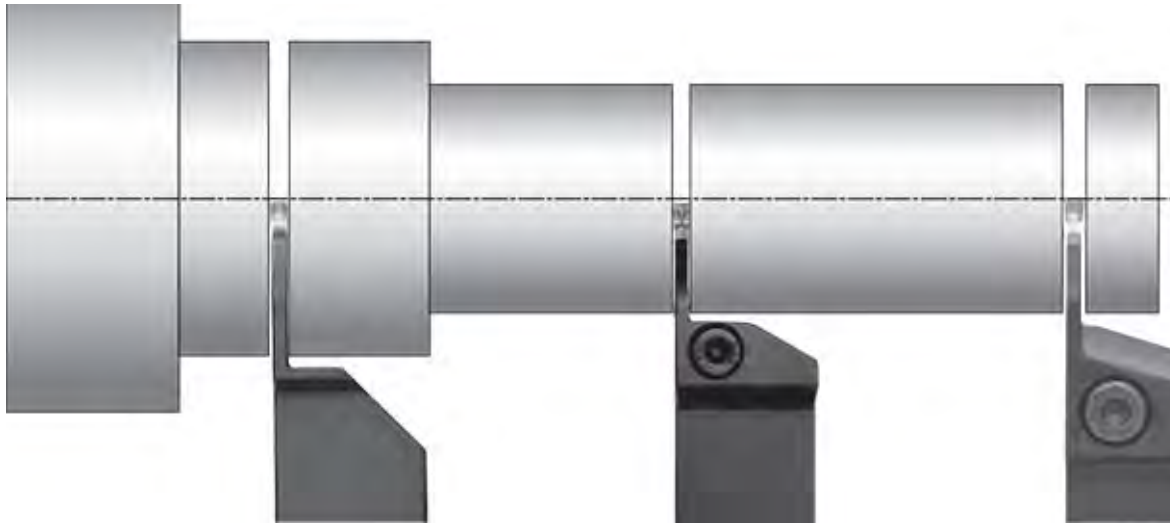


KGM (CERACUT Plunge & Turn) H20
(Top Clamp)



KTKF (Small Dia. Cut-Off) H8
(Lateral Side Clamp)

General Cut-Off ~Ø2.44" (62mm)

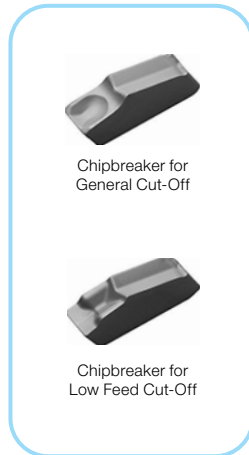


Integral Type

KTKH-S

Cut-Off Dia: ~Ø0.630" / 16mm
 Shank Size: 0.375"-0.500" / 10mm-12mm
 Edge Width: 0.059"-0.098" / 1.0mm-2.0mm
 Lateral Side Clamp

H24

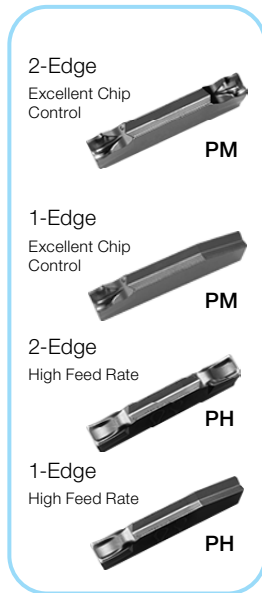


Integral Type

KGD

Cut-Off Dia: ~Ø0.630" / 16mm
 Shank Size: 0.375"-0.500" / 10mm-12mm
 Edge Width: 0.059"-0.098" / 1.0mm-2.0mm
 Lateral Side Clamp

H16



Integral Type

KGM-T

Cut-Off Dia: ~Ø0.630" / 16mm
 Shank Size: 0.375"-0.500" / 10mm-12mm
 Edge Width: 0.059"-0.098" / 1.0mm-2.0mm
 Lateral Side Clamp

H21



Integral Type



GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

TKF (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	Part Number	Dimensions (mm)							Angle	MEGA COAT NANO	MEGA COAT	PVD Coated Carbide	Carbide	Ref. Page for Toolholder	
		W		ØD Max	rε	T	H	Ød							θ
		inch	mm												
 Right Lead Angle	TKF12% 050-S-16DR	0.020	0.50	5	0.03	3	8.7	5	16°	●	●	○	○	H8	
	070-S-16DR	0.028	0.70	8	0.03	3	8.7	5	16°	●	●	●	○		
	100-S-16DR	0.039	1.00	12	0.03	3	8.7	5	16°	●	●	●	○		
	125-S-16DR	0.049	1.25	12	0.03	3	8.7	5	16°	●	●	●	○		
	150-S-16DR	0.059	1.50	12	0.03	3	8.7	5	16°	●	●	●	○		
 Right Lead Angle Tough Edge	TKF12% 050-S	0.020	0.50	5	0.03	3	8.7	5	0°	●	●	○	●		
	070-S	0.028	0.70	8	0.03	3	8.7	5	0°	●	●	●	●		
	100-S	0.039	1.00	12	0.03	3	8.7	5	0°	●	●	●	●		
	125-S	0.049	1.25	12	0.03	3	8.7	5	0°	●	●	●	●		
	150-S	0.059	1.50	12	0.03	3	8.7	5	0°	●	●	●	●		
 Right Lead Angle Tough Edge	TKF12% 100-T-16DR	0.039	1.00	12	0.08	3	8.7	5	16°	●	●				
	150-T-16DR	0.059	1.50	12	0.08	3	8.7	5	16°	●	●				
	200-T-16DR	0.079	2.00	12	0.08	3	8.7	5	16°	●	●				
 Tough Edge	TKF12% 100-T	0.039	1.00	12	0.08	3	8.7	5	0°	●	●				
	150-T	0.059	1.50	12	0.08	3	8.7	5	0°	●	●				
	200-T	0.079	2.00	12	0.08	3	8.7	5	0°	●	●				
 Right Lead Angle	TKF12% 050-NB-20DR	0.020	0.50	5	0.00	3	8.7	5	20°	●		○	○		
	070-NB-20DR	0.028	0.70	8	0.00	3	8.7	5	20°	●		○	○		
	100-NB-20DR	0.039	1.00	12	0.00	3	8.7	5	20°	●		●	●		
	150-NB-20DR	0.059	1.50	12	0.00	3	8.7	5	20°	●		○	○		
	200-NB-20DR	0.079	2.00	12	0.00	3	8.7	5	20°	●		○	○		
 Without Chipbreaker	TKF12% 050-NB	0.020	0.50	5	0.00	3	8.7	5	0°	●		○	●		
	070-NB	0.028	0.70	8	0.00	3	8.7	5	0°	●		○	●		
	100-NB	0.039	1.00	12	0.00	3	8.7	5	0°	●		○	○		
	150-NB	0.059	1.50	12	0.00	3	8.7	5	0°	●		○	○		
	200-NB	0.079	2.00	12	0.00	3	8.7	5	0°	●		○	○		

- Lead angle shows the angle when installed in the toolholder.
- As Fig. 1 of H8 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

Indication of Description

TKF 12 R 050 - S - 16D R

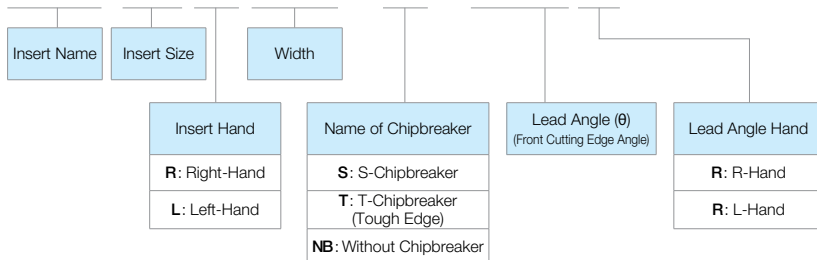


Table 1

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)

Descriptions of Chipbreaker Edge Shape

Edge Shape	S-Chipbreaker		T-Chipbreaker (Tough Edge)		NB Chipbreaker	
	α (°)	Part Number	α (°)	Part Number	α (°)	Part Number
	15°	TKF12...-S	12°	TKF...-T TKF...-T-16DR	0°	TKF...-NB TKF...-NB-16DR
	20°	TKF16...-S TKF16...-S-16DR				
	25°	TKF12...-S-16DR				

Inserts are sold in 10 piece boxes

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

TKF (TKF16)

Classification of Usage		P	Carbon Steel / Alloy Steel	●	☉	☉
●	Light Interruption / 1st Choice	M	Stainless Steel	☉ <th>●</th> <th>☉</th>	●	☉
☉	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 (mm)							Angle θ	MEGA COAT NANO	MEGA COAT	PVD Coated Carbide	Carbide	Ref. Page for Toolholder
		W		ØD Max	rε	T	H	Ød						
		inch	mm											
 Right Lead Angle	TKF16% 150-S-16DR	0.059	1.5	16	0.05	4	9.5	5	16°	●	●	☉	○	H8
	200-S-16DR	0.079	2.0	16	0.05	4	9.5	5	16°	●	●	●	○	
 150-S	TKF16% 150-S	0.059	1.5	16	0.05	4	9.5	5	0°	●	●	☉	○	
	200-S	0.079	2.0	16	0.05	4	9.5	5	0°	●	●	☉	○	
 Right Lead Angle Tough Edge	TKF16% 150-T-16DR	0.059	1.5	16	0.08	4	9.5	5	16°	●	●			
	200-T-16DR	0.079	2.0	16	0.08	4	9.5	5	16°	●	●			
 150-T	TKF16% 150-T	0.059	1.5	16	0.08	4	9.5	5	0°	●	●			
	200-T	0.079	2.0	16	0.08	4	9.5	5	0°	●	●			
 Right Lead Angle Without Chipbreaker	TKF16% 150-NB-20DR	0.059	1.5	16	0.00	4	9.5	5	20°	●		○	○	
	200-NB-20DR	0.079	2.0	16	0.00	4	9.5	5	20°	●		☉	○	
 150-NB	TKF16% 150-NB	0.059	1.5	16	0.00	4	9.5	5	0°	●		○	○	
	200-NB	0.079	2.0	16	0.00	4	9.5	5	0°	●		●	○	

- Lead angle shows the angle when installed in the toolholder.
- As Fig.1 of H8 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

Recommended Cutting Conditions (TKF12/16)

Workpiece Material	Recommended Grade (Vc sfm)					TKF12				TKF16				Remarks
	MEGACOAT NANO	MEGA COAT	PVD Coated Carbide	Carbide	KW10	Width				Width				
						0.020" (0.50mm)	0.028" (0.70mm)	0.039" (1.00mm)	0.049" (1.25mm)	0.059" (1.50mm)	0.079" (2.00mm)	0.059" (1.50mm)	0.079" (2.00mm)	
						Depth of Cut: D.O.C.(in), Feed: f(ipr)								
PR1425	PR1535	PR1225	PR1025		Feed Rate (ipr)				Feed Rate (ipr)					
Carbon Steel	★ 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)	0.0008-0.0028 (0.0008-0.0039)	0.0008-0.0028 (0.0008-0.0039)	Wet
Alloy Steel	★ 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)	0.0008-0.0028 (0.0008-0.0039)	0.0008-0.0028 (0.0008-0.0039)	
Stainless Steel	☆ 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)	0.0004-0.0016 (0.0004-0.0020)	0.0004-0.0016 (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	0.0008-0.0032	0.0008-0.0032	
Aluminum	-	-	-	★ 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	0.0008-0.0032	0.0008-0.0032	
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	0.0008-0.0039	0.0008-0.0039	

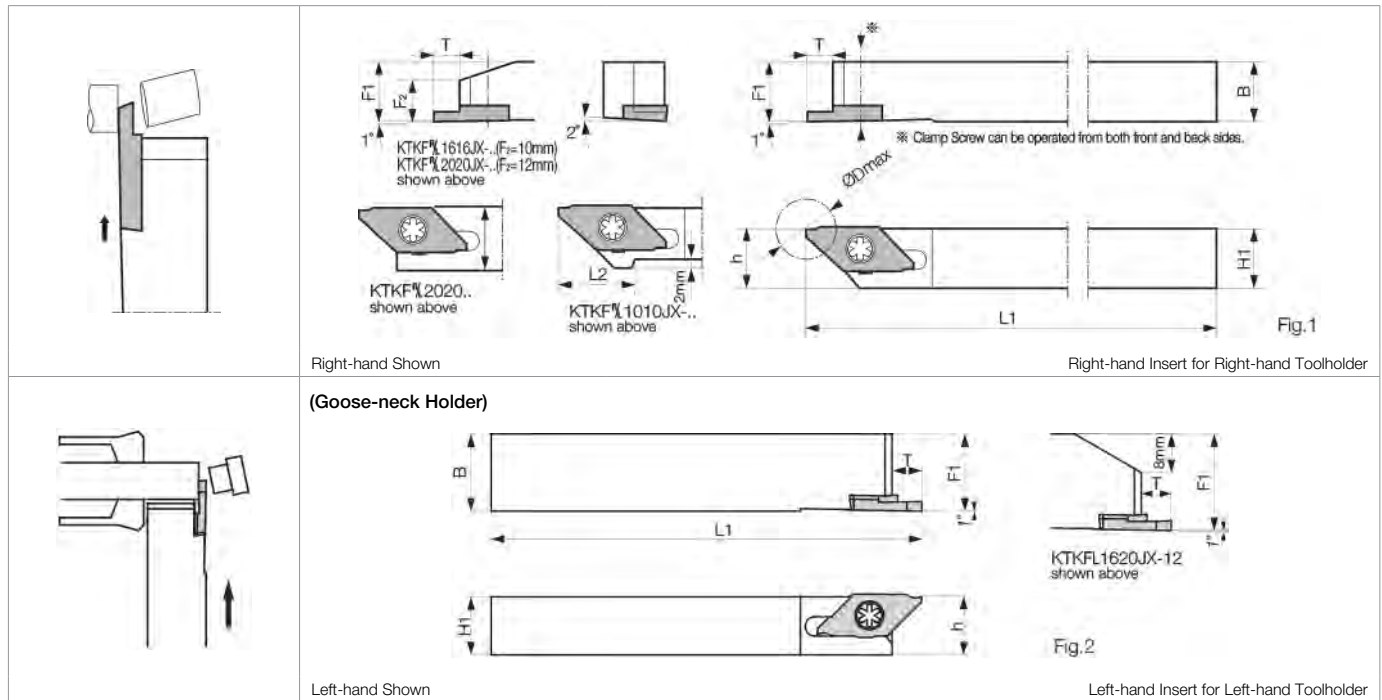
() : Cutting condition of tough edge type inserts (TKF..T..)

★ : 1st Recommendation ☆ : 2nd Recommendation

Inserts are sold in 10 piece boxes

CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

KTKF (For Small Diameter Cut-Off)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Shape	Spare Parts		Applicable Inserts ● H6~ ● H7
	R	L		H1=h	B	L1	L2	F1	T		Clamp Screw	Wrench	
KTKF% 6-12JX	●	●	inch	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	4.750	-	0.500	0.236	Fig.1			
10-12JX	●	●		0.625	0.625	4.750	-	0.625	0.236	Fig.1			
KTKF% 6-16JX	●	●		0.375	0.375	4.750	0.787	0.375	0.630	Fig.1	SB-4590TRWN	LTW-10S	TKF16%...
8-16JX	●	●		0.500	0.500	4.750	-	0.500	0.630	Fig.1			
10-16JX	●	●		0.625	0.625	4.750	-	0.625	0.630	Fig.1			
KTKF% 52-12JX	●	●	0.500	0.625	4.750	-	0.625	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKF12%...	
62.5-12JX	●	●	0.625	0.750	4.750	-	0.750	0.236	Fig.1				
KTKF% 1010JX-12	●	○	mm	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKF12%...
1212JX-12	●	○		12	12	120	-	12	6	Fig.1			
1616JX-12	●	○		16	16	120	-	16	6	Fig.1			
2020JX-12	●	○		20	20	120	-	20	6	Fig.1			
KTKF% 1010JX-16	○	○		10	10	120	20	10	8	Fig.1	SB-4590TRWN	LTW-10S	TKF16%...
1212JX-16	○	○		12	12	120	-	12	8	Fig.1			
1616JX-16	○	○		16	16	120	-	16	8	Fig.1			
2020JX-16	○	○		20	20	120	-	20	8	Fig.1			
KTKF% 1212F-12	○	○		12	12	85	-	12	6	Fig.1	SB-4590TRWN	LTW-10S	TKF12%...
1212F-16	○	○		12	12	85	-	12	8	Fig.1			
KTKF% 1216JX-12	○	○		12	16	120	-	16	6	Fig.2	SB-4590TRWN	LTW-10S	TKF12L...
1620JX-12	○	○		16	20	120	-	20	6	Fig.2			

- Dimension T shows the distance from the toolholder to the cutting edge.
- See Page ● H6~ ● H7 for actual cutting diameter.

Recommended Cutting Conditions ● H7

Note : Cutting diameter of -12 type toolholder (ØDmax) depends on the insert grooving width.

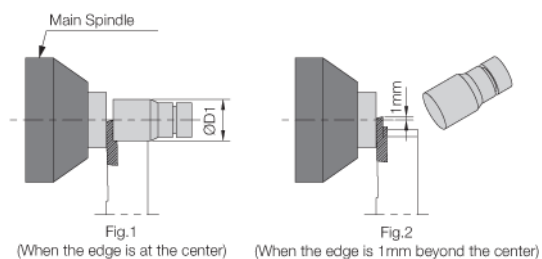
How to Use

1) When using main spindle only

Workpiece maximum ØD1 (Fig.1)=ØDmax

Even if the cutting edge runs beyond the center line, the insert does not contact the workpiece, since the workpiece falls off.

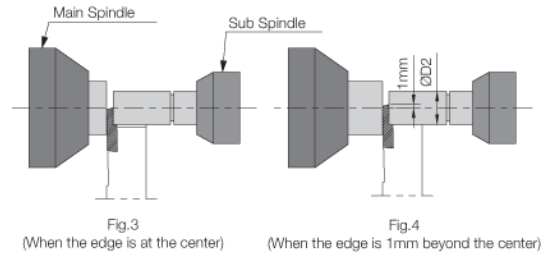
(The clearance between the insert and the workpiece is 0.2mm)



CUT-OFF TOOLHOLDERS (SMALL DIAMETER)

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, $\text{OD2 (Fig.4)} = [\text{ODmax} - 1\text{mm} \times 2]$ (mm)
(The clearance between the insert and the workpiece is 0.2mm)



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

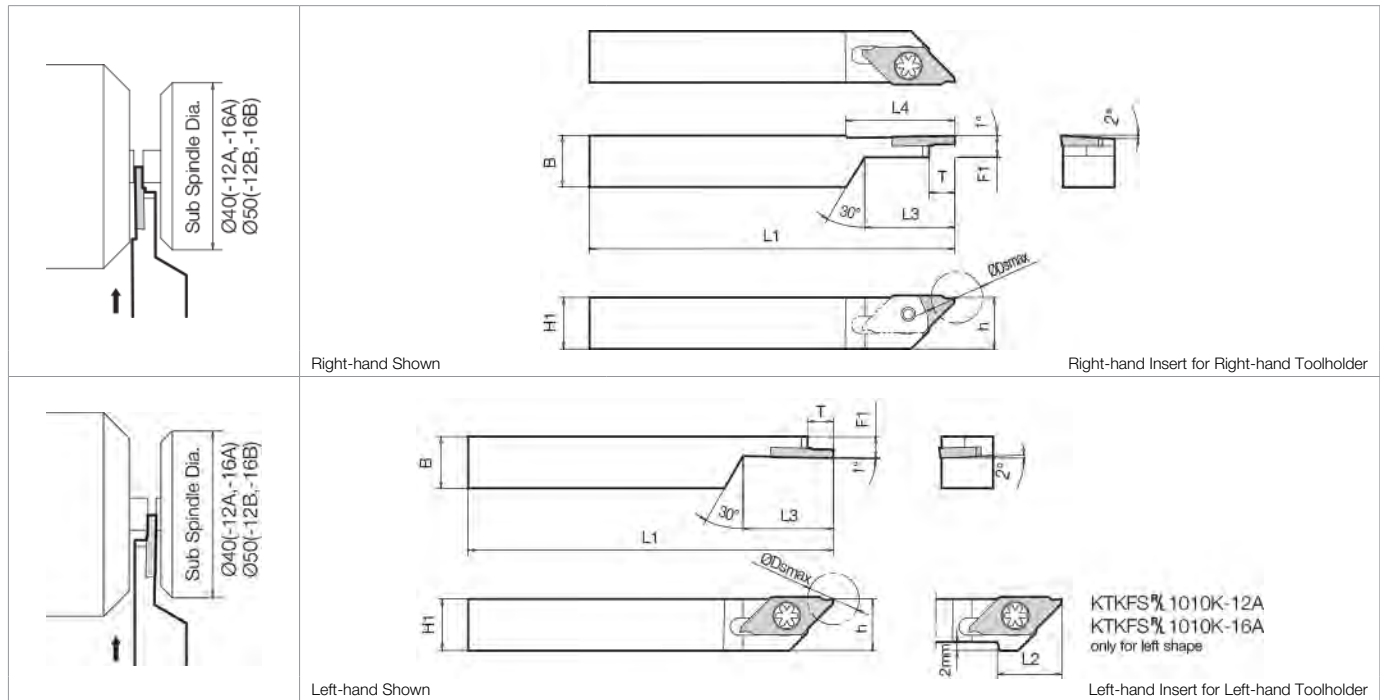
● Troubleshooting

Problems	Countermeasures	Countermeasures						
		Lead Angle (θ)		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 Remain	Small Boss Remain		Effective	Effective		Effective		
Ring Remain (Hollow Workpiece)	Prevention of Ring Remain		Effective	Effective		Effective		
Deformation of Hollow Workpiece (pipe)	Preventing Deformation		Effective	Effective		Effective		

GRADES **A**
 INSERTS **B**
 CBN & PCD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

CUT-OFF TOOLHOLDERS (SUB SPINDLE TOOLING)

KTKFS (Small Diameter Cut-Off for Sub Spindle)



Toolholder Dimensions

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions							Spare Parts		Applicable Inserts ● H11	
	R	L			ØD _{smax}	H1=h	B	L1	L2	L3	L4*	F1	T		Clamp Screw
KTKFS 6-12JX	●	●	inch	0.236-0.472	0.375	0.375	4.750	0.590	0.866	1.024	0.197	0.236	SB-4050TRN	LTW-10S	TKFS12%
8-12JX	●	●		0.236-0.472	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	4.750	0.787	0.866	1.181	0.197	0.315	SB-4050TRN	LTW-10S	TKFS16%
8-16JX	●	●		0.551-0.630	0.500	0.500	4.750	-	1.024	1.181	0.197	0.315			
KTKFS 1010K-12A	○	○	mm	6-12	10	10	120	15	22	26	5	6	SB-4050TRN	LTW-10S	TKFS12%
1212F-12A	○	○		6-12	12	12	85	-	22	26	5	6			
1212K-12B	○	○		6-12	12	12	120	-	26	26	5	6	SB-4050TRN	LTW-10S	TKFS16%
KTKFS 1010K-16A	○	○		14-16	10	10	120	20	22	30	5	8			
1212F-16A	○	○		14-16	12	12	85	-	22	30	5	8			
1212K-16B	○	○		14-16	12	12	120	-	26	30	5	8			

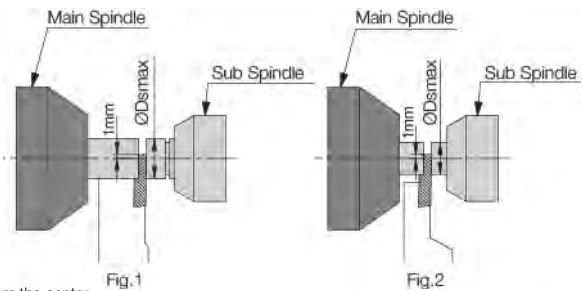
• Dimension T shows the distance from the toolholder to the cutting edge.

Recommended Cutting Conditions ● H11

※ Only Right-hand is available for L4 dimension

TKFS (ØD_{max})

Insert Right-handed Insert Shown	Part Number	Dimensions (mm)		
		W	ØD Max	
	TKFS12% 100-S	0.039	1.0	6
	150-S	0.059	1.5	9
	200-S	0.079	2.0	12
	TKFS16% 150-S	0.059	1.5	14
	200-S	0.079	2.0	16



As Fig. 2 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center

- 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

CUT-OFF TOOLHOLDERS (SUB SPINDLE TOOLING)

Applicable Inserts

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 (mm)							Angle θ	MEGACOAT NANO		PVD Coated Carbide	Carbide
		W		ØD Max	rε	T	H	Ød		PR1425	PR1225	PR1025	KW10
		inch	mm										
	TKFS12% 100-S	0.039	1.0	6	0.05	2.2	8.7	4.4	0°	●	●	○	○
	150-S	0.059	1.5	9	0.05	2.2	8.7	4.4	0°	●	●	○	○
	200-S	0.079	2.0	12	0.05	2.2	8.7	4.4	0°	●	●	○	○
	TKFS12% 150-S	0.059	1.5	14	0.05	2.2	9.5	4.4	0°	●	●	○	○
	200-S	0.079	2.0	16	0.05	2.2	9.5	4.4	0°	●	●	○	○

- Lead angle (θ) shows the angle when installed in the toolholder.
- As Fig.1 of H10 shows, the cutting diameter of the insert is indicated when the top of the cutting edge progresses 1mm from the center.

Recommended Cutting Conditions

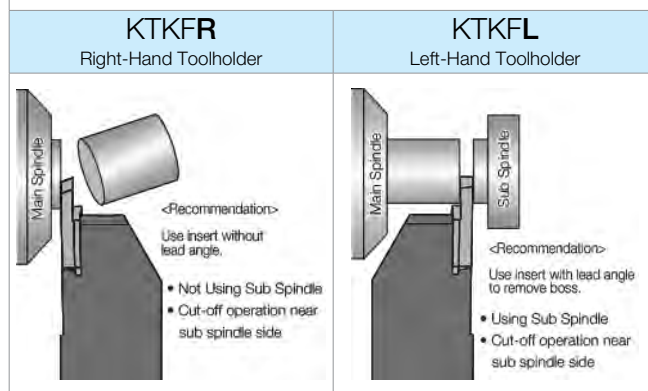
Workpiece Material	Recommended Grade (Vc sfm)					TKFS12			TKFS16		Remarks
						Width			Width		
	MEGACOAT NANO	MEGA COAT	PVD Coated Carbide	Carbide		0.039" (1.0mm)	0.059" (1.5mm)	0.079" (2.0mm)	0.059" (1.5mm)	0.079" (2.0mm)	
	PR1425	PR1535	PR1225	PR1025	KW10	Feed Rate (ipr)			Feed Rate (ipr)		
Carbon Steel	★ 225~550	☆ 230~490	☆ 225~500	☆ 200~425	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	Wet
Alloy Steel	★ 225~550	☆ 230~490	☆ 225~500	☆ 200~425	-	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	0.0004~0.0012	
Stainless Steel	☆ 200~450	★ 200~400	☆ 200~400	☆ 175~325	-	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

How to Use Small Diameter Cut-Off Tool

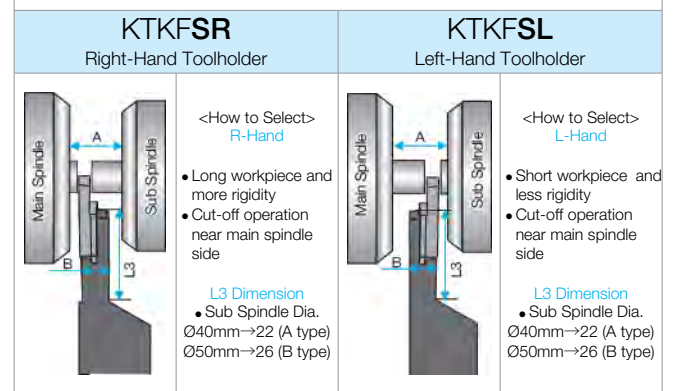
KTKF

- Both Right-hand and Left-hand types are applicable to gang tool post
- Left-hand type is used at cut-off operation 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

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T







CUT-OFF INSERTS

GDM / GDG

A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
M MILLING
P SPARE PARTS
R TECHNICAL
T INDEX

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	Part Number	Dimensions (inch)							Angle	MEGA COAT NANO			MEGACOAT	Carbide	Ref. Page for Toolholder		
		W			rε	M	L	H		θ	PR1535	PR1225				PR1215	GW15
		inch	mm	Tolerance													
 Low Feed 2-edge	GDM 1316N-003PF	0.051	1.3	±0.0016	0.0012	0.039	0.630	0.146	-	○	○	○					
	1316N-015PF	0.051	1.3		0.0059	0.039	0.630	0.146	-	○	○	○					
	1516N-003PF	0.059	1.5		0.0012	0.047	0.630	0.146	-	○	●	○					
	1516N-015PF	0.059	1.5		0.0059	0.047	0.630	0.146	-	○	●	○					
	2020N-003PF	0.079	2.0		0.0012	0.067	0.787	0.169	-	○	●						
	2020N-015PF	0.079	2.0		0.0059	0.067	0.787	0.169	-	●	●	○					
	2520N-003PF	0.098	2.5		0.0012	0.083	0.787	0.169	-	○	●						
	2520N-015PF	0.098	2.5		0.0059	0.083	0.787	0.169	-	●	●	○					
	3020N-003PF	0.118	3.0		0.0012	0.091	0.787	0.169	-	○	●						
	3020N-015PF	0.118	3.0		0.0059	0.091	0.787	0.169	-	●	●	○					
 15° Lead Angle Low Feed / 2-edge	GDM 1316%-003PF-15D	0.051	1.3	±0.0016	0.0012	0.039	0.630	0.146	15°	○	○	○					
	1516%-003PF-15D	0.059	1.5		0.0012	0.047	0.630	0.146	15°	○	●	○					
	1516%-015PF-15D	0.059	1.5		0.0059	0.047	0.630	0.146	15°	Ⓡ	Ⓡ	Ⓡ					
	2020%-003PF-15D	0.079	2.0		0.0012	0.067	0.787	0.169	15°	○	●						
	2020%-015PF-15D	0.079	2.0		0.0059	0.067	0.787	0.169	15°	Ⓡ	Ⓡ	Ⓡ					
	2520%-003PF-15D	0.098	2.5		0.0012	0.083	0.787	0.169	15°	○	●						
	2520%-015PF-15D	0.098	2.5		0.0059	0.083	0.787	0.169	15°	Ⓡ	Ⓡ	Ⓡ					
	3020%-003PF-15D	0.118	3.0		0.0012	0.091	0.787	0.169	15°	○	●						
3020%-015PF-15D	0.118	3.0	0.0059	0.091	0.787	0.169	15°	Ⓡ	Ⓡ	Ⓡ							
 Medium Feed 2-edge	GDM 2020N-010PQ	0.079	2.0	±0.0012	0.0039	0.067	0.787	0.169	-	○	●						
	2520N-010PQ	0.098	2.5		0.0039	0.083	0.787	0.169	-	○	●						
	3020N-010PQ	0.118	3.0		0.0039	0.091	0.787	0.169	-	○	●						
 15° Lead Angle Medium Feed / 2-edge	GDM 2020%-010PQ-15D	0.079	2.0	±0.0012	0.0039	0.067	0.787	0.169	15°	Ⓡ	Ⓡ						
	2520%-010PQ-15D	0.098	2.5		0.0039	0.083	0.787	0.169	15°	Ⓡ	Ⓡ						
	3020%-010PQ-15D	0.118	3.0		0.0039	0.091	0.787	0.169	15°	Ⓡ	Ⓡ						
 2-edge	GDG 2020N-005PG	0.079	2.0	±0.0008	0.0020	0.067	0.787	0.169	-	○	○		○				
	2520N-005PG	0.098	2.5		0.0020	0.083	0.787	0.169	-	○	○		○				
	3020N-005PG	0.118	3.0		0.0020	0.091	0.787	0.169	-	○	○		○				
 15° Lead Angle 2-edge	GDG 2020%-005PG-15D	0.079	2.0	±0.0008	0.0020	0.067	0.787	0.169	15°	Ⓡ	Ⓡ		Ⓡ				
	2520%-005PG-15D	0.098	2.5		0.0020	0.083	0.787	0.169	15°	Ⓡ	Ⓡ		Ⓡ				
	3020%-005PG-15D	0.118	3.0		0.0020	0.091	0.787	0.169	15°	Ⓡ	Ⓡ		Ⓡ				

➔ H16
➔ H17

Using PM/PF Chipbreaker (designed for cut-off) for grooving will not create a flat bottom (See Fig.)



Recommended Cutting Conditions ➔ H14

Inserts are sold in 10 piece boxes

GDM / GDMS / GDG

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			

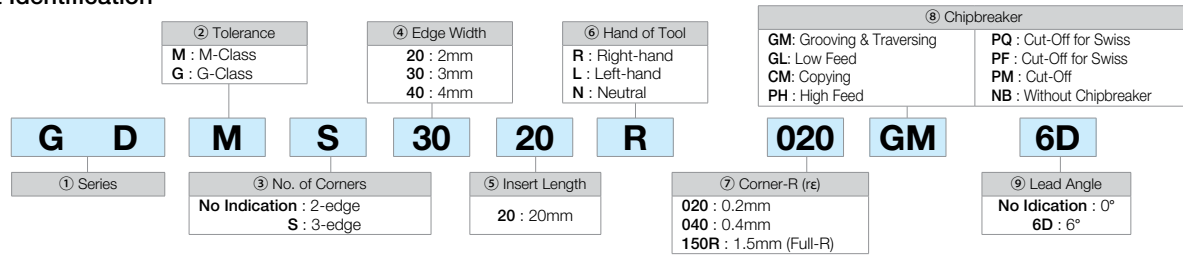
Insert Right-handed Insert Shown	Part Number	Dimensions (inch)							Angle θ	MEGA COAT NANO	MEGACOAT			Ref. Page for Toolholder
		W			rε	M	L	H			PRI 535	PRI 225	PRI 215	
		inch	mm	Tolerance										
Cut-off	2-edge	GDM 2020N-020PM	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	-	○	●	○	H16 H17
		2520N-020PM	0.098	2.5		0.008	0.077	0.787	0.169	-	○	●	●	
		3020N-025PM	0.118	3.0		0.010	0.091	0.787	0.169	-	○	●	●	
		4020N-030PM	0.158	4.0		0.012	0.130	0.787	0.169	-	○	●	●	
	2-edge	GDM 2020%L-020PM-6D	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ	
		2520%L-020PM-6D	0.098	2.5		0.008	0.077	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ	
		3020%L-025PM-6D	0.118	3.0		0.010	0.091	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ	
		4020%L-025PM-6D	0.118	3.0		0.010	0.091	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ	
	1-edge	GDMS 2020N-020PM	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	-	○	●	●	
		3020N-025PM	0.118	3.0		0.010	0.091	0.787	0.169	-	○	●	●	
		4020N-030PM	0.158	4.0		0.012	0.130	0.787	0.169	-	○	●	●	
		GDMS 2020%L-020PM-6D	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ	
1-edge	GDMS 3020%L-025PM-6D	0.118	3.0		0.010	0.091	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ		
	GDMS 4020%L-030PM-6D	0.158	4.0		0.012	0.130	0.787	0.169	6°	Ⓡ	Ⓡ	Ⓡ		
	Grooving & Traversing	High feed 2-edge	GDM 2020N-020PH	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	-	○	●	●
			3020N-030PH	0.118	3.0		0.012	0.091	0.787	0.169	-	○	●	●
4020N-030PH			0.157	4.0		0.012	0.130	0.787	0.169	-	○	●	●	
High feed 1-edge	GDMS 2020N-020PH	0.079	2.0	±0.0012	0.008	0.059	0.787	0.169	-	○	●	●		
	3020N-030PH	0.118	3.0		0.012	0.091	0.787	0.169	-	○	●	●		
	4020N-030PH	0.157	4.0		0.012	0.130	0.787	0.169	-	○	●	●		

Using PM/PF Chipbreaker (designed for cut-off) for grooving will not create a flat bottom (See Fig.)



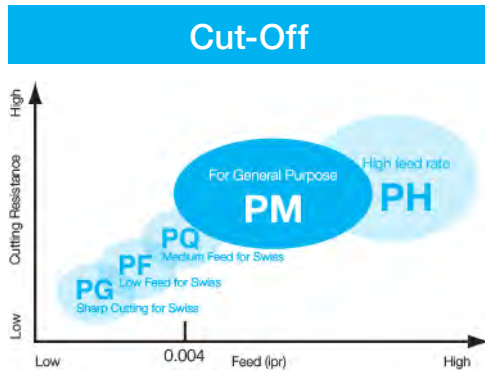
Recommended Cutting Conditions H15

Insert Identification

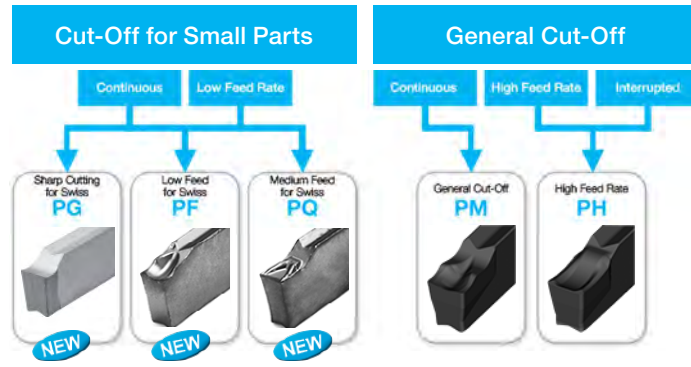


Inserts are sold in 10 piece boxes

● Application Map



● Chipbreaker Selection



● Recommended Cutting Conditions (PF/PQ/PG Chipbreakers)

Workpiece Material	Recommended Insert Grade (Vc sfm)			Feed Rate (ipr)						Remarks
	MEGACOAT Nano	MEGACOAT		PF (rε=0.0012)			PF (rε=0.0059)			
		PR1535	PR1225	PR1225	Edge Width			Edge Width		
				0.051"~0.059" (1.3mm~1.5mm)	0.079" (2.0mm)	0.098"~0.118" (2.5mm~3.0mm)	0.059" (1.5mm)	0.079" (2.0mm)	0.098"~0.118" (2.5mm~3.0mm)	
Carbon Steel (SxxC, etc.)	☆ 225-500	★ 225-500	☆ 225-600	0.0004-0.0016	0.0008-0.0024	0.0008-0.0031	0.0004-0.0020	0.0012-0.0031	0.0016-0.0039	Wet
Alloy Steel (SCM, etc.)	☆ 225-500	★ 225-500	☆ 225-600	0.0004-0.0016	0.0008-0.0024	0.0008-0.0031	0.0004-0.0020	0.0012-0.0031	0.0016-0.0039	
Stainless Steel (SUS304, etc.)	★ 200-400	☆ 200-400	☆ 200-500	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 (FC/FCD, etc.)	-	-	★ 250-650	0.0004-0.0020	0.0008-0.0028	0.0012-0.0031	0.0004-0.0024	0.0012-0.0035	0.0016-0.0039	

★ : 1st Recommendation ☆ : 2nd Recommendation

● Recommended Cutting Conditions (PF/PQ/PG Chipbreakers)

Workpiece Material	Recommended Insert Grade				PQ		PG		Remarks
	MEGACOAT Nano	MEGACOAT		Carbide	Edge Width		Edge Width		
		PR1535	PR1225		PR1225	GW15	0.079" (2.0mm)	0.098"~0.118" (2.5mm~3.0mm)	
Carbon Steel (SxxC, etc.)	☆ 225-500	★ 225-500	☆ 225-600	-	0.0012-0.0039	0.0016-0.0047	0.0004-0.0016	0.0004-0.0020	Wet
Alloy Steel (SCM, etc.)	☆ 225-500	★ 225-500	☆ 225-600	-	0.0012-0.0039	0.0016-0.0047	0.0004-0.0016	0.0004-0.0020	
Stainless Steel (SUS304, etc.)	★ 200-400	☆ 200-400	☆ 200-500	-	0.0008-0.0028	0.0008-0.0031	0.0004-0.0012	0.0004-0.0016	
Cast Iron (FC/FCD, etc.)	-	-	★ 250-650	☆ 150-325	0.0016-0.0039	0.0016-0.0047	0.0004-0.0016	0.0004-0.0020	
Aluminum	-	-	-	★ 650-1475	-	-	0.0004-0.0020	0.0004-0.0024	
Brass	-	-	-	★ 325-650	-	-	0.0004-0.0028	0.0004-0.0031	

★ : 1st Recommendation ☆ : 2nd Recommendation

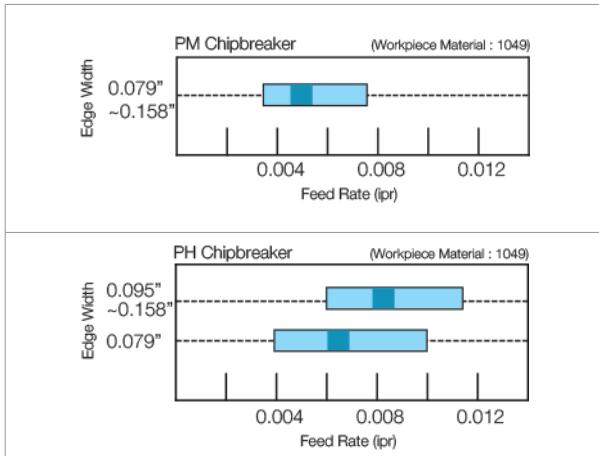
CUT-OFF INSERTS

Recommended Cutting Conditions (PM/PH Chipbreakers)

Workpiece Material	Recommended Insert Grade (Vc sfm)			Feed Rate (ipr)			Remarks
	MEGACOAT Nano	MEGACOAT		PM	PH		
		PR1535	PR1215	PR1225	Edge Width	Edge Width	
Carbon Steel (SxxC, etc.)	☆ 225-500	★ 250-650	☆ 325-650	0.079"~0.158" (2mm~4mm)	0.079" (2mm)	0.095"~0.158" (3mm~4mm)	Wet
Alloy Steel (SCM, etc.)	☆ 225-500	★ 225-600	☆ 250-600	0.0031~0.0071	0.0039~0.0098	0.0059~0.0110	
Stainless Steel (SUS304, etc.)	★ 200-400	★ 200-500	☆ 200-500	0.0024~0.0047	0.0020~0.0047	0.0031~0.0059	
Cast Iron (FC/FCD, etc.)	-	-	★ 325-650	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) Be sure to perform wet processing. 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 closing in on the center of the workpiece to prevent impact

Case Studies

1045 (Cut-Off)		Results:
<ul style="list-style-type: none"> • Sleeve • Vc=100 m/min • f=0.12 mm/rev • WET • GDM3020N-Q25PM(PR1225) • KGDL2020K-3T20 		<ul style="list-style-type: none"> • KGD-type and PM chipbreaker (PR1225) showed good edge condition after machining same number of workpieces as Comp. A. • Available for further machining. (Comp. A caused chipping)
PM Chipbreaker (PR1225)		
Competitor A (PVD Coated Carbide)		

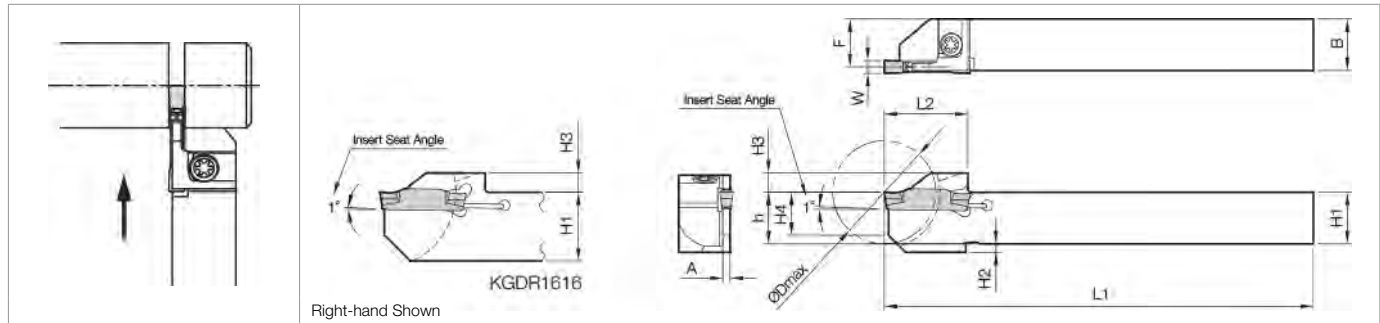
User Evaluation

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CUT-OFF TOOLHOLDERS

■ KGD (Swiss)

Width : 0.059"~0.157" (1.3mm~4.0mm)



● Toolholder Dimensions (Inch Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (inch)									Insert Width W (inch)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN	MAX	Clamp Screw
KGD% 6-1.5JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.351	0.047	-	0.059	SB-40120TR	LTW-15S
8-1.5JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.476	0.047	-	0.059		
KGD% 6-2JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.342	0.067	0.078	0.118	SB-40120TR	LTW-15S
8-2JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.467	0.067	0.078	0.118		
10-2JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.592	0.067	0.078	0.118		
KGD% 6-2.4JX	●	●	0.787	0.375	0.098	0.177	0.315	0.375	4.75	0.709	0.336	0.079	0.094	0.118	SB-40120TR	LTW-15S
8-2.4JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.461	0.079	0.094	0.118		
10-2.4JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.586	0.079	0.094	0.118		
KGD% 8-3JX	●	●	0.944	0.500	0.051	0.177	0.394	0.500	4.75	0.768	0.453	0.094	0.118	0.118	SB-40120TR	LTW-15S
10-3JX	●	●	1.259	0.625	-	0.177	0.394	0.625	4.75	0.965	0.578	0.094	0.118	0.157		
KGD% 10-3D38JX	●	●	1.496	0.625	-	0.236	0.394	0.625	4.75	1.142	0.578	0.094	0.118	0.157	SE-50125TR	LTW-20
12-3D42JX	●	●	1.653	0.750	-	0.236	0.551	0.750	4.75	1.220	0.703	0.094	0.118	0.157		
43-3D42JX	●	●	1.653	0.750	-	0.236	0.551	0.500	4.75	1.220	0.453	0.094	0.118	0.157		

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table ● H12- ● H13

● Toolholder Dimensions (Metric Size)

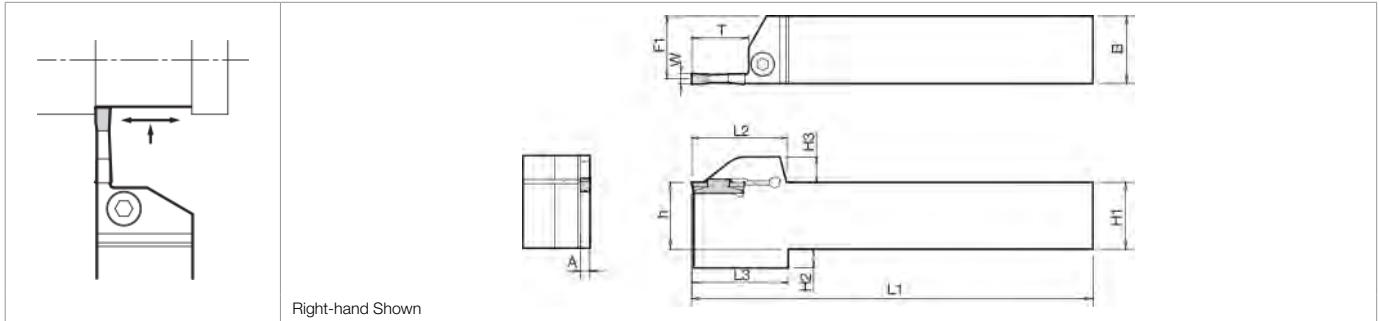
Part Number	Stock		Cut-Off Dia.	Dimensions (mm)									Insert Width W (mm)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN	MAX	Clamp Screw
KGD% 1010JX-1.3	○	○	20	10	2	4.5	8	10	120	18.0	9.50	1.0	1.3	1.5	SB-40120TR	LTW-15S
1212JX-1.3	○	○	24	12	2	4.5	10	12	120	19.5	11.50	1.0	1.3	1.5		
KGD% 1010JX-1.5	○	○	20	10	2	4.5	8	10	120	18.0	9.40	1.2	-	1.5	SB-40120TR	LTW-15S
1212JX-1.5	○	○	24	12	2	4.5	10	12	120	19.5	11.40	1.2	-	1.5		
KGD% 1010JX-2	○	○	20	10	2	4.5	8	10	120	18.0	9.15	1.7	2.0	3.0	SB-40120TR	LTW-15S
1212JX-2	○	○	24	12	2	4.5	10	12	120	19.5	11.15	1.7	2.0	3.0		
1616JX-2	○	●	32	16	-	4.5	10	16	120	24.5	15.15	1.7	2.0	3.0		
KGD% 1010JX-2.4	○	○	20	10	2	4.5	8	10	120	18.0	9.00	2.0	2.4	3.0	SB-40120TR	LTW-15S
1212JX-2.4	○	○	24	12	2	4.5	10	12	120	19.5	11.00	2.0	2.4	3.0		
1616JX-2.4	○	○	32	16	-	4.5	10	16	120	24.5	15.00	2.0	2.4	3.0		
KGD% 1212JX-3	○	○	24	12	2	4.5	10	12	120	19.5	10.80	2.4	3.0	3.0	SB-40120TR	LTW-15S
1616JX-3	○	○	32	16	-	4.5	10	16	120	24.5	14.80	2.4	3.0	4.0		
KGD% 1616JX-3D38	○	○	38	16	-	6.0	10	16	120	29.0	14.80	2.4	3.0	4.0	SE-50125TR	LTW-20
2020JX-3D42	○	○	42	20	-	6.0	14	20	120	31.0	18.80	2.4	3.0	4.0		
2012JX-3D42	○	○	42	20	-	6.0	14	12	120	31.0	10.80	2.4	3.0	4.0		
KGD% 1212F-1.3	○	○	24	12	2	4.5	10	12	85	19.5	11.50	1.0	1.3	1.5	SB-40120TR	LTW-15S
1212F-1.5	○	○	24	12	2	4.5	10	12	85	19.5	11.40	1.2	-	1.5	SB-40120TR	LTW-15S
1212F-2	○	○	24	12	2	4.5	10	12	85	19.5	11.15	1.7	2.0	3.0	SB-40120TR	LTW-15S
1212F-2.4	○	○	24	12	2	4.5	10	12	85	19.5	11.00	2.0	2.4	3.0	SB-40120TR	LTW-15S

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table ● H12- ● H13

CUT-OFF TOOLHOLDERS

KGD (Integral-Style)

Width : 0.079"~0.236" (2.0mm~5.0mm)



Right-hand Shown

Toolholder Dimensions (Inch Size)

Part Number	Stock		Cut-Off Dia.	Dimensions (inch)										Insert Width W (inch)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	B	L1	L2	L3	F1	A	T*	MIN	MAX	Clamp Bolt
KGD% 12-2T17	●	●	1.339	0.75	-	0.374	0.75	4.92	1.28	-	0.71	0.067	0.669 (17mm)	0.079	0.118	HH5X16	LTW-25
16-2T17	●	●	1.339	1.00	-	0.374	1.00	5.90	1.28	-	0.96	0.067	0.079	0.118	HH5X25		
KGD% 12-3T10	●	●	0.787	0.75	-	0.374	0.75	4.92	1.20	-	0.70	0.094	0.393 (10mm)	0.118	0.158	HH5X16	
16-3T10	●	●	0.787	1.00	-	0.374	1.00	5.90	1.20	-	0.95	0.094	0.118	0.158	HH5X25		
KGD% 12-3T20	●	●	1.575	0.75	-	0.374	0.75	4.92	1.35	-	0.70	0.094	0.787 (20mm)	0.118	0.158	HH5X16	
16-3T20	●	●	1.575	1.00	-	0.374	1.00	5.90	1.39	-	0.95	0.094	0.118	0.158	HH5X25		
KGD% 12-4T10	●	●	0.787	0.75	-	0.374	0.75	4.92	1.20	-	0.68	0.133	0.393 (10mm)	0.158	0.197	HH5X16	
16-4T10	●	●	0.787	1.00	-	0.374	1.00	5.90	1.20	-	0.93	0.133	0.158	0.197	HH5X25		
KGD% 12-4T20	●	●	1.575	0.75	-	0.374	0.75	4.92	1.35	-	0.68	0.133	0.787 (20mm)	0.158	0.197	HH5X16	
16-4T20	●	●	1.575	1.00	-	0.374	1.00	5.90	1.39	-	0.93	0.133	0.158	0.197	HH5X25		
KGD% 12-5T10	●	●	0.787	0.75	-	0.374	0.75	4.92	1.20	-	0.66	0.173	0.393 (10mm)	0.197	0.236	HH5X16	
16-5T10	●	●	0.787	1.00	-	0.374	1.00	5.90	1.20	-	0.91	0.173	0.197	0.236	HH5X25		
KGD% 12-5T17	●	●	1.339	0.75	-	0.374	0.75	4.92	1.47	-	0.66	0.173	0.669 (17mm)	0.197	0.236	HH5X16	
16-5T17	●	●	1.339	1.00	-	0.374	1.00	5.90	1.47	-	0.91	0.173	0.197	0.236	HH5X25		

* T Dimension shows the available grooving depth (If the T Dimension is 0.787" or more, the maximum depth of groove made by the 2-edge insert will be 0.709").
 • Recommended tightening torque of screw : 6.5N·m (Groove width 2-6mm)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **H12~ H13**

Toolholder Dimensions (Metric Size)

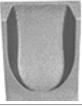






Part Number	Stock		Cut-Off Dia.	Dimensions (mm)										Insert Width W (mm)		Spare Parts	
	R	L		ØDmax	H1=h	H2	H3	B	L1	L2	L3	F1	A	T*	MIN	MAX	Clamp Bolt
KGD% 1616H-2T06	○	○	12	16	4.0	9.5	16	100	27.7	28.0	15.2	1.7	6	2.0	3.0	HH5X16	LW-4
2020K-2T06	○	○	12	20	-	9.5	20	125	28.0	-	19.2	1.7	6	2.0	3.0		
KGD% 1616H-2T10	○	○	20	16	4.0	9.5	16	100	30.2	30.5	15.2	1.7	10	2.0	3.0		
2020K-2T10	○	○	20	20	-	9.5	20	125	30.5	-	19.2	1.7	10	2.0	3.0		
KGD% 1616H-2T17	○	●	34	16	4.0	9.5	16	100	31.2	31.5	15.2	1.7	17	2.0	3.0	HH5X16	LW-4
2012K-2T17	○	○	34	20	-	9.5	12	125	32.5	-	11.2	1.7	17	2.0	3.0		
2020K-2T17	○	○	34	20	-	9.5	20	125	32.5	-	19.2	1.7	17	2.0	3.0		
KGD% 2012K-2.4T17	○	○	34	20	-	9.5	12	125	32.5	-	11.0	2.0	17	2.4	3.0	HH5X16	LW-4
2020K-2.4T17	○	○	34	20	-	9.5	20	125	32.5	-	19.0	2.0	17	2.4	3.0		
KGD% 1616H-3T06	○	○	12	16	4.0	9.5	16	100	27.7	28.0	14.8	2.4	6	3.0	4.0	HH5X16	LW-4
2020K-3T06	○	○	12	20	-	9.5	20	125	28.0	-	18.8	2.4	6	3.0	4.0		
KGD% 1616H-3T10	○	○	20	16	4.0	9.5	16	100	30.2	30.5	14.8	2.4	10	3.0	4.0		
2020K-3T10	○	○	20	20	-	9.5	20	125	30.5	-	18.8	2.4	10	3.0	4.0		
KGD% 1616H-3T20	○	○	40	16	4.0	9.5	16	100	34.2	34.5	14.8	2.4	20	3.0	4.0	HH5X16	LW-4
2012K-3T20	○	○	40	20	-	9.5	12	125	34.5	-	10.8	2.4	20	3.0	4.0		
2020K-3T20	○	○	40	20	-	9.5	20	125	34.5	-	18.8	2.4	20	3.0	4.0		
KGD% 2020K-4T10	○	○	20	20	-	9.5	20	125	30.5	-	18.3	3.4	10	4.0	5.0	HH5X16	LW-4
KGD% 2020K-4T20	○	○	20	20	-	9.5	20	125	34.5	-	18.3	3.4	20	4.0	5.0		

* T Dimension shows the available grooving depth (If the T Dimension is 20mm or more, the maximum depth of groove made by the 2-edge insert will be 18mm).
 • Recommended tightening torque of screw : 6.5N·m (Groove width 2-5mm)

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **H12~ H13**

GRADES A
 INSERTS B
 CBN & POD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

Edge Prep. and Chipbreakers (CERACUT Plunge & Turn)

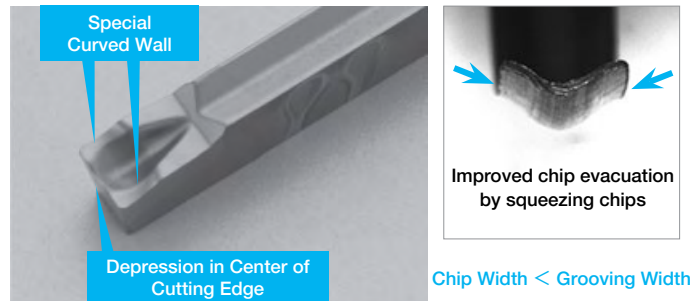
Name	MT Chipbreaker		TK Chipbreaker		TMR Chipbreaker	Without Chipbreaker (NB)	
Edge Preparation	Chamfered + Honed	Chamfered + Honed	Chamfered + Honed	Sharp Edge	Chamfered + Honed	Honed Cutting Edge	Sharp Edge
	Corner-R 0.002" 0.05mm	Sharp Edge	Corner-R 0.008"-0.012" 0.20-0.30mm	Corner-R 0.008"-0.012" 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

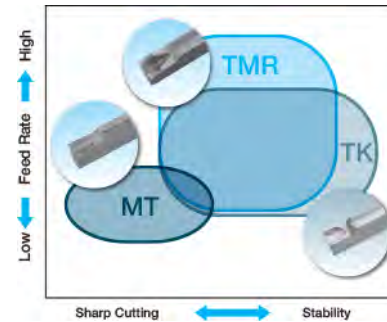
Name	Advantages
GMM-MT	Specific chipbreaker for cut-off operations requiring sharp cutting performance Minimizes the boss
GMM-NB	Cutting edge is flat with no chipbreaker. Good performance for brass, etc.
GMM-TK	Stable design with chipbreaker for cut-off. Large corner-R 2-edge for economical performance
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 turning 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

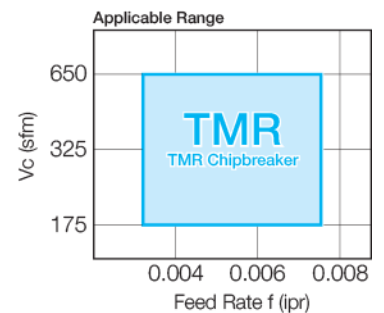


The TMR Chipbreaker Provides Stable Chip Control at High Feed Rates

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)				

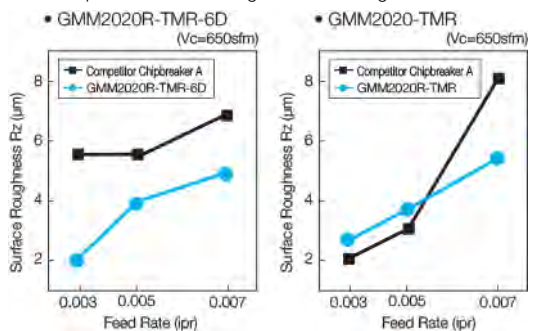


Recommended Cutting Conditions

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.

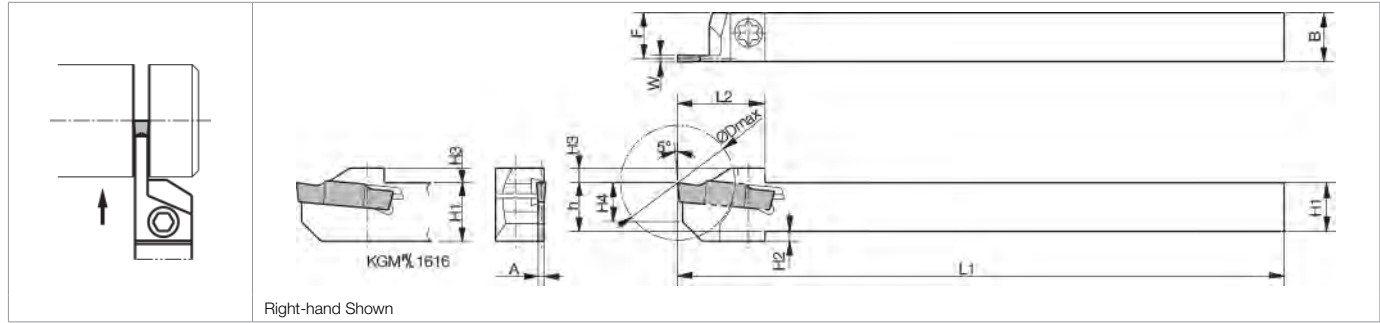


GRADES
A
INSERTS
B
CBN & POD
C
TURNING
E
BORING
F
GROOVING
G
CUT-OFF
H
THREADING
J
SOLID END MILLS
L
MILLING
M
SPARE PARTS
P
TECHNICAL
R
INDEX
T

CUT-OFF TOOLHOLDERS

KGM (Swiss)

Width : 1.5mm~4.0mm



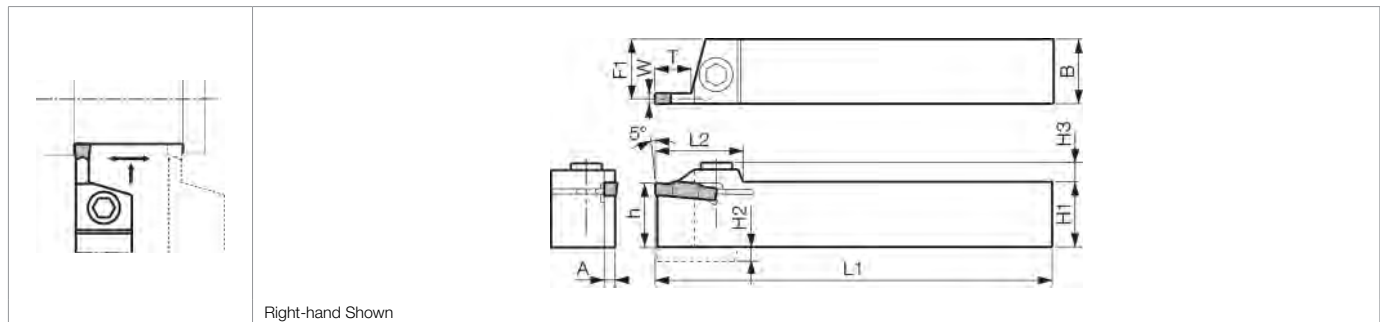
Toolholder Dimensions

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions								Insert Width W (mm)		Spare Parts		
	R	L			ØDmax	H1=h	H2	H3	H4	B	L1	L2	F	A	MIN	MAX	Clamp Screw
KGM% 6-2-5	●	●	inch	0.787	0.375	0.079	0.117	0.316	0.375	5.000	0.750	0.342	0.067	0.079	0.118	SE-40120TR	LTW-15S
8-2-6	●	●		0.984	0.500	0.051	0.138	0.394	0.500	6.000	0.830	0.467	0.067	0.079	0.118		
KGM% 1010JX-1.5	○	○	mm	20	10	2	3	8	10	120	18.0	9.40	1.2	1.5	2.0	SE-40120TR	LTW-15S
1212JX-1.5	○	○		25	12	2	4	10	12	120	20.5	11.40	1.2	1.5	2.0		
KGM% 1010JX-2	○	○		20	10	2	3	8	10	120	18.0	9.15	1.7	2.0	3.0	SE-40120TR	LTW-15S
1212JX-2	○	○		25	12	2	4	10	12	120	19.0	11.15	1.7	2.0	3.0		
KGM% 1616JX-2	●	●		32	16	-	4	9	16	120	24.5	15.15	1.7	2.0	3.0	SE-50125TR	LTW-20
KGM% 1010JX-2.5	○	○		20	10	2	3	8	10	120	18.0	9.00	2.0	2.4	3.0	SE-40120TR	LTW-15S
1212JX-2.5	○	○		25	12	2	4	10	12	120	20.5	11.00	2.0	2.4	3.0		
KGM% 1616JX-2.5	○	●		32	16	-	4	9	16	120	25.5	15.00	2.0	2.4	3.0	SE-50125TR	LTW-20
KGM% 1616JX-3	○	○		32	16	-	4	9	16	120	25.5	14.80	2.4	3.0	4.0	SE-50125TR	LTW-20
KGM% 1212F-1.5-85	○			25	12	2	4	10	12	85	19.0	11.40	1.2	1.5	2.0	SE-40120TR	LTW-15S
1212F-2-85	○		25	12	2	4	10	12	85	19.0	11.15	1.7	2.0	3.0			
1212F-2.5-85	○		25	12	2	4	10	12	85	19.0	11.00	2.0	2.4	3.0			

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table [H18](#)

KGM

Width : 3.0~6.0mm



Toolholder Dimensions

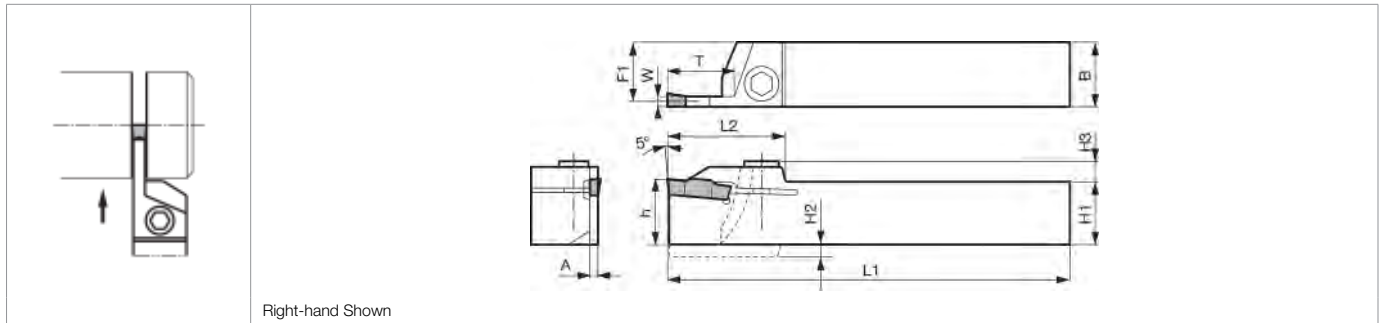
Part Number	Stock		Unit	Dimensions								Insert Width W (mm)		Spare Parts				
	R	L		H1=h	H2	H3	B	L1	L2	F1	A	T	MIN	MAX	Clamp Screw	Wrench	Wrench	
KGM% 12-3	●		inch	0.750	-	0.217	0.750	5.000	1.070	0.702	0.094	0.354	3mm	4mm	-	HH5X16	-	LW-4
16-3	●			1.000	-	0.217	1.000	6.000	1.070	0.953	0.094	0.354	3mm	4mm	-	HH5X25	-	LW-4
KGM% 1212H-3	○	○	mm	12	4	6	12	100	27	10.8	2.4	9	3.0	3.0	SB-5TR	-	LTW-20	-
1616H-3	●	○		16	4	7	16	100	27	14.8	2.4	9	3.0	4.0				
2020K-3	○	○		20	-	7	20	125	27	18.8	2.4	9	3.0	4.0	-	HH5X16	-	LW-4
KGM% 2020K-4	○	○		20	-	7	20	125	27	18.3	3.4	10	4.0	5.0	-	HH5X16	-	LW-4
KGM% 2020K-5	○	○	20	-	7	20	125	27	17.8	4.4	10	5.0	6.0	-	HH5X16	-	LW-4	

- Dimension T: 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 [H18](#)

KGM-T

Width : 2.0mm~5.0mm



Toolholder Dimensions

Part Number	Stock		Dimensions (mm)									Insert Width W (mm)		Spare Parts			
	R	L	H1=h	H2	H3	B	L1	L2	F1	A	T	MIN	MAX	Clamp Screw	Wrench	Wrench	
KGM% 2012K-2T17	○	○	20	-	7.0	12	125	33	11.15	1.7	17	2.0	3.0	SB-5TR	-	LTW-20	-
2020K-2T17	○	○	20	-	7.0	20	125	33	19.15	1.7	17	2.0	3.0	-	HH5X16	-	LW-4
KGM% 1616H-3T20	●	●	16	4	7.0	16	100	36	14.80	2.4	20	3.0	4.0	-	HH5X16	-	LW-4
2012K-3T20	○	○	20	-	7.0	12	125	36	10.80	2.4	20	3.0	4.0	SB-5TR	-	LTW-20	-
2020K-3T20	○	○	20	-	7.0	20	125	36	18.80	2.4	20	3.0	4.0	-	HH5X16	-	LW-4
KGM% 2020K-4T20	○	○	20	-	7.5	20	125	36	18.30	3.4	20	4.0	5.0	-	HH5X16	-	LW-4

- Dimension T shows the distance from the toolholder to the cutting edge. Refer to the table (H20) for the relationship between the available grooving depth and the cutting diameter.
- When using GMG/GMM (2-edge inserts), set the grooving depth under 15mm

Choose insert with width that falls within **MIN** and **MAX** parameters shown in table above. Insert table **H18**

Applicable Inserts

Application	Grooving / Traversing	Grooving / Traversing	Grooving	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	G26		G26		H18		H18		H18	
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...TK GMM2020%...TK	GMN2...TK GM%2...TK	-	
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	GMN2 GMN2.2 GMN3 GM%2.2 GM%3	
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	
KGM% ...3(T)	GMM3020...MW GMM4020...MW	GMG3020...MS GMM3020...MS GMG4020...MS GMM4020...MS	GMG3020...MG GMG3520...MG GMG4020...MG	GMG3020...R GMM3020...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	
KGM% ...4(T)	GMM4020...MW GMM5020...MW	GMG4020...MS GMM4020...MS GMG5020...MS GMM5020...MS	GMG4020...MG GMG5020...MG	GMG4020...R GMM4020...R GMG5020...R GMM5020...R	-	-	-	GMN4...TK GM%4...TK	GMN4 GMN5 GM%4	
KGM% ...5	GMM5020...MW GMM6020...MW	GMG5020...MS GMM5020...MS GMG6020...MS GMM6020...MS	GMG5020...MG GMG6020...MG	GMG5020...R GMM5020...R GMG6020...R GMM6020...R	-	-	-	-	GMN5 GMN6	

Recommended Cutting Conditions **H22**

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions of CERACUT Plunge & Turn (GMM-MT / GMM-TK / GMM-NB)

GRADES	Workpiece Material	Recommended Grade (Vc sfm)				Width				Remarks
		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)				
INSERTS	Carbon Steel	☆ 250~600	★ 200~500	☆ 200~425	-	0.0004~0.0016	0.0008~0.0059	0.0012~0.0079	0.0032~0.0118	Wet
	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	
CBN & PCD	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%

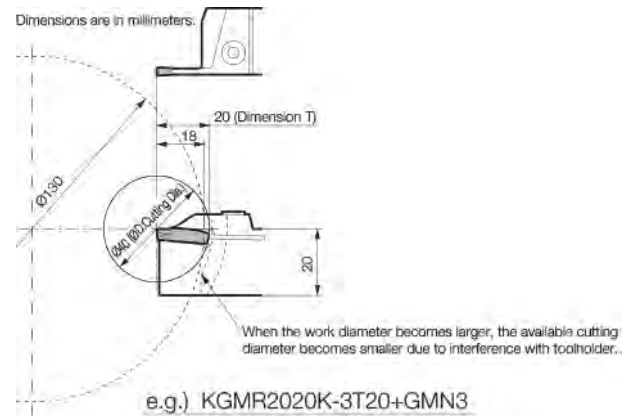
★ : 1st Recommendation ☆ : 2nd Recommendation

Recommended Cutting Conditions of GMM-TMR (PR1115)

Workpiece Material	Vc (sfm)	Remarks
Carbon Steel	200~650	Wet
Alloy Steel	225~500	
Stainless Steel	175~450	

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)																	
KGM%	0810K-1.5-125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32
	1010○-1.5...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-1.5...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞	∞		
	0810K-2-125	-	-	-	-	-	-	-	-	-	-	-	-	10	14	16	32		
	1010○-2...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-2...	-	-	-	-	25	26	28	50	∞	∞	∞	∞	∞	∞	∞	∞		
	1616○-2...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞		
	1010○-2.5...	-	-	-	-	-	-	-	20	25	32	40	60	∞	∞	∞	∞		
	1212○-2.5...	-	-	-	-	25	26	28	32	36	40	60	100	∞	∞	∞	∞		
1616○-2.5...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞			
1616○-3...	32	40	50	60	80	100	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞			
Available Grooving Depth T (mm)		16	15	14	13	12.5	12	11	10	9	8	7	6	5	4	3	2	1	

◆ KGM-T Available Cutting Diameter Table (GMN, GM% When Using 1-edge Insert)

Toolholders		ØD (Cutting Diameter)							
KGM%	2012K-2T17	-	-	-	66	80	130	260	
	2020K-2T17	-	-	-	-	-	-	-	
	1616H-3T20	40	54	70	100	180	∞	∞	
	2012K-3T20	-	-	-	-	-	∞	∞	
	2020K-3T20	40	90	130	240	∞	∞	∞	
	2020K-4T20	-	-	-	-	-	-	-	
Available Grooving Depth T (mm)		20	19	18	17	16	15	14	13

CUT-OFF INSERTS

TKN / TK $\%$

Insert Right-handed Insert Shown		Part Number	Dimensions (mm)			Angle (°)	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	Ref. Page for Toolholder				
			W		r ϵ				θ	TN90			CR9025	PR660	PR930	KW10
			inch	mm												
		TKN 1.6	0.063	1.6	0.15	-	●	●	●	○	●	H24				
		TKN 2	0.087	2.2	0.20											
		TKN 2.4	0.094	2.4	0.20											
		TKN 3	0.122	3.1	0.25											
		TKN 4	0.161	4.1	0.30											
		TKN 1.6-P	0.063	1.6	0.20	-	○	○	○	○	○	H24				
		TKN 2-P	0.087	2.2	0.20											
		TKN 3-P	0.122	3.1	0.25											
		TK% 1.6	0.063	1.6	0.15	8°	●	○	●	○	●	H24				
		TK% 2	0.087	2.2	0.20											
		TK% 2.4	0.094	2.4	0.20											
		TK% 3	0.122	3.1	0.25											
		TK% 4	0.161	4.1	0.30											
		TK% 1.6-P	0.063	1.6	0.20	8°	●	○	○	○	●	H24				
		TK% 2-P	0.087	2.2	0.20											
		TK% 3-P	0.122	3.1	0.25											

Recommended Cutting Conditions \rightarrow H26

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	PR930 / KW10	-
P-Chipbreaker	-	-	TN90 / CR9025 PR660 / PR930 / KW10

• Sharp edge can reduce cutting resistance by 40%, compared with chamfered edge.

How to Select Chipbreakers

TKN (Neutral)
TKR (R-hand)
TKL (L-hand)

- Angled (θ), insert can reduce burr when cutting off.
- When using a larger lead angle (θ), cutting resistance becomes smaller. The feed rate should be reduced.

Solid Workpiece

Hollow Workpiece (Pipe)

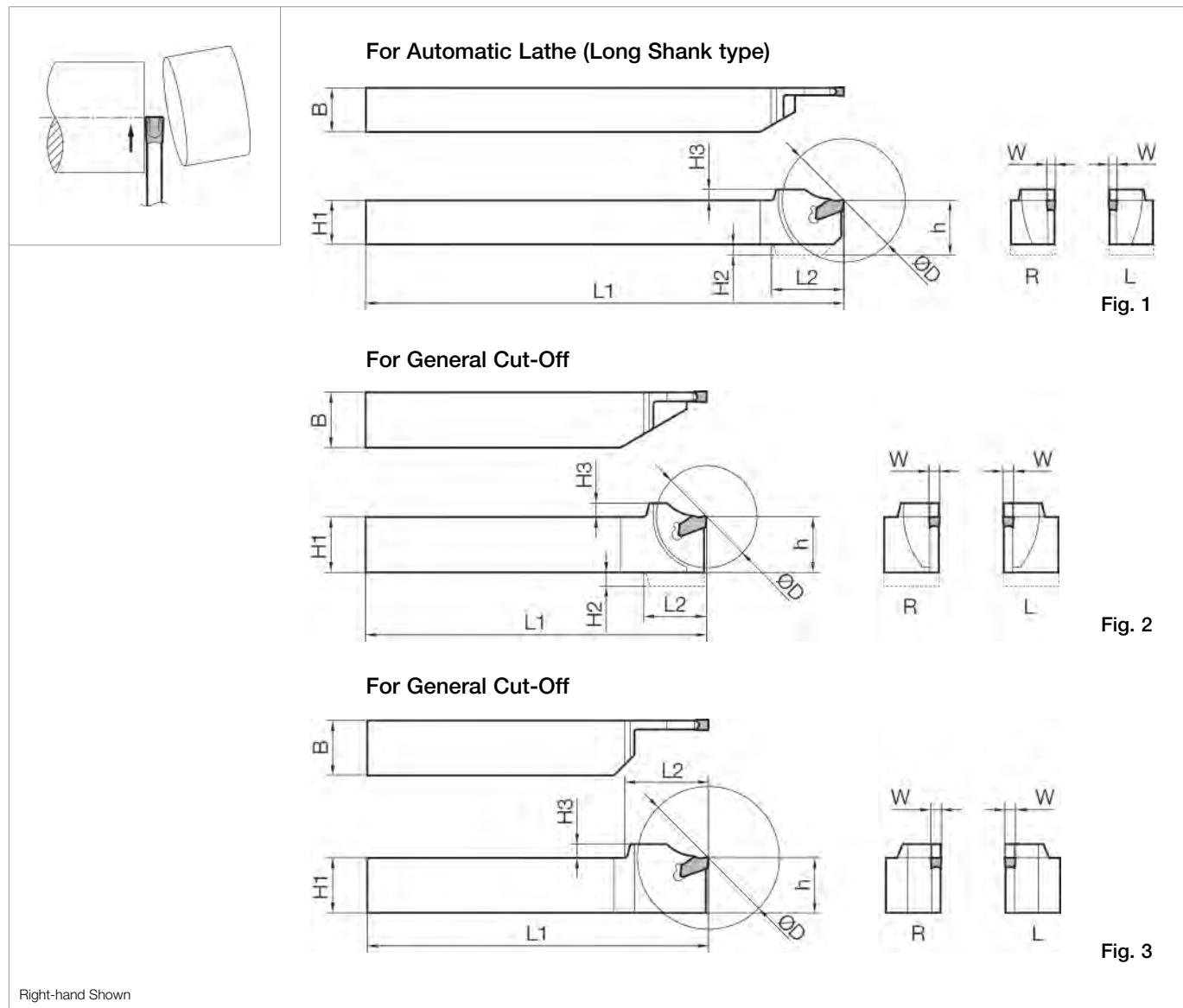
Inserts are sold in 10 piece boxes

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

CUT-OFF TOOLHOLDERS (INTEGRAL SHANK)

KTKH-S

A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX



Toolholder Dimensions for Automatic Lathe (Long Shank Type)

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions						Insert Width	Shape	Spare Parts Supplied Wrench
	R	L			ØDmax	H1=h	H2	H3	B	L1			
KTKH% 8-1.6-6S	●	●	inch	1.20	0.500	0.000	0.079	0.500	6.000	0.670	0.063	Fig.1	LTK-5
	●	●		1.20	0.375	0.200	0.117	0.375	5.000	0.690	0.087		
	●	●		1.30	0.500	0.160	0.087	0.500	6.000	0.700	0.094		
KTKH% 1010K-2-125S	●		mm	30	10	5	3	10	125	17.5	2.2	Fig.1	LTK-5
	●			30	12	4	3	12	150	18.0	2.4		
		●		36	16	0	3	16	150	20.7			
	●			45	16	4	4	16	150	25.6	3.1		

Recommended Cutting Conditions H26

CUT-OFF TOOLHOLDERS (INTEGRAL SHANK)

● Toolholder Dimensions for General Cut-Off

Part Number	Stock		Unit	Cut-Off Dia.	Dimensions						Insert Width W	Shape	Spare Parts Supplied Wrench
	R	L			ØDmax	H1=h	H2	H3	B	L1			
KTKH% 12-2S	●		inch	1.500	0.750	0.000	0.150	0.750	5.000	0.870	0.087 0.094	Fig.2	LTK-5
	●	●		2.000	0.750	-	0.100	0.750	5.000	1.190	0.122		
	●			2.100	1.000		0.200	1.000	6.000	1.210	0.122		
	●			2.400	0.750		0.100	0.750	5.000	1.350	0.161		
	●			2.600	1.000		0.200	1.000	6.000	1.360	0.161		
	●			3.100	1.000		0.200	1.000	6.000	1.560	0.189 0.201		
KTKH% 1010F-2S	○	○	mm	30	10	5	4	10	80	18.6	2.2 2.4	Fig.2	
KTKH% 1212H-2S	○	○		33	12	4	5	12	100	19.8			
KTKH% 1612H-2S	○	○		33	16	-	3	12	100	19.8			
KTKH% 1616H-2S	○	○		33	16	-	3	16	100	19.8			
KTKH% 2012K-2S	○	○		38	20	-	4	12	125	22.8			
KTKH% 2020K-2S	○	○		38	20	-	4	20	125	22.8			
KTKH% 1612H-3S	○	○		36	16	4	4	12	100	21.7	3.1		Fig.3
KTKH% 1616H-3S	○	○		36	16	4	4	16	100	21.7	3.1		
KTKH% 2012K-3S	○	○		41	20	-	5	12	125	25.3	3.1		
KTKH% 2020K-3S	○	○		52	20	-	5	20	125	31.0	3.1		
KTKH% 2012K-4S	○	○		44	20	-	5	12	125	26.3	4.1		Fig.2
KTKH% 2020K-4S	○	○		62	20	-	5	20	125	35.0	4.1		Fig.3
KTKH% 2020K-3T17S	○	○	35	20	-	5	20	125	21.8	3.1	Fig.2		
KTKH% 2020K-4T22S	○	○	45	20	-	5	20	125	26.8	4.1			

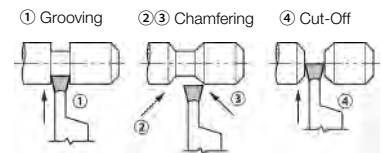
Recommended Cutting Conditions ● H26

● Applicable Inserts

Ref. Page	● H23			
Shape				
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	-

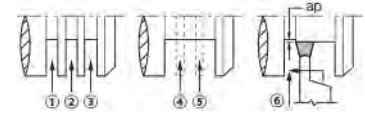
◆ Usage Example of Cut-Off

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 prevent both corners' unequal wear

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

■ Setup (TKN / TK[®]L)

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)**

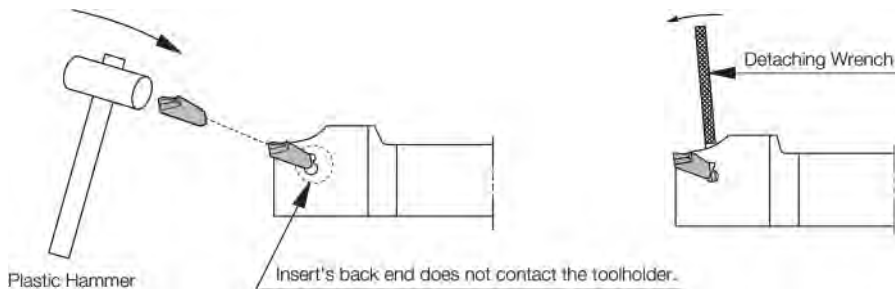


Fig.1 How to Attach Inserts

Fig.2 How to Detach Inserts

■ Recommended Cutting Conditions of CERACUT Cut-Off

Workpiece Material	Recommended Grade (Vc sfm)					Width				Remarks
	Cermet	CVD Coated Carbide	PVD Coated Carbide		Carbide	1.6mm	2.0~2.4mm	3.1mm	4.1mm	
	TN90	CR9025	PR660	PR930	KW10	Feed Rate (ipr)				
Carbon Steel	☆ 400~650	★ 250~600	☆ 200~425	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	Wet
Alloy Steel	☆ 325~525	★ 225~500	☆ 200~425	☆ 200~425	-	0.0008~0.0032	0.0016~0.0071	0.0020~0.0098	0.0032~0.0118	
Stainless Steel	☆ 250~500	☆ 200~450	★ 175~400	☆ 200~450	-	0.0008~0.0012	0.0016~0.0047	0.0020~0.0071	0.0032~0.0098	
Cast Iron		-	-	-	★ 175~325	0.0008~0.0032	0.0020~0.0047	0.0039~0.0098	0.0039~0.0118	
Aluminum		-	-	-	★ 325~1475	0.0008~0.0039	0.0020~0.0039	0.0020~0.0079	0.0020~0.0098	
Brass		-	-	-	★ 325~650	0.0008~0.0039	0.0020~0.0039	0.0020~0.0059	0.0020~0.0079	

★ : 1st Recommendation ☆ : 2nd Recommendation

THREADING

J

J1 - J44

PRODUCT LINEUP	J2	
SUMMARY OF THREADING INSERTS	J4	
SMALL PARTS THREADING (EXTERNAL/INTERNAL)	J6 - J15	
KTKF	Small Tools (External)	J6
KTKF GOOSE-NECK HOLDER	Small Tools (External)	J6
KTTX	Small Tools (External)	J8
S...KTTX	Sleeve Holder (External)	J8
EZT	EZ Bar (Internal)	J10
HPT	Double-Sided Micro Bar (Internal)	J14
VNT	Swiss IQ Bars (Internal)	J15
THREADING INSERTS (EXTERNAL/INTERNAL)	J16 - J25	
METRIC (M)	J16	
UNIFIED (UN)	J18	
PARALLEL PIPE [G(PF)] WHITWORTH (W)	J19	
TAPERED PIPE [R, RC(PT), (BSPT)]	J20	
AMERICAN NATION PIPE [NPT]	J21	
60° ANGLE [PARTIAL PROFILE / M, UN]	J22	
55° ANGLE [PARTIAL PROFILE / G(PF), R, RC(PT), (BSPT), W]	J24	
30° TRAPEZOIDAL (TR)	J25	
THREADING TOOLHOLDERS (EXTERNAL/INTERNAL)	J26 - J29	
KKC	J27	
KTN / KTNS	J28	
SIN	J29	
TECHNICAL INFORMATION	J30 - J44	
RECOMMENDED CUTTING CONDITIONS (KTN / KTNS / SIN)	J30	
LEAD ANGLE & RELIEF ANGLE OF THREAD	J30	
D.O.C. & NUMBER OF PASSES	J31	
APPLICABLE TOOLHOLDERS & INSERTS	J38	
THREAD METHODS (R-HAND THREAD / L-HAND THREAD)	J42	
THREAD TYPES & BASIC PROFILES	J44	

External Threading

A GRADES	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
B INSERTS	Thread Shape							
C CBN & PCD	Pitch	mm	TPI	TPI	TPI	TPI	TPI	mm
E TURNING	Toolholder Shape							
F BORING		Partial Profile	0.20~1.50 ➔ J6	64~18 ➔ J6	40~16 ➔ J6	40~16 ➔ J6	40~16 ➔ J6	-
G GROOVING				Partial Profile	0.50~2.00 ➔ J9	56~14 ➔ J9	28~11 ➔ J9	24~11 ➔ J9
H CUT-OFF		Partial Profile			0.50~2.00 ➔ J9	56~14 ➔ J9	28~11 ➔ J9	24~11 ➔ J9
J THREADING				Full Profile	0.50~3.00 ➔ J16	24~8 ➔ J18	19~11 ➔ J18	16~11 ➔ J18
L SOLID END MILLS		Partial Profile			0.50~3.00 ➔ J22	48~8 ➔ J22	28~11 ➔ J24	40~8 ➔ J24
M MILLING				Full Profile	0.50~3.00 ➔ J16	24~8 ➔ J18	19~11 ➔ J18	16~11 ➔ J18
P SPARE PARTS		Partial Profile			0.50~3.00 ➔ J22	48~8 ➔ J22	28~11 ➔ J24	40~8 ➔ J24
R TECHNICAL				Partial Profile	0.50~3.00 ➔ J22	48~8 ➔ J22	28~11 ➔ J24	40~8 ➔ J24
T INDEX		Partial Profile			0.70~4.00 ➔ J26	44~5 ➔ J26	-	-

• KTN / KTNS Threading Inserts Identification System
 Full Profile See Page ➔ J16
 Partial Profile See Page ➔ J22

Internal Threading

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								
Toolholder Shape	Pitch	mm	TPI	TPI	TPI	TPI	mm	
<p>EZT J10</p>	Partial Profile	0.50~1.75 J10	36~16 J10	28~19 J10	24~18 J10	28~19 J10	18~14 J10	-
	<p>VNT J15</p>	Partial Profile	0.75~1.50 J15	28~18 J15	-	-	-	-
<p>HPT J14</p>	Partial Profile	0.75~1.50 J14	28~16 J14	28~19 J14	24~18 J14	28~19 J14	-	-
	<p>SIN J29</p>	Full Profile	0.50~3.00 J17	24~8 J19	19~11 J19	16~11 J19	28~11 J21	18~11.5 J21
Partial Profile		0.50~3.00 J23	48~8 J23	28~11 J25	40~8 J25	28~11 J25	-	2.00~3.00 J25

GRADES **A**

INSERTS **B**

CBN & POD **C**

TURNING **E**

BORING **F**

GROOVING **G**

CUT-OFF **H**

THREADING **J**

SOLID END MILLS **L**

MILLING **M**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

SUMMARY OF THREADING INSERTS

KTKF J6

Threading Insert Lineup

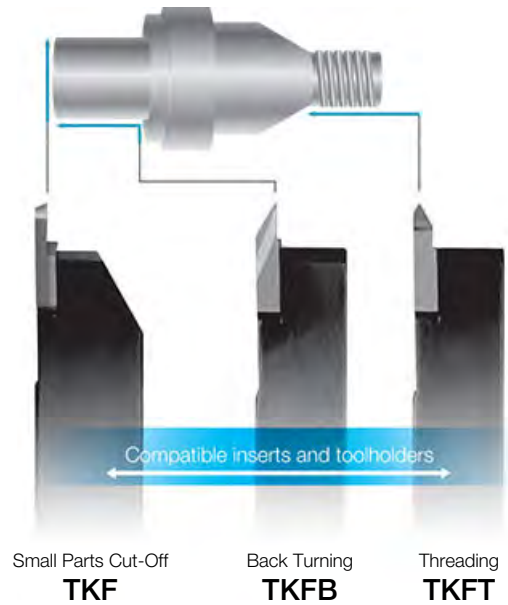
"JX" Toolholders (overall length 4.75") are available!

For Threading

TKFT

- Applicable for various types of threading

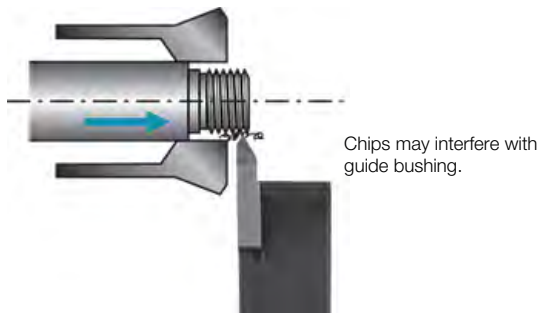
Metric (M)	Parallel Pipe [G(PF)]
Unified (UN)	Tapered Pipe [R(PT), (BSPT)]



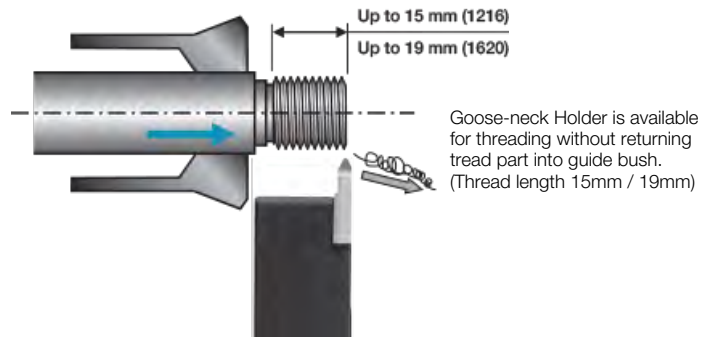
KTKF How to use the Goose-neck Holder on automatic lathe (guide bushing system)

Goose-neck Holder is applicable to automatic lathes whose toolholder does not move in longitudinal direction (Z-axis)

● Conventional Threading Tool



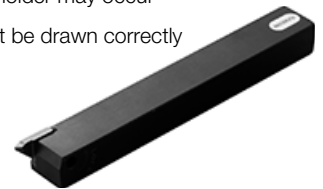
● Goose-neck Holder (for Threading)



● Goose-neck Holder Precautions

When Using Goose-neck Holder,

- ① Be careful of interference with back spindle because offset dimension is larger than the conventional toolholders
- ② Be careful of interference with sub spindle. Toolholder installation position is limited
- ③ During simultaneous machining (balance cut and tool approach for next process), interference with other toolholder may occur
- ④ In some cases, such as specifying toolholder shape on NC display or using CAM, Goose-neck Holder can not be drawn correctly



TTX Advantages

- Least Cutting Resistance
- Thread to Shoulder (less dead space)
- 3-Edge

Shape	On Toolholder	Dead Space

TF Series Threading Inserts

High quality edge and new grade insert PR1115 achieve long tool life

Economical Molding Specification

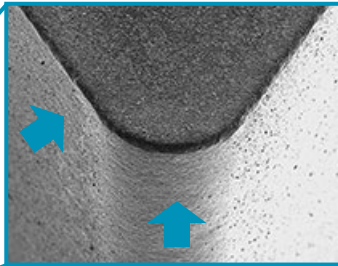
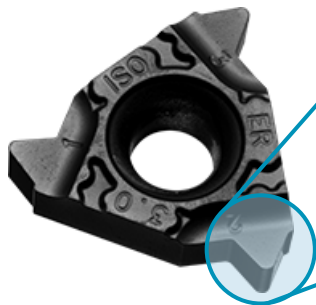
High Quality Cutting Edge

TF Series

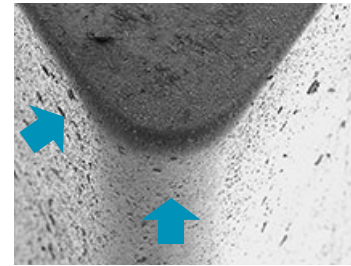
- High precision fine molding technology produces high quality cutting edge

Consistent micro honing technology produces high quality cutting edge

Inconsistent edge honing condition



16ER150ISO-TF



Competitor

Available for every standard screw thread

Metric (M)

Tapered Pipe [R, Rc(PT), (BSPT)]

Unified (UN)

60° Angle (Partial Profile)

Parallel Pipe [G(PF)]

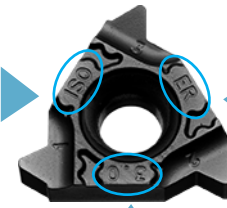
55° Angle (Partial Profile)

Whitworth [W]

Clear markings provide user-friendly insert identification

ISO (Metric)

External



Thread Pitch 3.0mm

- 16..-TF has the mark on its top face, and 11..-TF has the mark on its seating face side (bottom side)

Threading Insert Features

Full Profile and Partial Profile

	Shape	Function	Advantages
Full Profile		 Wiper Edge	<ul style="list-style-type: none"> 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			<ul style="list-style-type: none"> 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 to various pitch sizes

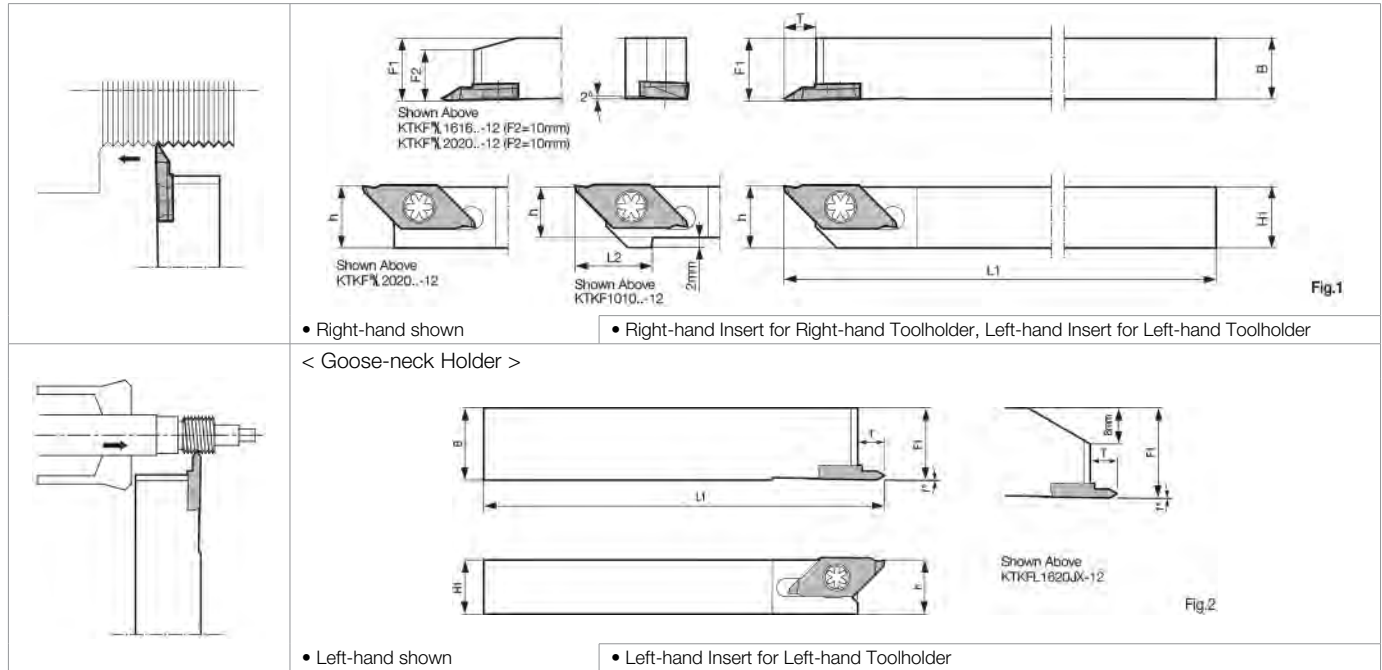
Thread Precision

Thread Type		Thread Precision		
		Strict		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 strict thread precision is required

KTKF / KTKF GOOSE-NECK HOLDER

KTKF / KTKF Goose-neck Holder



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Drawing	Spare Parts		Applicable Inserts
	R	L		H1=h	B	L1	L2	F1	T		Clamp Screw	Wrench	
KTKF [®] 6-12JX	●	●	inch	0.375	0.375	4.750	0.590	0.375	0.236	Fig.1	SB-4590TRWN	LTW-10S	TKFT12 [®] ...
8-12JX	●	●		0.500	0.500	4.750	-	0.500	0.236	Fig.1			
10-12JX	●	●		0.625	0.625	4.750	-	0.625	0.236	Fig.1			
KTKF [®] 52-12JX		●	inch	0.500	0.625	4.750	-	0.625	0.236	Fig.2	SB-4590TRWN	LTW-10S	TKFT12 [®] ...
62.5-12JX		●		0.625	0.750	4.750	-	0.750	0.236	Fig.2			
KTKF [®] 1010JX-12	●	○	mm	10	10	120	15	10	6	Fig.1	SB-4590TRWN	LTW-10S	TKFT12 [®] ...
1212JX-12	●	○		12	12	120	-	12	6	Fig.1			
1616JX-12	●	○		16	16	120	-	16	6	Fig.1			
2020JX-12	●	○		20	20	120	-	20	6	Fig.1			
KTKF [®] 1212F-12	○	○	mm	12	12	85	-	12	6	Fig.2	SB-4590TRWN	LTW-10S	TKFT12 [®] ...
KTKF [®] 1216JX-12		○		12	16	120	-	16	6	Fig.2			
KTKF [®] 1620JX-12		○		16	20	120	-	20	6	Fig.2			

• Dimension T shows the distance from the toolholder to the cutting edge.

Applicable Inserts

Insert	Part Number	Applicable Thread	Pitch		Dimensions							Angle (°)	Insert Grade				Applicable Toolholders	
			mm	TPI	T	W	H	Ød	re	S1	S2		MEGA COAT NANO	MEGA COAT	PVD Coated Carbide	Carbide		
<p>Right-handed Insert Shown</p> <p>• Right-hand Shown</p> <p>• Left-hand Shown</p>	TKFT 12RA6000	M UN	0.20~0.60	64~48	3.0	2.5	8.7	5.2	Max 0.05 Flat	0.40	2.10	60°	●	●	○	○	KTKFR ...12	
	12RB6000				3.0	2.5	8.7	5.2		0.05	2.10	0.40	60°	●	●	○		○
	12RA60005		0.50~1.25	48~24	3.0	2.5	8.7	5.2	0.05	0.80	1.70	60°	●	●	●	○		○
	12RB60005				3.0	2.5	8.7	5.2		0.10	1.25	1.25	60°	●	●	○		○
	12RN6001		1.00~1.50	24~18	3.0	2.5	8.7	5.2	0.10	1.25	1.25	60°	●	●	○	○		KTKFL ...12
	12RA55005		G,R W	-	40~16	3.0	2.5	8.7	5.2	0.05	0.80	1.70	55°	●	●	○		
	12RB55005	3.0				2.5	8.7	5.2	0.05		1.70	0.80	55°	●	●	○	○	
	TKFT 12LA6000	M UN	0.20~0.60	64~48	3.0	2.5	8.7	5.2	Max 0.05 Flat	2.10	0.40	60°	●	●	○	○	KTKFL ...12	
	12LB6000				3.0	2.5	8.7	5.2		0.05	0.40	2.10	60°	●	●	○		
	12LA60005		0.50~1.25	48~24	3.0	2.5	8.7	5.2	0.05	1.70	0.80	60°	●	●	○	○		
	12LB60005				3.0	2.5	8.7	5.2		0.10	1.25	1.25	60°	●	●	○		○
	12LN6001		1.00~1.50	24~18	3.0	2.5	8.7	5.2	0.10	1.25	1.25	60°	●	●	○	○		KTKFL ...12
12LA55005	G,R W		-	40~16	3.0	2.5	8.7	5.2	0.05	1.70	0.80	55°	●	●	○	○		
12LB55005		3.0			2.5	8.7	5.2	0.05		0.80	1.70	55°	●	●	○	○		

■ Indication of Description (See Table 1) ◆ Recommended Cutting Conditions

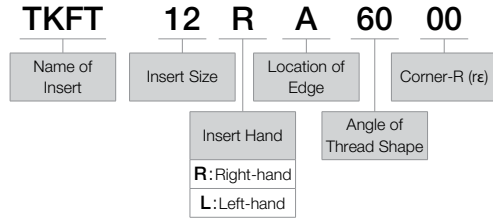
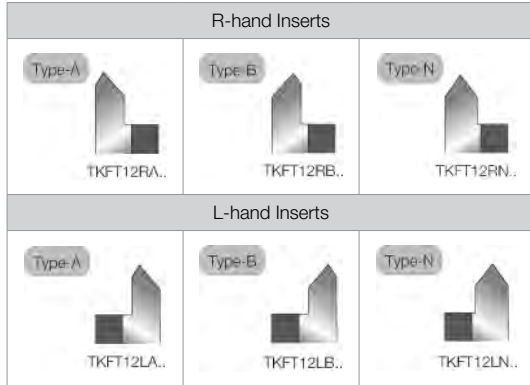


Table 1



Workpiece Material	Recommended Insert Grade			
	MEGACOAT NANO	MEGACOAT	PVD Coated Carbide	Carbide
	PR1425/PR1535	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	-		-	
	-		-	
Aluminum	-		-	
	-		-	
Brass	-		-	
	-		-	

- 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	r _e	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 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									
		TKFT 12R/L A/B6000	Max 0.05 Flat	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02									
		12R/L A/B60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02										
		TKFT 12R/L A/B6000	Max 0.05 Flat	0.45	7	0.10	0.10	0.08	0.06	0.05	0.04	0.02								
		12R/L A/B60005	0.05	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02									
		TKFT 12R/L A/B60005	0.05	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02									
		TKFT 12R/L A/B60005	0.05	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02								
		TKFT 12R/L A/B60005	0.05	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02								
		TKFT 12R/L A/B60005	0.05	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02							
		12R/L N6001	0.10	0.66	7	0.18	0.15	0.12	0.10	0.06	0.03	0.02								
12R/L N6001	0.05	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02								
12R/L N6001	0.10	0.85	8	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.02									
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								
			0.0020	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	0.004	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				

■ TKFT How to use the Goose-neck Holder on automatic lathe (guide bushing system) See J4

Goose-neck Holder is applicable to automatic lathes whose toolholder does not move in longitudinal direction (Z-axis direction)

KTTX External Threading Toolholders [TTX Inset]

• Thread to shoulder

• 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	
			H1=h	H2	H3	B	L1	L2	F	Clamp Screw	Wrench
KTTXR 6-3JXF	●	inch	0.375	0.079	0.098	0.375	4.750	0.693	0.383	SB-4070TRW	FT-8
8-3JXF	●		0.500	-	0.098	0.500	4.750	0.693	0.508		
10-3JXF	●		0.625	-	0.98	0.625	4.750	0.693	0.633		
KTTXR 1010JX-16F	○	mm	10	2	2.5	10	120	17.6	10	SB-4070TRW	FT-8
1212JX-16F	○		12	-	2.5	12	120	17.6	12		
1616JX-16F	○		16	-	2.5	16	120	17.6	16		
KTTXR 1212F -16F	○		12	-	2.5	12	85	17.6	12		
KTTXR 2020K -16F	○		20	-	2.5	20	125	17.6	20		

Applicable Inserts J9

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	
		ØD	L1	F1	F2	Ød1	Ød2	H1=H2	Clamp Screw	Wrench
S12F-KTTXL16	○	12	80	6.0	9.0	11.0	27	11	SB-4070TRW	FT-8
S14H-KTTXL16	○	14	100	6.0	9.0	13.0	27	13		
S15F-KTTXL16	●	5/8"	85	6.0	9.0	14.6	27	15		
S16F-KTTXL16	○	16	85	6.0	9.0	14.6	27	15		
S19G-KTTXL16	○	3/4"	90	6.0	10.5	17.6	27	17		
S19K-KTTXL16	○	3/4"	120	6.0	10.5	17.6	27	17		
S20G-KTTXL16	○	20	90	6.0	11.0	18.6	27	18		
S20K-KTTXL16	○	20	120	6.0	11.0	18.6	27	18		
S25.0H-KTTXL16	○	25	100	10.0	14.0	23.6	32	23		
S25K-KTTXL16	●	1"	120	10.0	14.0	23.6	32	23		

Applicable Inserts J9

Applicable Inserts

Part Number	A	T	Ød	Material		Classification of Usage				Applicable Toolholders J8	Ref. Page for D.O.C. & Number of Passes					
				P	M	●	○	●	○							
TTX32R	9.525	3.18	4.4	N	Non-ferrous Metals											
Shape Right-handed Insert Shown				Part Number	Applicable Thread	Pitch		Dimensions (mm)			Angle	Cermet	PVD Coated Carbide		Carbide	
				TTX32R	M UN	6000	0.5~1.0	-	0.00	0.60	1.12	60°				
							-	56~32								
						6000S	0.5~1.0	-	0.05	0.60	1.12	60°	○	●	●	●
				6001	M UN	1.0~2.0	-	0.10	1.10	1.62	60°	○	○	●	○	
						-	28~14									
				TTX32R	M UN	6000S	0.5	-	0.00	0.30	1.12	60°			○	○
							-	56~48								
				6000S	M UN	0.5	-	0.05	0.30	1.12	60°			○	○	
						-	48									
				TTX32R	G,R W	5501	-	28-19	0.10	0.75	1.01	55°	○	○	○	○
-	24-20															
5501S	G,R W	-	19-11	0.15	1.20	1.46	55°	○	○		○					
		-	20-11													

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

Advantages of TTX

Type	Insert	Advantages		
		Rake Angle after Installation	Condition	Dead Space
TTX			<ul style="list-style-type: none"> The Least Cutting Resistance Thread to shoulder (Less dead space) 3-edge 	

Recommended Cutting Conditions

KTTX / S-KTTX

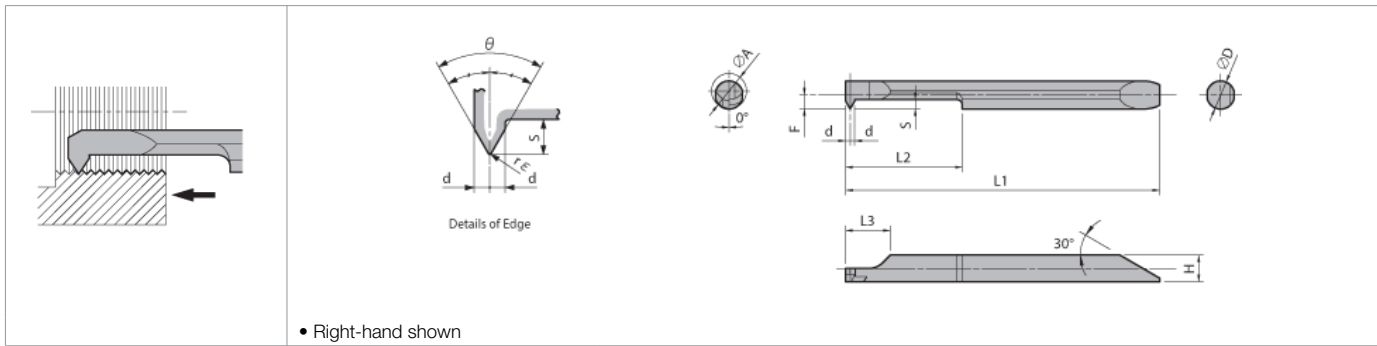
Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	KW10
Carbon Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial D.O.C.)	0.0118" or less	0.0118" or less	0.0118" or less	
Alloy Steel	☆ 330-490	☆ 330-490	★ 330-490	-
Initial D.O.C. (Radial D.O.C.)	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 D.O.C.)	0.0098" or less	0.0098" or less	0.0098" or less	
Cast Iron	-	-	-	★ 330
Initial D.O.C. (Radial D.O.C.)	-	-	-	0.0118" or less
Aluminum	-	-	-	★ 490-1310
Initial D.O.C. (Radial D.O.C.)	-	-	-	0.0118" or less
Brass	-	-	-	★ 490-1310
Initial D.O.C. (Radial D.O.C.)	-	-	-	0.0118" or less

- ★ : 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.

PR930/PR1115 Threading Inserts are sold in 5 piece boxes.

All other grade Inserts are sold in 10 piece boxes.

EZT



Toolholder Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)										MEGA COAT	Applicable Screw						
		ØA	ØD	H	L1	L2	L3	F	S	d	r _e		θ	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	5.4	1.19	1.0	0.5	0.02 ^{+0.01}	60°	PR1225	●	M4 M3.5 or more	P0.5-P0.8	No.8-32UNC No.8-36UNF or more	36-32	-	-
	3.5	3.0	2.8	39.0	9.0	5.9	1.44	1.2	0.6				●	M4.5 M4.5 or more	P0.5-P1.0	No.10-24UNC No.8-36UNF or more	36-24	-	-
	4.0	3.5	3.3	42.0	11.0	5.9	1.69	1.2	0.6				●	M5 M5 or more	P0.75-P1.25	No.12-24UNC No.12-28UNF or more	28-20	-	-
	5.0	4.0	3.8	45.0	16.0	6.4	1.94	1.3	0.65				●	M7 M6 or more	P0.75-P1.5	1/4-20UNC 1/4-28UNF or more	28-18	-	-
	6.0	5.0	4.8	53.2	20.0	7.4	2.44	1.6	0.8				●	M8 M7 or more	P0.75-P1.5	5/16-18UNC 5/16-24UNF or more	24-16	1/4NPT 3/8NPT	18
	7.0	6.0	5.8	61.2	25.0	8.4	2.94	2.0	1.0				●	M9 M8 or more	P0.75-P1.75	3/8-16UNC 3/8-24UNF or more	24-16	1/4NPT	18,14
													Whitworth		Parallel Pipe / Tapered Pipe				
EZTR 060050-55-008	6.0	5.0	4.8	53.2	20.0	7.4	2.44	1.6	0.8	0.08 ^{+0.01}	55°	●	W10 tpi 24 or more	24-20	G1/16 R1/16 or more	28	-	-	
	8.0	7.0	6.8	64.2	20.5	8.9	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 **J13**
For applicable sleeve see **J11**

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 (With coolant hole and EZ Adjust Structure)	EZH-HP (Adjustable)	EZH-ST	Sleeve Shank Dia	EZT	HPT	Shank Dia	
			ØD1 (mm)			ØD (mm)	
		EZH 02512ST-80	12.00	EZTR ...025-...	-	2.5	General Machines
		03012ST-80		EZTR ...030-...	-	3.0	
		03512ST-80		EZTR ...035-...	-	3.5	
		04012ST-80		EZTR ...040-...	HPTR ...040-...	4.0	
		05012ST-80		EZTR ...050-...	HPTR ...050-...	5.0	
		06012ST-80		EZTR ...060-...	-	6.0	
		07012ST-80		EZTR ...070-...	HPTR ...070-...	7.0	
	EZH 02516HP-100	EZH 02516ST-100	16.00	EZTR ...025-...	-	2.5	General Machines
	03016HP-100	03016ST-100		EZTR ...030-...	-	3.0	
	03516HP-100	03516ST-100		EZTR ...035-...	-	3.5	
	04016HP-100	04016ST-100		EZTR ...040-...	HPTR ...040-...	4.0	
	05016HP-100	05016ST-100		EZTR ...050-...	HPTR ...050-...	5.0	
	06016HP-100	06016ST-100		EZTR ...060-...	-	6.0	
	07016HP-100	07016ST-100		EZTR ...070-...	HPTR ...070-...	7.0	
EZH 02519CT-120	EZH 02519HP-120	EZH 02519ST-120	19.05	EZTR ...025-...	-	2.5	CITIZEN MACHINERY MIYANO CO., LTD.
03019CT-120	03019HP-120	03019ST-120		EZTR ...030-...	-	3.0	
03519CT-120	03519HP-120	03519ST-120		EZTR ...035-...	-	3.5	
04019CT-120	04019HP-120	04019ST-120		EZTR ...040-...	HPTR ...040-...	4.0	
05019CT-120	05019HP-120	05019ST-120		EZTR ...050-...	HPTR ...050-...	5.0	
06019CT-120	06019HP-120	06019ST-120		EZTR ...060-...	-	6.0	
07019CT-120	07019HP-120	07019ST-120		EZTR ...070-...	HPTR ...070-...	7.0	
EZH 02520CT-120	EZH 02520HP-120	EZH 02520ST-120	20.00	EZTR ...025-...	-	2.5	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines
03020CT-120	03020HP-120	03020ST-120		EZTR ...030-...	-	3.0	
03520CT-120	03520HP-120	03520ST-120		EZTR ...035-...	-	3.5	
04020CT-120	04020HP-120	04020ST-120		EZTR ...040-...	HPTR ...040-...	4.0	
05020CT-120	05020HP-120	05020ST-120		EZTR ...050-...	HPTR ...050-...	5.0	
06020CT-120	06020HP-120	06020ST-120		EZTR ...060-...	-	6.0	
07020CT-120	07020HP-120	07020ST-120		EZTR ...070-...	HPTR ...070-...	7.0	
EZH 02522CT-135	EZH 02522HP-135	EZH 02522ST-135	22.00	EZTR ...025-...	-	2.5	STAR MICRONICS CO., LTD. Nomura VTC Automatic Lathe Co., Ltd. TSUGAMI CORPORATION
03022CT-135	03022HP-135	03022ST-135		EZTR ...030-...	-	3.0	
03522CT-135	03522HP-135	03522ST-135		EZTR ...035-...	-	3.5	
04022CT-135	04022HP-135	04022ST-135		EZTR ...040-...	HPTR ...040-...	4.0	
05022CT-135	05022HP-135	05022ST-135		EZTR ...050-...	HPTR ...050-...	5.0	
06022CT-135	06022HP-135	06022ST-135		EZTR ...060-...	-	6.0	
07022CT-135	07022HP-135	07022ST-135		EZTR ...070-...	HPTR ...070-...	7.0	
EZH 02525.0CT-135	EZH 02525.0HP-135	EZH 02525.0ST-135	25.00	EZTR ...025-...	-	2.5	AMADA MACHINE TOOLS CO.,LTD. EGURO.LTD TSUGAMI CORPORATION CITIZEN MACHINERY MIYANO CO., LTD. General Machines
03025.0CT-135	03025.0HP-135	03025.0ST-135		EZTR ...030-...	-	3.0	
03525.0CT-135	03525.0HP-135	03525.0ST-135		EZTR ...035-...	-	3.5	
04025.0CT-135	04025.0HP-135	04025.0ST-135		EZTR ...040-...	HPTR ...040-...	4.0	
05025.0CT-135	05025.0HP-135	05025.0ST-135		EZTR ...050-...	HPTR ...050-...	5.0	
06025.0CT-135	06025.0HP-135	06025.0ST-135		EZTR ...060-...	-	6.0	
07025.0CT-135	07025.0HP-135	07025.0ST-135		EZTR ...070-...	HPTR ...070-...	7.0	
EZH 02525.4CT-120	EZH 02525.4HP-120	EZH 02525.4ST-120	25.40	EZTR ...025-...	-	2.5	CITIZEN MACHINERY MIYANO CO., LTD.
03025.4CT-120	03025.4HP-120	03025.4ST-120		EZTR ...030-...	-	3.0	
03525.4CT-120	03525.4HP-120	03525.4ST-120		EZTR ...035-...	-	3.5	
04025.4CT-120	04025.4HP-120	04025.4ST-120		EZTR ...040-...	HPTR ...040-...	4.0	
05025.4CT-120	05025.4HP-120	05025.4ST-120		EZTR ...050-...	HPTR ...050-...	5.0	
06025.4CT-120	06025.4HP-120	06025.4ST-120		EZTR ...060-...	-	6.0	
07025.4CT-120	07025.4HP-120	07025.4ST-120		EZTR ...070-...	HPTR ...070-...	7.0	

- Choose sleeves (Ød1) to meet with ØD dimension of EZG bars.
- Adjustment pin cannot be installed in EZH-ST sleeves. To adjust overhang of EZB insert, please use EZH-HP sleeves.
- Machine manufacturers in random order.

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

EZT RECOMMENDED CUTTING CONDITIONS

◆ Recommended Cutting Conditions

Workpiece Material	Recommended Insert Grade (Vc sfm)
	MEGACOAT
	PR1225
Carbon Steel/Alloy Steel	★ 330-1070
Stainless Steel	★ 330-820
Non-ferrous Metals	-

Note:

- 1) The standard cutting speed is Vc (sfm) = 100-175. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
- 2) Coolant is recommended.

★ : 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	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							
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	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	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)

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	0.002	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	0.002	0.001	0.001	0.001

EZT RECOMMENDED CUTTING CONDITIONS

◆ D.O.C. & Number of Passes (Parallel Pipe / Tapered Pipe)

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

◆ D.O.C. & Number of Passes (American National 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	0.001	0.001	0.001	

■ Application of Parallel Pipe and Tapered Pipe Thread

● Parallel Pipe: G (PF), Rp (PS)

Inch	Applicable Thread Symbol Previous Symbol	TPI	Internal Threading (G, Rp)		Min. Bore Dia. (mm)	Same Root's Radius
			Toolholder	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)

Inch	Applicable Thread Symbol Previous Symbol	TPI	Internal Threading (Rc)		Min. Bore Dia. (mm)	Same Root's Radius
			Toolholder	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.

■ Application for 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

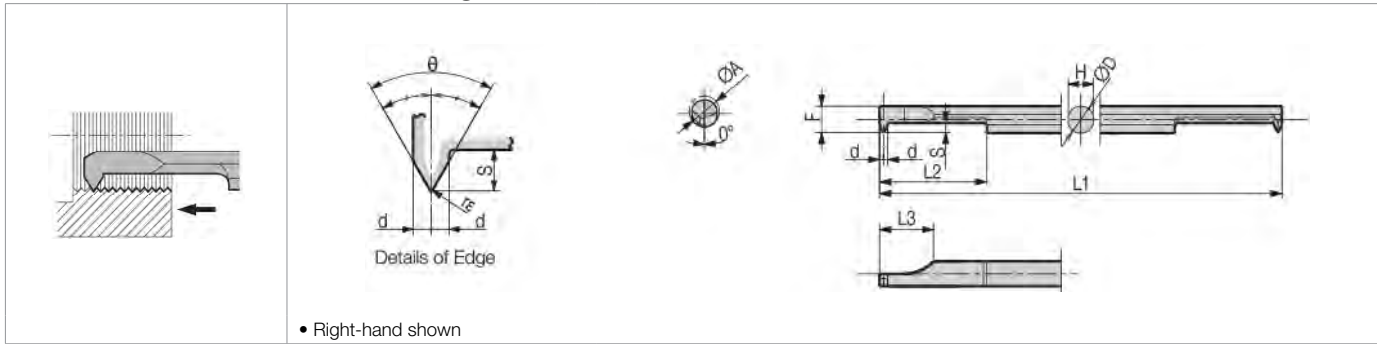
• Application of NPTF Thread

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.

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

HPT Micro Internal Threading



Tip-Bars Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)										Insert Grade		Applicable Thread					
		ØA	ØD	H	L1	L2	L3	F	S	d	rε	θ	PVD Coated Carbide	Carbide	Metric		Unified		
													PR930	KW10	Applicable Thread	Pitch (mm)	Applicable Thread	Pitch TPI	
HPTR 04504-60-005	4.5	4	3.7	60	16	8	3.9	1.3	0.6		60°	○	○	M6 or more	P0.75~P1.25	1/4-20UNC 1/4-28UNF or more	28~20		
	6.0	5	4.6	70	21	8	4.9	1.6	0.8	^{+0.02} _{0.05}	60°	○	○	M8 or more	P0.75~P1.50	5/16-18UNC 5/16-24UNF or more	24~18		
	7.5	7	6.4	80	26	10	6.9	2.0	1.0		60°	○	○	M10 or more	P0.75~P1.50	3/8-16UNC 3/8-24UNF or more	24~16		
HPTR 06005-55-010	6.0	5	4.6	70	21	8	4.9	1.6	0.8	^{+0.02} _{0.10}	55°	○	○	Whitworth	W10 24 W10 TPI 24 or more	24~20	Parallel Pipe Tapered Pipe	G1/16 R1/16	28
	8.0	7	6.4	80	26	10	6.9	2.0	1.0		55°	○	○	W11 20 W11 TPI 24 or more	20~18	G1/8 R1/8	28,19		

• For American National Pipe (NPT), use HPTR...-60-005. See Page J15

Description Table for Tip-Bars and Applicable Sleeves **Recommended Cutting Conditions**

Part Number	Applicable Sleeve Part Number
HPTR 04504-60-005	EZH 04...-...
06005-60-005	05...-...
07507-60-005	07...-...
HPTR 06005-55-010	EZH 05...-...
08007-55-010	07...-...

Workpiece Material	Recommended Insert Grade (Vc sfm)	
	PVD Coated Carbide	Carbide
	PR930	KW10
Carbon Steel/Alloy Steel	★ 100-330	-
Stainless Steel	★ 100-260	-
Non-ferrous Metals	-	★ -980

Note:
1) The standard cutting speed is Vc (sfm) = 100-160. The table feed may not follow the expected conditions when machining small diameter workpieces at high speeds.
2) Coolant is recommended.

★ : 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

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	0.002	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	0.002	0.001	0.001	0.001

D.O.C. & Number of Passes (Unified)

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	0.0213	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	0.0252	12	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001						
20	0.0303	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	0.001					
18	0.0343	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	0.001	0.001	0.001		
16	0.0386	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	

Tip-Bar is sold in 1 piece boxes.

Application of Parallel Pipe and Tapered Pipe Thread

Parallel Pipe: G (PF), Rp (PS)

Tapered Pipe: R, Rc (PT) (BSPT)

Applicable Thread		TPI	Internal Threading (G, Rp)		Min. Bore Dia. (mm)	Same Root's Radius
Inch	Symbol Previous Symbol		Insert			
-	G 1/16 (-)	28	HPTR	06005-55-010	6.56	0.12
1/8	G 1/8 (PF 1/8)	28		08007-55-010	8.57	0.12
2/8	G 1/4 (PF 1/4)	19	HPTR	08007-55-010	11.45	0.18
3/8	G 3/8 (PF 3/8)	19			14.95	0.18

Applicable Thread		TPI	Internal Threading (Rc)		Min. Bore Dia. (mm)	Same Root's Radius
Inch	Symbol Previous Symbol		Insert			
-	R 1/16, Rc 1/16 (-)	28	HPTR	06005-55-010	-	0.12
1/8	R 1/8, Rc 1/8 (PT 1/8)	28		08007-55-010	-	0.12
2/8	R 1/4, Rc 1/4 (PT 1/4)	19	HPTR	08007-55-010	-	0.18
3/8	R 3/8, Rc 3/8 (PT 3/8)	19			-	0.18

When using "HPT type" for parallel Pipe / Tapered Pipe threading, thread's corners become sharp edged due to its partial profile, and the sharp will not be the same as the standard shape for Parallel Pipe / Tapered Pipe.

D.O.C. & Number of Passes (Parallel Pipe / Tapered Pipe)

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 for NPT

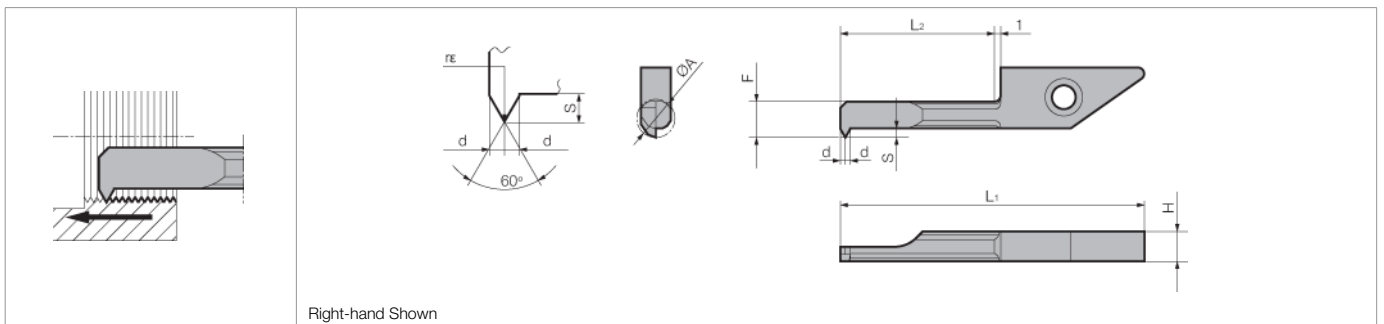
Applicable Thread	TPI	Internal Threading		
		Toolholder	Insert	
			Partial Profile	Full Profile
1/16 NPT	27	No Tools Available		
1/8 NPT	27	No Tools Available		
1/4 NPT	18	EZH Sleeve See Page J11	HPTR06005-60-005	-
3/8 NPT	18		HPTR07507-60-005	-
1/2 NPT	14	EZH Sleeve See Page J11	HPTR07507-60-005	-
3/4 NPT	14		HPTR07507-60-005	-
1/2 NPT	14	SINR1616S-16	-	-
3/4 NPT	14	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 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	0.001	0.001	0.001	

VNT (System Tip-Bars)

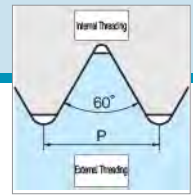


Tip-Bars Dimensions

Part Number	Min. Bore Dia.	Dimensions (mm)								Applicable Thread					
		ØA	H	L1	L2	F	S	d	rE	PVD Coated Carbide	Carbide	Metric		Unified	
												PR930	KW10	Applicable Thread	Pitch (mm)
VNTR 045-11	4.5	3.9	30.8	11	3.6	1.3	0.6	±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 F32- F33 for applicable toolholders.

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T



External Threading Insert

Metric (M)

60° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage	P	Carbon Steel / Alloy Steel														
16E%	TNN32E%	9.525	3.68	4.00	● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	M	Stainless Steel		●												
						K	Cast Iron														
Insert		Part Number		Previous Part Number		Dimensions (mm)		Angle	Cermet	PVD Coated Carbide	Carbide	Ref. Page for D.O.C. & Number of Passes									
Right-handed Insert Shown												TC60		PR1115		GW15					
												R	L	R	L	R	L				
		16E%	100ISO-TF	-		1.00	0.12	0.80	60°												
			125ISO-TF			1.25	0.15	0.90	60°												
			150ISO-TF			1.50	0.19	1.00	60°												
			175ISO-TF			1.75	0.22	1.60	60°												
			200ISO-TF			2.00	0.25	1.50	60°												
			250ISO-TF			2.50	0.33	1.60	60°												
			300ISO-TF			3.00	0.41	1.60	60°												
		16E%	050ISO	TNN32E%	050M	0.50	0.06	0.40	60°	○	○	○	○								
			075ISO		075M	0.75	0.09	0.53	60°	○	○	○	○								
			100ISO		100M	1.00	0.12	0.80	60°	●			○	○							
			125ISO		125M	1.25	0.15	0.90	60°	○			○	○							
			150ISO		150M	1.50	0.19	1.00	60°	●			○	○							
			175ISO		175M	1.75	0.22	1.50	60°	○											
			200ISO		200M	2.00	0.25	1.50	60°	○			○	○							
			250ISO		250M	2.50	0.32	1.60	60°	○			○	○							

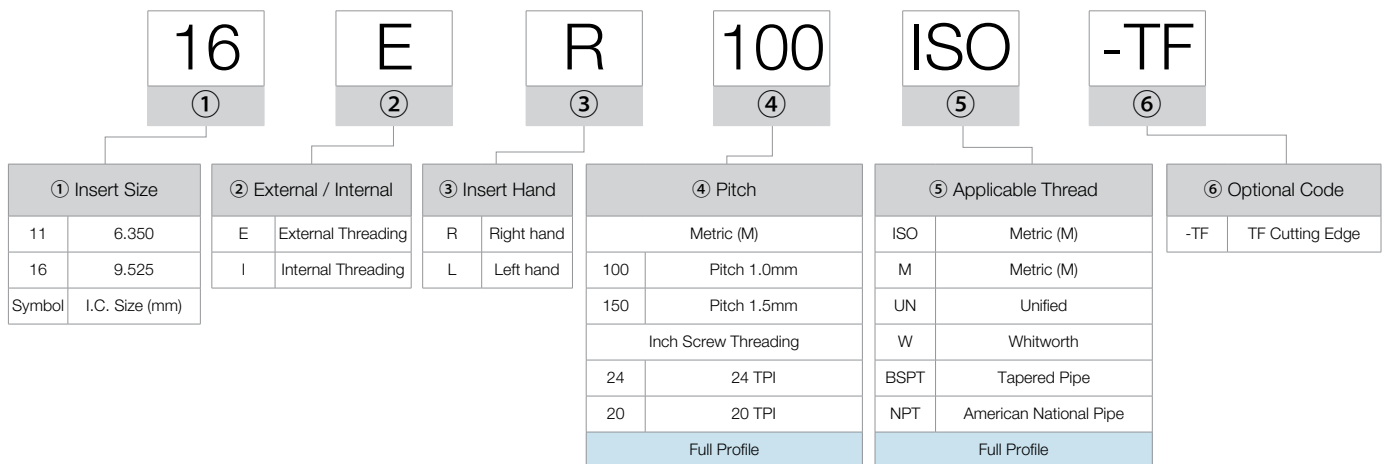
Recommended Cutting Conditions **J30**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	J28
16EL...	KTNL...-16	

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) J16~ J21



PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

INTERNAL THREADING INSERTS

Internal Threading Insert

● Metric (M)

● 60° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes					
						M	Stainless Steel		●							
111%	TNN221%	6.350	3.18	3		K	Cast Iron			●						
161%	TNN321%	9.525	3.68	4		N	Non-ferrous Metals			●						
Insert		Part Number		Previous Part Number		Dimensions (mm)		Angle	Cermet	PVD Coated Carbide	Carbide					
Right-handed Insert Shown						Applicable Thread	rε	S	θ	TC60	PR1115	GW15				
						M				R	L	R	L	R	L	
						Pitch										
						mm										
	111%	100ISO-TF	-		1.00	0.07	0.80	60°		●						
		125ISO-TF			1.25	0.08	1.10	60°		●						
		150ISO-TF			1.50	0.11	1.10	60°		●						
		175ISO-TF			1.75	0.12	1.10	60°		●						
	161%	100ISO-TF	-		1.00	0.07	0.80	60°		●						
		125ISO-TF			1.25	0.08	1.10	60°		●						
		150ISO-TF			1.50	0.11	1.10	60°		●						
		175ISO-TF			1.75	0.12	1.10	60°		●						
		200ISO-TF			2.00	0.14	1.50	60°		●						
		250ISO-TF			2.50	0.17	1.50	60°		●						
	Full Profile	111%	050ISO	TNN221%	050M	0.50	0.03	0.55	60°	○	○	○				
			075ISO		075M	0.75	0.05	0.68	60°	○	○	○				
100ISO			100M		1.00	0.07	0.80	60°	○		○	○				
125ISO			125M		1.25	0.08	1.10	60°	○			○				
150ISO			150M		1.50	0.11	1.10	60°	○			○				
175ISO			175M		1.75	0.12	1.10	60°	○				○			
161%		100ISO	TNN321%	100M	1.00	0.07	0.80	60°	○			○	○			
		125ISO		125M	1.25	0.08	1.10	60°	○				○			
		150ISO		150M	1.50	0.11	1.10	60°	○				○			
		175ISO		175M	1.75	0.12	1.10	60°	○					○		
		200ISO		200M	2.00	0.14	0.90	60°			○					
		300ISO		300M	3.00	0.19	1.60	60°						○		

Recommended Cutting Conditions ● J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
111R...	SINR...-11E SINR...-11	● J29
111L...	SINL...-11E SINL...-11	

Part Number	Applicable Toolholders	Ref. Page for Toolholder
161R...	SINR...-16	● J29
161L...	SINL...-16	

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

PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

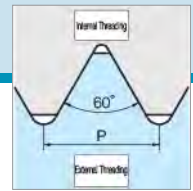
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J17

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GROOVING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

EXTERNAL THREADING INSERTS



External Threading Insert

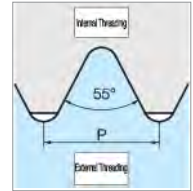
- Unified (UN)
- 60° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes			
						M	Stainless Steel		●					
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cermet			PVD Coated Carbide	Carbide	
Right-handed Insert Shown								θ	TC60		PR1115		GW15	
									R	L	R	L	R	L
		16E%	24UN-TF	-		24	0.0047	0.0315	60°			●		
		20UN-TF	20			0.0059	0.0394	60°			●			
		18UN-TF	18			0.0071	0.0394	60°			●			
		16UN-TF	16			0.0079	0.0433	60°			●			
		14UN-TF	14			0.0091	0.0591	60°			●			
		13UN-TF	13			0.0098	0.0591	60°			●			
		12UN-TF	12			0.0106	0.0591	60°			●			
		10UN-TF	10			0.0134	0.0591	60°			●			
		08UN-TF	8			0.0169	0.0689	60°			●			
						16E%	24UN	TNN32E%	24UN	24	0.0051	0.0315	60°	●
20UN	20			0.0063	0.0394	60°	●							
18UN	18			0.0071	0.0394	60°	●							
16UN	16			0.0079	0.0433	60°	●	●						
14UN	14			0.0091	0.0591	60°	●							
12UN	12			0.0106	0.0591	60°	●							

Recommended Cutting Conditions **J30**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	J28



External Threading Insert

- Parallel Pipe [G(PF)], Whitworth (W)
- Full Profile 55°

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes			
						M	Stainless Steel		●					
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cermet			PVD Coated Carbide	Carbide	
Right-handed Insert Shown								θ	TC60		PR1115		GW15	
									R	L	R	L	R	L
		16E%	19W-TF	-		19	-	0.0063	0.0394	55°			○	
		16W-TF	-			16	0.0075	0.0433	55°			○		
		14W-TF	14			14	0.0091	0.0591	55°			○		
		11W-TF	11			11	0.0118	0.0591	55°			○		
		16E%	19W			TNN32E%	19W	19	-	0.0063	0.0394	55°	○	
		14W	14W	14	14	0.0091	0.0591	55°	○					
		11W	11W	11	11	0.0118	0.0591	55°	○					

Recommended Cutting Conditions **J30**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	J28

Applicable Thread	M: Metric UN: Unified UNF: Unified Fine Thread G (PF): Parallel Pipe	R, Rc (PT), (BSPT): Tapered Pipe W: Whitworth NPT: American National Pipe Tr: 30° Trapezoidal
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PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

INTERNAL THREADING INSERTS

Internal Threading Insert

- Unified (UN)
- 60° Full Profile

					Classification of Usage			P Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes		
					M Stainless Steel					●				
					K Cast Iron									
					N Non-ferrous Metals									
Part Number	Previous Part Number	A	T	Ød			Dimensions (inch)		Angle	Cermet		PVD Coated Carbide	Carbide	
16I%	TNN32I%	9.525	3.68	4.00			rε S		θ	TC60		PR1115	GW15	
Insert					Part Number		Previous Part Number		Applicable Thread	TC60		PR1115	GW15	
Right-handed Insert Shown									UN, UNF	R L		R L	R L	
									Pitch					
									TPI					
Full Profile		16I%	24UN-TF	-	24UN	24	0.0024	0.0315	60°			●		
			20UN-TF			20	0.0031	0.0394	60°			●		
			18UN-TF			18	0.0035	0.0394	60°			●		
			16UN-TF			16	0.0039	0.0433	60°			●		
			14UN-TF			14	0.0047	0.0591	60°			●		
			13UN-TF			13	0.0051	0.0591	60°			●		
			12UN-TF			12	0.0055	0.0591	60°			●		
			10UN-TF			10	0.0067	0.0591	60°			●		
			08UN-TF			8	0.0083	0.0709	60°			●		
			Full Profile				16I%	24UN	TNN32I%	24UN	24	0.0020	0.0315	60°
20UN		20UN		20	0.0028			0.0394	60°	○				
18UN		18UN		18	0.0035			0.0394	60°	○				
16UN		16UN		16	0.0039			0.0433	60°	●				
14UN		14UN		14	0.0047			0.0591	60°	○				
12UN		12UN		12	0.0055			0.0591	60°	●				

Recommended Cutting Conditions ● J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16	● J29

Internal Threading Insert

- Parallel Pipe [G(PF)], Whitworth (W)
- 55° Full Profile

					Classification of Usage			P Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes		
					M Stainless Steel					●				
					K Cast Iron									
					N Non-ferrous Metals									
Part Number	Previous Part Number	A	T	Ød			Dimensions (inch)		Angle	Cermet		PVD Coated Carbide	Carbide	
16I%	TNN32I%	9.525	3.68	4.00			rε S		θ	TC60		PR1115	GW15	
Insert					Part Number		Previous Part Number		Applicable Thread	TC60		PR1115	GW15	
Right-handed Insert Shown									G (PF) W	R L		R L	R L	
									Pitch					
									TPI					
Full Profile		16I%	19W-TF	-	14W	19	-	0.0063	0.0394	55°			○	
			16W-TF			-	16	0.0075	0.0433	55°			○	
			14W-TF			14	14	0.0091	0.0591	55°			○	
			11W-TF			11	11	0.0118	0.0591	55°			○	
Full Profile		16I%	14W	TNN32I%	14W	14	14	0.0091	0.0591	55°	○			
			11W		11W	11	11	0.0118	0.0591	55°	○			

Recommended Cutting Conditions ● J30

● No wiper effect is expected when threading the internal whitworth screw using 16I%OW (TNN32I%OOW) inserts.

Applicable Toolholders

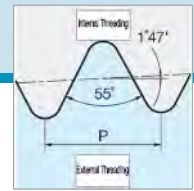
Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16	● J29

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

PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

EXTERNAL THREADING INSERTS



External Threading Insert

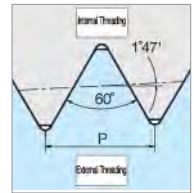
- Tapered Pipe [R, Rc(PT), (BSPT)]
- 55° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Ref. Page for D.O.C. & Number of Passes						
						P	M	K	N	TC60	PR1115	GW15		
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cermet		PVD Coated Carbide		Carbide	
Right-handed Insert Shown						rε	S	θ	R	L	R	L	R	L
16E%	TNN32E%	9.525	3.68	4.00	●	Carbon Steel / Alloy Steel		55°	○		○			
					○	Stainless Steel		55°	○		○			
					○	Cast Iron		55°	○		○			
					○	Non-ferrous Metals		55°	○		○			
								55°	○		○			
								55°	○		○			
								55°	○		○			
								55°	○		○			
								55°	○		○			

Recommended Cutting Conditions **J33**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	J28



External Threading Insert

- American National Pipe [NPT]
- 60° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Ref. Page for D.O.C. & Number of Passes						
						P	M	K	N	TC60	PR1115	GW15		
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cermet		PVD Coated Carbide		Carbide	
Right-handed Insert Shown						rε	S	θ	R	L	R	L	R	L
16E%	TNN32E%	9.525	3.68	4.00	●	Carbon Steel / Alloy Steel		60°	●		○			
					○	Stainless Steel		60°	○		○			
					○	Cast Iron		60°	○		○			
					○	Non-ferrous Metals		60°	○		○			
								60°	○		○			
								60°	○		○			

Recommended Cutting Conditions **J33**

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	J28

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

PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

INTERNAL THREADING INSERTS

Internal Threading Insert

Tapered Pipe [R, Rc(PT), (BSPT)]

55° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Coating		Ref. Page for D.O.C. & Number of Passes						
						P	M	K	N		TC60	PR1115	GW15			
111%	TNN221%	6.350	3.18	3.00	●	Carbon Steel / Alloy Steel		●		J33						
161%	TNN321%	9.525	3.68	4.00		Stainless Steel		●								
						Cast Iron			●							
					Non-ferrous Metals				●							
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cement		PVD Coated Carbide		Carbide			
Right-handed Insert Shown						rε		θ	TC60		PR1115		GW15			
						S			R		L	R	L	R	L	
						TPI										
Full Profile				111%	28BSPT-TF	-	28	0.0039	0.0236		55°			○		
				19BSPT-TF	19		0.0063	0.0307	55°				○			
				14BSPT-TF	14		0.0087	0.0382	55°				○			
				161%	14BSPT-TF	-	14	0.0087	0.0382		55°			○		
				11BSPT-TF	11		0.0114	0.0591	55°			○				
				111%	28BSPT	TNN221%	28PT	28	0.0039	0.0236	55°	○			○	
				19BSPT	19PT	19	0.0063	0.0307	55°	○			○			
				14BSPT	14PT	14	0.0087	0.0382	55°	○			○			
				161%	14BSPT	TNN321%	14PT	14	0.0087	0.0382	55°	○			○	
				11BSPT	11PT	11	0.0114	0.0591	55°	○			○			

Recommended Cutting Conditions J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
111R ..	SINR...-11E SINR...-11	J29
161R ..	SINR...-16	

Internal Threading Insert

American National Pipe [NPT]

60° Full Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Coating		Ref. Page for D.O.C. & Number of Passes						
						P	M	K	N		TC60	PR1115	GW15			
16E%	TNN32E%	9.525	3.68	4.00	●	Carbon Steel / Alloy Steel		●		J33						
						Stainless Steel		●								
						Cast Iron			●							
					Non-ferrous Metals				●							
Insert		Part Number		Previous Part Number		Dimensions (inch)		Angle	Cement		PVD Coated Carbide		Carbide			
Right-handed Insert Shown						rε		θ	TC60		PR1115		GW15			
						S			R		L	R	L	R	L	
						TPI										
Full Profile				161%	18NPT	TNN321%	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 J30

Applicable Toolholders

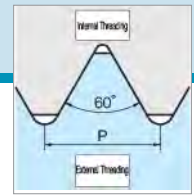
Part Number	Applicable Toolholders	Ref. Page for Toolholder
161R...	SINR...-16	J29

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

PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T



External Threading Insert

- Metric (M), Unified (UN)
- 60° Partial Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P		rε	S	Angle	Cermet	PVD Coated Carbide	Carbide	Ref. Page for D.O.C. & Number of Passes
						Carbon Steel / Alloy Steel	Stainless Steel							
16E%	TNN32E%	9.525	3.68	4.00		M	Carbon Steel / Alloy Steel	0.06	1.00	60°				
						M	Stainless Steel	0.22	1.60	60°				
						K	Cast Iron							
						N	Non-ferrous Metals							

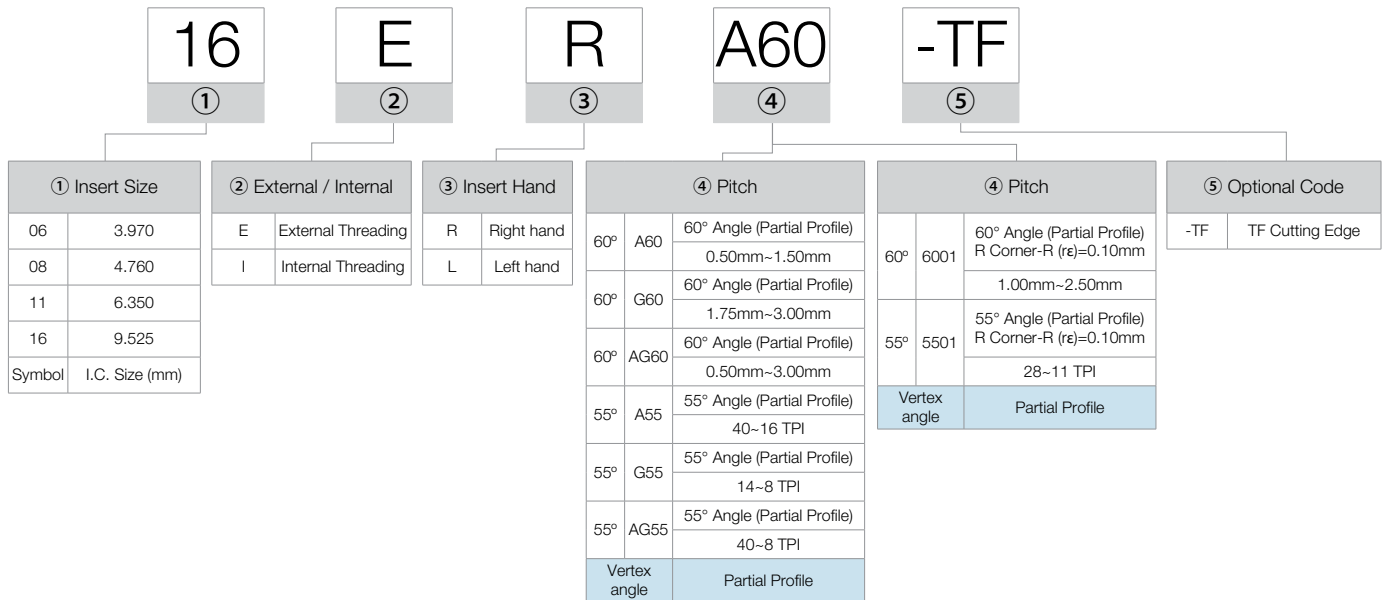
Insert	Part Number	Previous Part Number	Applicable Thread		Dimensions (mm)		Angle	Cermet	PVD Coated Carbide	Carbide	Ref. Page for D.O.C. & Number of Passes
			M	UN UNF	rε	S					
			Pitch								
 Right-handed Insert Shown	16E% A60-TF	-	0.50~1.50	48~16	0.06	1.00	60°				
	G60-TF	-	1.75~3.00	14~8	0.22	1.60	60°				
	AG60-TF	-	0.50~3.00	48~8	0.06	1.60	60°				
 Left-handed Insert Shown	16E% A60	-	0.50~1.50	48~16	0.06	1.00	60°				
	G60	-	1.75~3.00	14~8	0.22	1.60	60°				
	AG60	-	0.50~3.00	48~8	0.06	1.60	60°				
	16E% 6001	TNN32E% 6001	1.00~2.50	24~11	0.10	1.50	60°				
16E% 6002	TNN32E% 6002	1.50~2.50	16~11	0.20	1.50	60°					

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	● J28

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) ● J22 - ● J25



● Example of shape of A, G and AG

	Part Number	Dimensions (mm)		
		rε	S	H
	16ER A60-TF	0.06	1.00	1.50
	16ER G60-TF	0.22	1.60	2.60
16ER AG60-TF	0.06	1.60	2.70	

Note: Pitch and threads per inch of an insert without wiper depend on the size of insert.

Corner-R (rε) Selection for Partial Profiling Inserts

	External Threading	Internal Threading
External Threading	rε ≤ 0.1443P	rε ≤ 0.0720P
Parallel Pipe Whitworth Tapered Pipe	For Both External and Internal Thread rε ≤ 0.1373P	

- Metric, Unified Thread
Corner-R (rε) at Internal Threading is almost half of that of External.
- Parallel Pipe, Tapered Pipe, Whitworth Thread
Same Corner-R (rε) for both External and Internal Threading.

rε : Corner-R P : Pitch (= $\frac{25.4}{n}$) n : TPI

PR115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

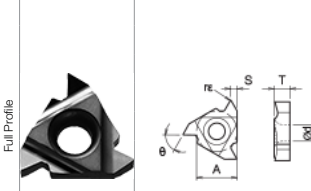
INTERNAL THREADING INSERTS

Internal Threading Insert

● Metric (M), Unified (UN)

● 60° Partial Profile

(mm)

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel	●		Ref. Page for D.O.C. & Number of Passes					
061%	TNN061%	3.970	1.91	2.30		M	Stainless Steel		●						
081%	TNN081%	4.760	2.38	2.30	K	Cast Iron			●						
111%	TNN221%	6.350	3.18	3.00	N	Non-ferrous Metals			●						
161%	TNN321%	9.525	3.68	4.00	Applicable Thread		Dimensions (mm)		Angle	Cermet	PVD Coated Carbide	Carbide			
Insert Right-handed Insert Shown		Part Number	Previous Part Number	M		UN UNF	rε	S	θ	TC60	PR1115	GW15			
				Pitch						R	L	R	L	R	L
				mm	TPI										
	111%	A60		0.50~1.50	48~16	0.02	1.00	60°			●		○		
	161%	A60		0.50~1.50	48~16	0.02	1.00	60°			●		○		
	G60			1.75~3.00	14~8	0.11	1.70	60°			●		○		
	AG60			0.50~3.00	48~8	0.02	1.70	60°			●		●		
	061%	60005	TNN061%	60005	0.75~1.25	28~20	0.05	0.60	60°			○			
	081%	60007	TNN081%	60007	1.00~1.75	20~16	0.07	0.80	60°			●			
	111%	60005	TNN221%	60005	0.75~1.50	32~16	0.05	1.00	60°	○					
	161%	6001	TNN321%	6001	1.50~2.50	16~10	0.10	1.50	60°	○					
		60015		60015	2.50	11~10	0.15	1.50	60°	○					

Recommended Cutting Conditions ● J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
061R...	SINR...-06E	● J29
081R...	SINR...-08E	
111R...	SINR...-11E SINR...-11	
161R...	SINR...-16	

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

PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)

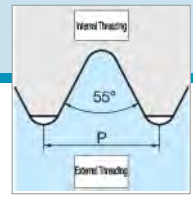
(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

KYOCERA

J23

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

EXTERNAL THREADING INSERTS



External Threading Insert

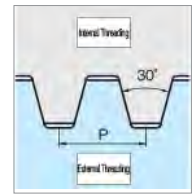
- Parallel Pipe [G(PF)], Tapered Pipe [R, (PT), (BSPT)], Whitworth (W)
- 55° Partial Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Cement	PVD Coated Carbide	Carbide	Ref. Page for D.O.C. & Number of Passes								
						P	M												
16E%	TNN32E%	9.525	3.68	4.00	●	Carbon Steel / Alloy Steel	●												
					○	Stainless Steel	●												
						Cast Iron				●									
						Non-ferrous Metals				●									
Insert		Part Number		Previous Part Number		Applicable Thread		Dimensions (mm)		Angle	TC60		PR1115		GW15				
Right-handed Insert Shown						G(PF) R(PT)	W	rε	S	θ	R	L	R	L	R	L			
Full Profile						Pitch TPI													
		16E%	A55-TF	-		28, 19	40~16	0.06	1.00	55°			○						
			G55-TF			14, 11	14~8	0.22	1.60	55°				○					
			AG55-TF			28~11	40~8	0.06	1.60	55°					○				
		16E%	A55	-		28, 19	40~16	0.06	1.00	55°					○				
			G55			14, 11	14~8	0.22	1.60	55°					○				
			AG55			28~11	40~8	0.06	1.60	55°						○			
		16E%	5501			TNN32E%	5501	28~11	24~10	0.10	1.50	55°					○		
			5502			5502	14, 11	16~9	0.15	1.50	55°						○		

Recommended Cutting Conditions → J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	→ J28



External Threading Insert

- Trapezoidal
- 30° Partial Profile

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	Material		Cement	PVD Coated Carbide	Carbide	Ref. Page for D.O.C. & Number of Passes					
						P	M									
16E--	TNN32E%	9.525	3.68	4.00	●	Carbon Steel / Alloy Steel	●									
					○	Stainless Steel	●									
						Cast Iron										
						Non-ferrous Metals										
Insert		Part Number		Previous Part Number		Applicable Thread		Dimensions (mm)		Angle	TC60		PR1115		GW15	
Right-handed Insert Shown						Tr		rε	S	θ	R	L	R	L	R	L
Full Profile						Pitch mm										
		16E%	200TR	TNN32E%	200TR	2.00		0.20	1.60	30°	○		○			
			300TR	300TR	3.00		0.20	1.60	30°	○			○			

Recommended Cutting Conditions → J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16ER...	KTNR...-16 KTNSR...-16	→ J28

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

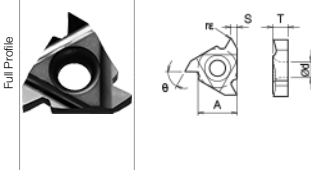
PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

INTERNAL THREADING INSERTS

Internal Threading Insert

- Parallel Pipe [G(PF)], Tapered Pipe [Rc, (PT), (BSPT)], Whitworth (W)
- 55° Partial Profile (mm)

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes	
Insert						Applicable Thread	Dimensions (mm)	Angle	Cermet	PVD Coated Carbide		Carbide
Right-handed Insert Shown					G(PF) Rc(PT) Pitch TPI	W	rε	S	θ	TC60 R L	PR1115 R L	GW15 R L
061%	TNN061%	3.970	1.91	2.30								
081%	TNN081%	4.760	2.38	2.30								
111%	TNN221%	6.350	3.18	3.00								
161%	TNN321%	9.525	3.68	4.00								
	111%	A55			28, 19	40~16	0.06	1.00	55°		○	○
	161%	A55			28, 19	40~16	0.06	1.00	55°		○	○
		G55			14, 11	14~8	0.22	1.70	55°		○	○
		AG55			28~11	40~8	0.06	1.70	55°		○	○
	061%	5501	TNN061%	5501	28	24	0.10	0.60	55°		○	
	081%	5501	TNN081%	5501	28, 19	24, 20	0.10	0.80	55°		○	
	111%	55005	TNN221%	55005	28~14	24~14	0.05	1.10	55°	○		
	161%	5501	TNN321%	5501	28~11	24~11	0.10	1.50	55°	○		
	5502		5502	14~11	16~11	0.20	1.50	55°	○			

Recommended Cutting Conditions J30

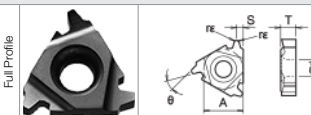
Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
06IR...	SINR...-06E	J29
08IR...	SINR...-08E	
11IR...	SINR...-11E SINR...-11	

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16	J29

Internal Threading Insert

- Trapezoidal
- 30° Partial Profile (mm)

Part Number	Previous Part Number	A	T	Ød	Classification of Usage ● : Continuous / 1st Choice ○ : Continuous / 2nd Choice	P	Carbon Steel / Alloy Steel		●		Ref. Page for D.O.C. & Number of Passes
Insert						Applicable Thread	Dimensions (mm)	Angle	Cermet	PVD Coated Carbide	
Right-handed Insert Shown					Tr Pitch mm	rε	S	θ	TC60 R L	PR1115 R L	GW15 R L
161%	TNN321%	9.525	3.68	4.00							
	161%	200TR	TNN321%	200TR	2.00	0.20	1.60	30°		○	○
		300TR		300TR	3.00	0.20	1.60	30°		○	○

Recommended Cutting Conditions J30

Applicable Toolholders

Part Number	Applicable Toolholders	Ref. Page for Toolholder
16IR...	SINR...-16	J29

Applicable Thread	M: Metric UN: Unified UNF: Unified Fine Thread G (PF): Parallel Pipe	R, Rc (PT), (BSPT): Tapered Pipe W: Whitworth NPT: American National Pipe Tr: 30° Trapezoidal
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PR1115/GW15 Threading Inserts are sold in 5 piece boxes.

All other grade inserts are sold in 10 piece boxes.

GRADES A
INSERTS B
CBN & PCD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

CERA-NOTCH EXTERNAL THREADING INSERTS

Cera-Notch External Threading Insert

KCT / KCTP / KCTK

NEW

Shape	Part Number	Applicable Thread	Pitch	Dimensions (inch)							Angle θ	Insert Grade		Ref. Page for Toolholder
				TPI	A	T	R	E	S	L		Cermet	MEGA COAT CVD	
												TC60	PR1215	
	KCT 2% M UN	External 8-36 Internal 7-20	0.219	0.150	0.004	0.266	0.075	0.350	60°	●	●	J27		
			0.344	0.195	0.007	0.400	0.098	0.634	60°	●	●			
	KCTP 2% M UN	External 8-36 Internal 7-20	0.219	0.150	0.004	0.266	0.075	0.350	60°	●	●			
			0.344	0.195	0.007	0.400	0.098	0.634	60°	●	●			
	KCTK 2% M UN	External 14-44 Internal 12-24	0.219	0.150	0.003	0.268	0.110	0.350	60°	●	●			
			0.344	0.195	0.003	0.402	0.141	0.634	55°	●	●			

Cera-Notch Conversion Table

Notch / Lock Style Inserts Conversion

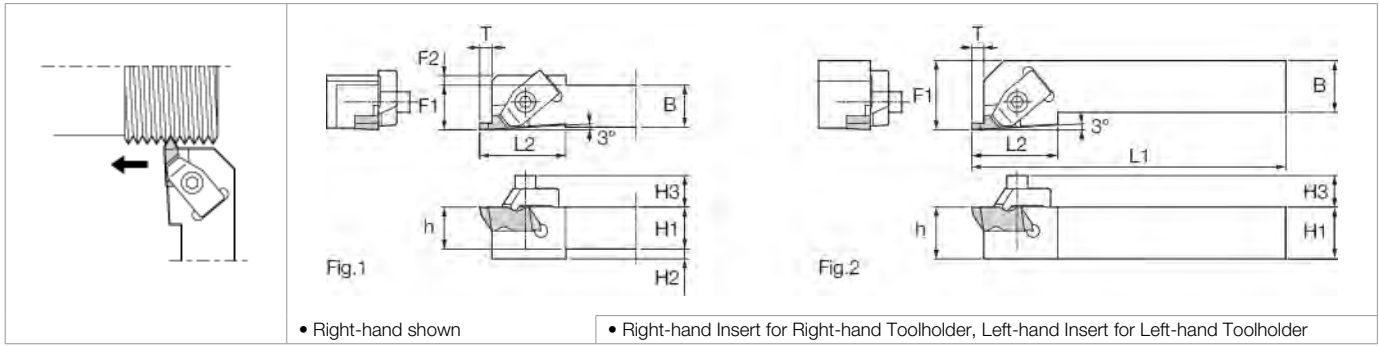
Notch Style Grooving Inserts								
Inserts Style	Kyocera	Horizon	Tool-Flo	Kennametal	RTW	Valentine	Sandvik	Mitsubishi
Face Grooving	KCFP	HF	FLF	NF	-	-	TLF*	EF
ID or OD Grooving	KCG / KCGP	HG	FLG	NG	PG	VLG	TLG*	EG
With Chipbreaker	KCGP-MY	HG-K	FLG CB	NG-K	PG-K	-	-	EG-K
Deep Grooving	KCGDP	HGD	FLGD	NGD	PGD	-	-	EGD
Positive Grooving	KCGP	HGP	FLGP	NGP	-	VLGP	TLGP*	EGP
Full Nose Radius	KCRP	HR	FLR	NR	PR	VLR	TLR*	EGR
Positive Full Nose Radius	KCRP	HRP	FLRP	NRP	PRP	VLRP	TLRP*	-

Notch Style Threading Inserts								
Inserts Style	Kyocera	Horizon	Tool-Flo	Kennametal	RTW	Valentine	Sandvik	Mitsubishi
Face Grooving	KCT	HT	FLT	NT	PT	VLT	TLT*	ET
ID or OD Grooving	KCTK	HTK	FLTK	NTK	PTK	VLTK	TLTK*	-
With Chipbreaker	KCTP	HTP	FLTP	NTP	PTP	VLTP	TLTP*	-

* Sandvik uses a different clamp system. Requires Kyocera or any other standard clamp from competitor.

CERA-NOTCH EXTERNAL THREADING TOOLHOLDER

■ KKC



● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions									Drawing	Spare Parts		
	R	L		H1=h	H2	H3	B	L1	L2	F1	F2	T		Clamp	Clamp Bolt	Wrench
KKC% 1212M-2-150F	●		mm (inch)	12 (0.472)	-	9.2 (0.362)	12 (0.472)	150 (5.906)	19.05 (0.750)	12.25 (0.482)	-	3.5 (0.126)	Fig.1	CKC-2%	SKC-2	(7/64 hex)
KKC% 6-2X	●	●	Inch	0.375	-	0.362	0.375	2.500	0.750	0.562	-	0.138	Fig. 2	CKC-2%	SKC-2	(7/64 hex)
6-2CF	●	●		0.375	0.125	0.362	0.375	5.000	0.750	0.385	0.125	0.138	Fig. 1			
8-2X	●	●		0.500	-	0.362	0.500	3.500	0.750	0.750	-	0.138	Fig. 2			
8-2DF	●	●		0.500	-	0.362	0.500	6.000	0.750	0.510	-	0.138	Fig. 1			
10-2DF	●	●		0.625	-	0.362	0.625	6.000	0.750	0.635	-	0.138	Fig. 1			

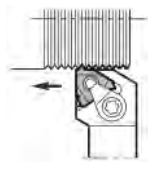
- Clamp : KKC-OR for right-hand toolholder, CKC-OL for left-hand toolholder
- Spare parts items marked in () are not included with toolholder

● Applicable Inserts

Part Number	Applicable Inserts	Ref. Page for Inserts
KKC% ...2-	KCT-2% KCTK-2%, KCTP-2%	J26

GRADES **A**
INSERTS **B**
CBN & PCD **C**
TURNING **E**
BORING **F**
GRINDING **G**
CUT-OFF **H**
THREADING **J**
SOLID END MILLS **L**
MILLING **M**
SPARE PARTS **P**
TECHNICAL **R**
INDEX **T**

KTN



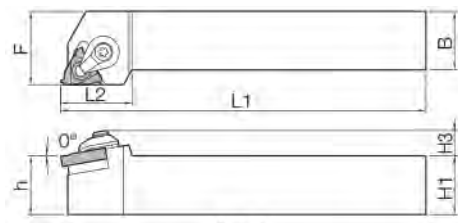
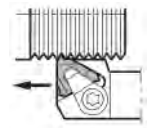
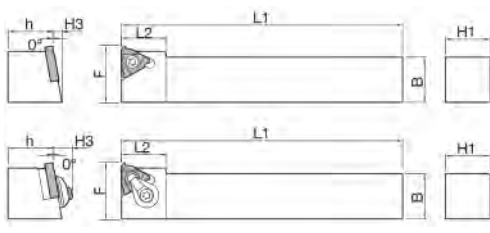


Fig. 1

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

KTNS (For Gang Type NC Lathe)





KTNSR1010H-16
1212K-16








Fig. 2

KTNSR1616K-16
2020K-16

Fig. 3

- Thread to shoulder
- Right-hand shown
- Right-hand Insert for Right-hand Toolholder.

Toolholder Dimensions

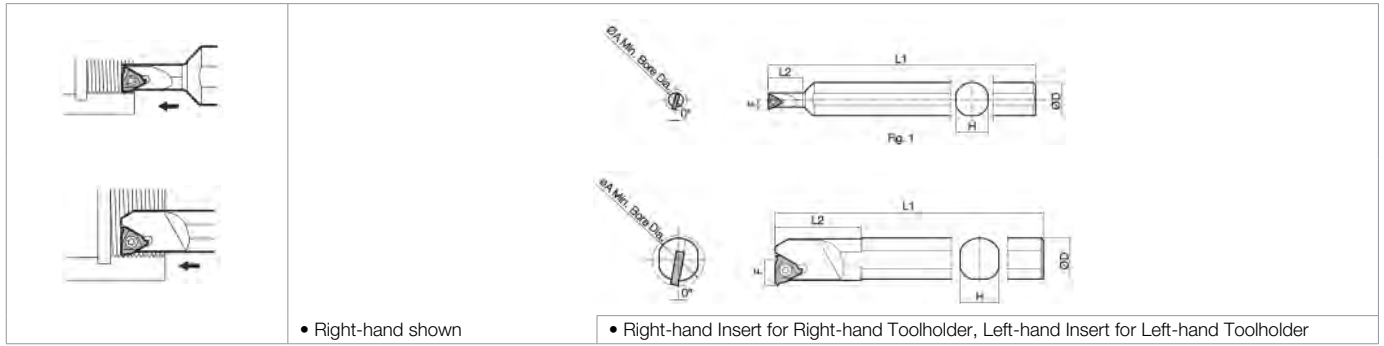
Part Number	Stock		Dimensions						Drawing	Spare Parts					Applicable Inserts
	R	L	H1=h	H3	B	L1	L2	F		Clamp Set	Clamp Screw	Wrench	Clamp Screw	Shim Screw	
															
KTN% 1616H-16 2020H-16* 2020K-16	○	○	16	8.50	16	100	25	20.0	Fig.1	CPS-5S	-	FT-15	TN-32	SP3X8	16E%
	○		20	8.50	20	100	25	25.0	Fig.1	CPS-5S	-	FT-15	TN-32	SP3X8	
	○	○	20	8.50	20	125	25	25.0	Fig.1	CPS-5S	-	FT-15	TN-32	SP3X8	
KTNS% 1010H-16 1212K-16 1616K-16 2020K-16	○		10	8.50	10	100	16	16.0	Fig.2	-	SB-3.5TR	FT-15	-	-	16E%
	○		12	8.50	12	125	18	18.0	Fig.2	-	SB-3.5TR	FT-15	-	-	
	○		16	8.50	16	125	18	22.0	Fig.3	CPS-5S	-	FT-15	TN-32	SP3X8	
	○		20	8.50	20	125	20	27.4	Fig.3	CPS-5S	-	FT-15	TN-32	SP3X8	

* Mark indicates short shank type.

Reference page for applicable inserts

Applicable Thread	Full Profile	Partial Profile	Applicable Thread	Full Profile	Partial Profile
M: Metric	➔ J16	➔ J22	R (PT), (BSPT): Tapered Pipe	➔ J20	➔ J24
UN: Unified	➔ J18	➔ J22	W: Whitworth	➔ J18	➔ J24
UNF: Unified Fine Thread	➔ J18	➔ J22	NPT: American National Pipe	➔ J20	-
G (PF): Parallel Pipe	➔ J18	➔ J24	Tr: 30° Trapezoidal	-	➔ J24

SIN



Toolholder Dimensions

Part Number	Stock		Min. Bore Dia. ØA mm (inch)	Dimensions (mm)					Insert	Spare Parts		Applicable Inserts
	Ø	○		ØD	H	L1	L2	F		Clamp Screw	Wrench	
SIN% 0612S-06E	○		6.40 (0.252)	12	11	100	10	3.80	Fig.1	SB-2040TR	FT-6	06 IR...
0816S-08E	○		7.80 (0.307)	16	15	125	16	4.00	Fig.1	SB-2050TR	FT-6	08 IR...
NEW 1216S-11E	○	○	12.00 (0.472)	16	14	150	25	6.30	Fig.1	SB-2TR	FT-8	11 1/2 ...
1516S-11	○	○	15.00 (0.591)	16	14	150	30	7.50	Fig.1	SB-2TR	FT-8	11 1/2 ...
1616S-16	○		16.00 (0.630)	16	14	150	32	8.60	Fig.2	SB-3.5TR	FT-15	16 1/2 ...
2016S-16	○	○	20.00 (0.787)	16	14	150	37	10.00	Fig.2	SB-3.5TR	FT-15	16 1/2 ...

Reference page for applicable inserts

Applicable Thread	Full Profile	Partial Profile	Applicable Thread	Full Profile	Partial Profile
M: Metric	➔ J17	➔ J23	R (PT), (BSPT): Tapered Pipe	➔ J21	➔ J25
UN: Unified	➔ J19	➔ J23	W: Whitworth	➔ J19	➔ J25
UNF: Unified Fine Thread	➔ J19	➔ J23	NPT: American National Pipe	➔ J21	-
G (PF): Parallel Pipe	➔ J19	➔ J25	Tr: 30° Trapezoidal	-	➔ J25

Guide for Internal Threading

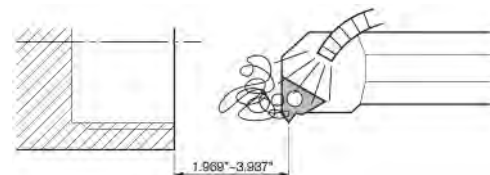
For internal threading, pay extra attention to "Stabilizing diameters of pre-drilled holes" and "chip evacuation".

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.



KTN / KTNS / SIN

Workpiece Material	Recommended Insert Grade (Vc sfm)			
	Cermet	PVD Coated Carbide		Carbide
	TC60	PR930	PR1115	GW15 (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	-	-	-	★ 150-400
Initial D.O.C. (Radial)	-	-	-	0.0118" or less
Brass	-	-	-	★ 150-300
Initial D.O.C. (Radial)	-	-	-	0.0118" or less

- ★ : 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.

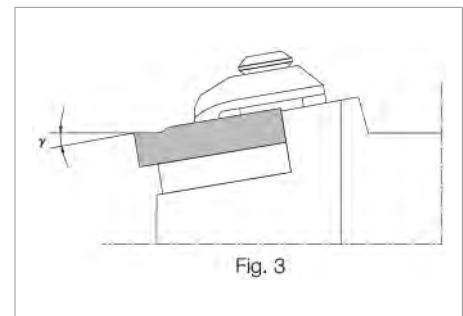
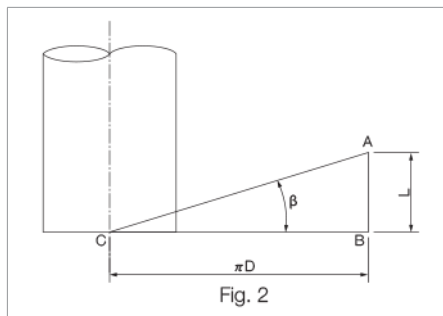
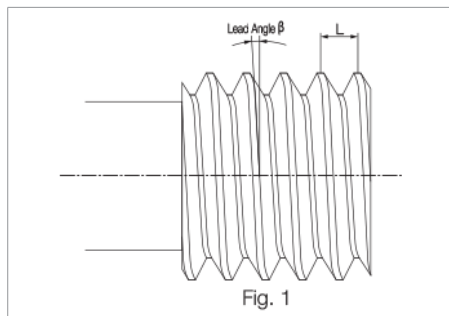
° For 061R/081R, please lower it to a figure under 40% of above conditions.

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.

$$\tan \beta = \frac{L}{\pi D} = \frac{nP}{\pi D}$$

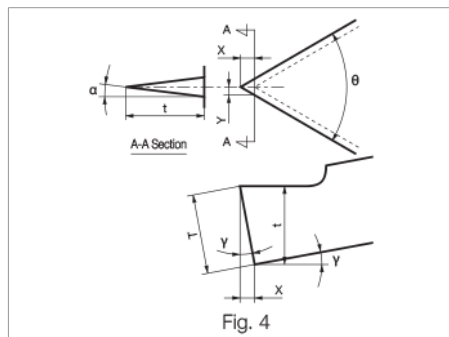
β: Lead Angle D: Pitch Dia. n: Number of Thread (such as double-start thread) P: Pitch
L: Lead (In case of single-start thread, it is equal to P. In case of n-start thread, it is equal to nxP)



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°
θ: Insert's Thread Angle	Metric : 60° Tapered Pipe : 55° 30° Trapezoidal : 30°
T: Insert Thickness	

$$\begin{cases} X = T \sin \gamma \\ Y = X \tan \left(\frac{\theta}{2} \right) = t \tan \alpha \\ t = T \cos \gamma \end{cases}$$

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 α + 1°.

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'

TTX Type 60°/55° (Partial Profile)

(D.O.C. shows the value of radial ap.)

Thread Type	Pitch	Part Number	rε	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		
	mm & TPI																		
Metric	External Threading	0.50mm TTX32R 6000	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02								
		0.50mm 6000S	0.00	0.38	6	0.10	0.10	0.07	0.05	0.04	0.02								
		0.50mm 60005	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02									
		0.50mm 60005S	0.05	0.33	5	0.10	0.10	0.07	0.04	0.02									
		0.70mm TTX32R 6000	0.00	0.53	7	0.10	0.10	0.10	0.08	0.07	0.06	0.02							
		0.70mm 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						
		0.75mm 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						
		0.80mm 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						
		1.00mm 60005	0.05	0.71	7	0.18	0.15	0.12	0.10	0.08	0.06	0.02							
		1.00mm 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							
		1.50mm 6001	0.10	1.04	9	0.25	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.02					
		1.75mm 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				
2.00mm 6001	0.10	1.42	11	0.25	0.23	0.20	0.16	0.13	0.10	0.10	0.08	0.07	0.05	0.02	0.02	0.02	0.02		
(60°) Parallel Pipe	External Threading	28 TPI TTX32R 5501	0.0039	0.0240	5	0.008	0.007	0.006	0.002	0.001									
		19 TPI TTX32R 5501	0.0039	0.0374	8	0.008	0.007	0.006	0.005	0.005	0.004	0.002	0.001						
		19 TPI 55015	0.0059	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001							
		14 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				
		11 TPI 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		
		11 TPI 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		
(55°) Whitworth	External Threading	24 TPI TTX32R 5501	0.0039	0.0287	6	0.008	0.007	0.006	0.005	0.002	0.001								
		20 TPI TTX32R 5501	0.0039	0.0354	7	0.008	0.007	0.006	0.006	0.005	0.003	0.001							
		20 TPI TTX32R 55015	0.0059	0.0331	7	0.008	0.007	0.006	0.005	0.004	0.002	0.001							
		18 TPI TTX32R 55015	0.0059	0.0374	8	0.008	0.007	0.006	0.006	0.005	0.004	0.002	0.001						
		16 TPI 55015	0.0059	0.0433	9	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.002	0.001					
		14 TPI 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				
		12 TPI 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			
		11 TPI 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		

<How to use>

- 1) Select the insert with suitable corner-R (rε) determined by the pitch.
- 2) Do not exceed 0.0118" for the 1st D.O.C.
- 3) Final D.O.C. for Finishing shall be 0.0008" - 0.0020".
- 4) Pre chamfer thread diameter to thread minor diameter to improve insert life.
- 5) Coolant is recommended.

TTX Type

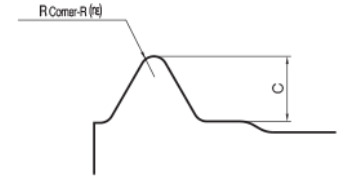
Suitable for threading to the shoulder.

Insert Part Number	Thread Type	Metric (mm)	Unified TPI	Parallel Pipe TPI	Whitworth TPI
TTX32R	6000	0.5~1.0	56~32	-	-
	60005	0.5~1.0	48~32	-	-
	6001	1.0~2.0	28~14	-	-
TTX32R	6000S	0.5	56~48	-	-
	60005S	0.5	48	-	-
TTX32R	5501	-	-	28~19	24~20
	55015	-	-	19~11	20~14

GRADES A
 INSERTS B
 CBN & PCD C
 TURNING E
 BORING F
 GROOVING G
 CUT-OFF H
 THREADING J
 SOLID END MILLS L
 MILLING M
 SPARE PARTS P
 TECHNICAL R
 INDEX T

◆ Usage caution for Full Profile insert.

- 1) Max.ap is based on the value of C+0.0020"-C+0.0031".
- 2) Final D.O.C. for Finishing shall be 0.0008"-0.0020".
- 3) Pre chamfer thread diameter to thread minor diameter to improve insert life.
- 4) Coolant is recommended.



(D.O.C. shows the value of radial D.O.C.)

■ 11 / 16 Type (Full Profile)

Thread Type	Pitch	Part Number	C	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			
	mm & TPI																					
Metric	External Threading	1.00mm 16E% 100ISO-TF	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
		1.25mm 125ISO-TF	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
		1.50mm 150ISO-TF	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
		1.75mm 175ISO-TF	1.11	1.19	8	0.26	0.22	0.19	0.16	0.13	0.10	0.08	0.05									
		2.00mm 200ISO-TF	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							
		2.50mm 250ISO-TF	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05					
		3.00mm 300ISO-TF	1.87	1.95	14	0.26	0.24	0.22	0.20	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.02			
		0.50mm 16E% 050ISO	0.33	0.38	4	0.14	0.12	0.08	0.04													
		0.75mm 075ISO	0.48	0.53	5	0.17	0.14	0.10	0.08	0.04												
		1.00mm 100ISO	0.64	0.72	5	0.23	0.19	0.15	0.10	0.05												
		1.25mm 125ISO	0.80	0.88	6	0.26	0.21	0.16	0.12	0.08	0.05											
		1.50mm 150ISO	0.95	1.03	6	0.26	0.24	0.21	0.16	0.11	0.05											
	2.00mm 200ISO	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								
	2.50mm 250ISO	1.57	1.65	12	0.26	0.23	0.21	0.18	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.05						
	Metric	Internal Threading	1.00mm 11I% 100ISO-TF	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04											
			1.25mm 125ISO-TF	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04									
			1.50mm 150ISO-TF	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05								
			1.75mm 175ISO-TF	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05							
			0.50mm 11I% 050ISO	0.31	0.36	4	0.14	0.10	0.08	0.04												
			0.75mm 075ISO	0.45	0.50	5	0.15	0.14	0.10	0.07	0.04											
			1.00mm 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04											
			1.25mm 125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04									
			1.50mm 150ISO	0.88	0.96	8	0.24	0.18	0.14	0.10	0.10	0.08	0.07	0.05								
			1.75mm 175ISO	1.02	1.10	9	0.24	0.18	0.16	0.14	0.10	0.10	0.08	0.05	0.05							
2.00mm 200ISO			1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05							
1.00mm 16I% 100ISO-TF			0.60	0.68	5	0.20	0.18	0.15	0.11	0.04												
1.25mm 125ISO-TF		0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04											
1.50mm 150ISO-TF		0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05										
1.75mm 175ISO-TF		1.02	1.10	9	0.22	0.18	0.16	0.14	0.12	0.10	0.08	0.05	0.05									
2.00mm 200ISO-TF		1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05								
2.50mm 250ISO-TF		1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05						
3.00mm 300ISO-TF		1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02			
Unified		External Threading	1.00mm 16E% 100ISO	0.60	0.68	5	0.20	0.18	0.15	0.11	0.04											
			1.25mm 125ISO	0.74	0.82	7	0.20	0.18	0.14	0.12	0.08	0.06	0.04									
			1.50mm 150ISO	0.88	0.96	8	0.22	0.18	0.14	0.12	0.10	0.08	0.07	0.05								
			2.00mm 200ISO	1.18	1.26	10	0.24	0.20	0.18	0.14	0.12	0.10	0.10	0.08	0.05	0.05						
			2.50mm 250ISO	1.46	1.54	12	0.26	0.22	0.18	0.16	0.14	0.12	0.10	0.10	0.08	0.08	0.05	0.05				
			3.00mm 300ISO	1.76	1.84	14	0.26	0.24	0.21	0.18	0.16	0.15	0.13	0.12	0.10	0.10	0.07	0.05	0.05	0.05	0.02	
	24 TPI 16E% 24UN-TF		0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002												
	20 TPI 20UN-TF		0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002											
	18 TPI 18UN-TF		0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002											
	16 TPI 16UN-TF		0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002										
	14 TPI 14UN-TF		0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002									
	13 TPI 13UN-TF		0.0488	0.0520	9	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.003	0.002								
	12 TPI 12UN-TF	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002							
	10 TPI 10UN-TF	0.0626	0.0657	12	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.004	0.003	0.002	0.002				
	8 TPI 08UN-TF	0.0780	0.0811	14	0.010	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002			
	Unified	External Threading	24 TPI 16E% 24UN	0.0264	0.0295	5	0.009	0.008	0.006	0.004	0.002											
			20 TPI 20UN	0.0315	0.0346	6	0.009	0.008	0.006	0.005	0.004	0.002										
			18 TPI 18UN	0.0350	0.0382	6	0.010	0.009	0.007	0.006	0.004	0.002										
			16 TPI 16UN	0.0398	0.0429	7	0.010	0.009	0.007	0.006	0.005	0.004	0.002									
			14 TPI 14UN	0.0453	0.0484	8	0.010	0.009	0.007	0.006	0.006	0.005	0.004	0.002								
			12 TPI 12UN	0.0528	0.0559	11	0.010	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002					
		Internal Threading	24 TPI 16I% 24UN-TF	0.0244	0.0276	5	0.009	0.008	0.006	0.004	0.002											
			20 TPI 20UN-TF	0.0295	0.0327	6	0.009	0.008	0.006	0.005	0.003	0.002										
			18 TPI 18UN-TF	0.0327	0.0358	6	0.009	0.008	0.007	0.006	0.004	0.002										
16 TPI 16UN-TF			0.0370	0.0402	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002										
14 TPI 14UN-TF			0.0421	0.0453	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002									
13 TPI 13UN-TF			0.0453	0.0484	9	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002								
Unified	External Threading	12 TPI 12UN-TF	0.0488	0.0520	11	0.009	0.009	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002						
		10 TPI 10UN-TF	0.0583	0.0614	12	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.004	0.003	0.002	0.002			
		8 TPI 08UN-TF	0.0732	0.0764	14	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002		
		24 TPI 16I% 24UN	0.0244	0.0276	5	0.009	0.008	0.006	0.004	0.002												
		20 TPI 20UN	0.0295	0.0327	6	0.009	0.008	0.006	0.005	0.003	0.002											
		18 TPI 18UN	0.0327	0.0358	6	0.009	0.007	0.006	0.006	0.004	0.002											
	Internal Threading	16 TPI 16UN	0.0370	0.0402	7	0.009	0.008	0.007	0.006	0.004	0.004	0.002										
		14 TPI 14UN	0.0421	0.0453	8	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.002									
		13 TPI 13UN-TF	0.0453	0.0484	9	0.009	0.009	0.007	0.006	0.005	0.004	0.004	0.003	0.002								
		12 TPI 12UN-TF	0.0488	0.0520	11	0.009	0.009	0.006	0.006	0.005	0.004	0.004	0.003	0.003	0.002	0.002						
		10 TPI 10UN-TF	0.0583	0.0614	12	0.009	0.009	0.008	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.004	0.003	0.002	0.002			
		8 TPI 08UN-TF	0.0732	0.0764	14	0.009	0.009	0.008	0.007	0.006	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002		

60° • 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

A	GRADES	Thread Type	Pitch mm & TPI	Part Number	r _e	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				
								Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
B	INSERTS	Metric	Internal Threading	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	0.03												
				1.00mm	06IR 60005	0.05	0.60	12	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.03								
				1.00mm	08IR 60007	0.07	0.58	12	0.07	0.06	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	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03						
				1.25mm	08IR 60007	0.07	0.74	14	0.07	0.07	0.07	0.06	0.06	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	0.06	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	0.07	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	
				0.50mm	11IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																	
				1.00mm	A60	0.02	0.63	6	0.16	0.14	0.12	0.10	0.07	0.04																
				1.50mm	A60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04													
C	CBN & PCD	Metric	Internal Threading	0.50mm	16IR A60	0.02	0.30	5	0.08	0.07	0.06	0.05	0.04																	
				0.50mm	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																
				0.75mm	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																
				1.00mm	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															
				1.25mm	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													
				1.50mm	AG60	0.02	0.95	9	0.18	0.16	0.13	0.12	0.10	0.08	0.08	0.06	0.04													
E	TURNING	Metric	Internal Threading	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													
				1.75mm	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												
				2.00mm	AG60	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										
				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	0.08	0.06	0.05	0.04	0.04	0.02								
				2.50mm	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	0.05	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	0.12	0.10	0.10	0.08	0.07	0.06	0.04	0.02						
				3.00mm	AG60	0.02	1.93	18	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.10	0.10	0.08	0.07	0.06	0.05	0.04	0.03	0.02				
				F	BORING	Metric	Internal Threading	48 TPI	16ER A60-TF	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002													
								48 TPI	AG60-TF	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															
24 TPI	AG60-TF	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														
20 TPI	AG60-TF	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														
18 TPI	AG60-TF	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												
16 TPI	AG60-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												
G	GROOVING	Metric	Internal Threading	14 TPI	16ER G60-TF	0.0087	0.0453	9	0.008	0.007	0.006	0.005	0.004	0.003	0.003	0.002	0.002													
				14 TPI	AG60-TF	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													
				13 TPI	AG60-TF	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												
				12 TPI	AG60-TF	0.0024	0.0610	12	0.009	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.003	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	0.006	0.005	0.004	0.003	0.002	0.002										
				10 TPI	AG60-TF	0.0024	0.0736	13	0.010	0.009	0.008	0.007	0.006	0.006	0.005	0.004	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	0.004	0.003	0.002	0.002									
				9 TPI	AG60-TF	0.0024	0.0819	14	0.011	0.009	0.009	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002							
H	CUT-OFF	Metric	Internal Threading	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	0.005	0.004	0.004	0.004	0.004	0.003	0.002							
				8 TPI	AG60-TF	0.0024	0.0925	16	0.012	0.010	0.009	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.002	0.002					
				48 TPI	16ER A60	0.0024	0.0138	5	0.004	0.003	0.003	0.002	0.002																	
				48 TPI	AG60	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															
				24 TPI	AG60	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														
				20 TPI	AG60	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	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002														
				18 TPI	AG60	0.0024	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002														
J	THREADING	Metric	Internal Threading	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												
				16 TPI	AG60-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												
				14 TPI	16ER G60-TF	0.0087	0.0453	9	0.008	0.007	0.006	0.006	0.																	

60° • 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch TPI	Part Number	rε	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	
						Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Unified	Internal Threading	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	0.001	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	
		48 TPI 111R A60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002															
		24 TPI A60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002													
		20 TPI A60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002												
		18 TPI A60	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 A60	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										
		48 TPI 161R A60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002															
		48 TPI AG60	0.0008	0.0126	5	0.003	0.003	0.003	0.002	0.002															
		24 TPI 161R A60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002													
		24 TPI AG60	0.0008	0.0264	7	0.006	0.005	0.005	0.004	0.003	0.002	0.002													
		20 TPI 161R A60	0.0008	0.0315	8	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002												
		20 TPI 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	0.0008	0.0354	9	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002											
		18 TPI 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	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										
		16 TPI 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	0.0043	0.0421	9	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002	0.002											
		14 TPI AG60	0.0008	0.0457	11	0.006	0.006	0.006	0.005	0.005	0.004	0.004	0.004	0.003	0.002	0.002									
		13 TPI 161R G60	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										
		13 TPI AG60	0.0008	0.0492	12	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002	0.002	0.002									
		12 TPI 161R G60	0.0043	0.0496	11	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.003	0.002	0.002	0.002								
		12 TPI AG60	0.0008	0.0531	13	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.002								
		10 TPI 161R G60	0.0043	0.0606	14	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.002	0.002	0.001							
		10 TPI AG60	0.0008	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	0.002	0.001			
		9 TPI 161R G60	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	0.003	0.003	0.002	0.002	0.002	0.002	0.001			
		9 TPI AG60	0.0008	0.0713	17	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	0.002	0.001	0.001			
		8 TPI 161R G60	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	0.004	0.003	0.003	0.002	0.002	0.001	0.001			
		8 TPI AG60	0.0008	0.0803	19	0.008	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.004	0.004	0.004	0.003	0.003	0.002	0.002	0.001	0.001		
		28 TPI 16ER A55-TF	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002													
		28 TPI AG55-TF	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002													
		19 TPI 16ER A55-TF	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002												
		19 TPI AG55-TF	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	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002											
		14 TPI AG55-TF	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									
		11 TPI 16ER G55-TF	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								
		11 TPI AG55-TF	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	0.001							
		28 TPI 16ER A55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002													
		28 TPI AG55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002													
		19 TPI 16ER A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002												
19 TPI 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	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002													
14 TPI 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											
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										
11 TPI 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	0.001									
28 TPI 061R 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	0.001	0.001									
28 TPI 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	0.001	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	0.001	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	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002															
28 TPI AG55	0.0024	0.0264	7	0.006	0.006	0.004	0.004	0.003	0.002	0.002															
19 TPI 161R A55	0.0024	0.0402	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002														
19 TPI 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	0.0087	0.0472	9	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.002													
14 TPI 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											
11 TPI 161R 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										
11 TPI 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	0.001									
48 TPI 16ER A55-TF	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002																	
48 TPI AG55-TF	0.0024	0.0146	5	0.005	0.004	0.003	0.002	0.002																	
24 TPI 16ER A55-TF	0.0024	0.0311	7	0.007	0.006	0.006	0.004	0.003	0.003	0.002															
24 TPI AG55-TF	0.0024	0.0311	7																						

11 / 16 Type 60°/ 55° (Partial Profile)

(D.O.C. shows the value of radial D.O.C.)

Thread Type	Pitch	Part Number	Part Number	r _e	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		
	mm & TPI																					
Metric	External Threading	1.00mm	16E% 6001	TNN32E% 6001	0.10	0.66	5	0.20	0.18	0.12	0.09	0.05										
		1.25mm	16E% 6001	TNN32E% 6001	0.10	0.85	6	0.23	0.20	0.14	0.12	0.07	0.05									
		1.50mm	16E% 6001	TNN32E% 6001	0.10	1.04	8	0.23	0.21	0.19	0.15	0.11	0.06	0.05	0.04							
		1.50mm	6002	6002	0.20	0.94	7	0.23	0.20	0.18	0.14	0.10	0.05	0.04								
		1.75mm	16E% 6001	TNN32E% 6001	0.10	1.23	9	0.25	0.22	0.20	0.17	0.14	0.09	0.07	0.05	0.04						
		1.75mm	6002	6002	0.20	1.13	8	0.25	0.22	0.20	0.16	0.14	0.07	0.05	0.04							
		2.00mm	16E% 6001	TNN32E% 6001	0.10	1.42	11	0.25	0.22	0.20	0.16	0.14	0.12	0.10	0.08	0.06	0.05	0.04				
		2.00mm	6002	6002	0.20	1.32	10	0.25	0.22	0.20	0.16	0.14	0.12	0.08	0.07	0.04	0.04					
		2.50mm	16E% 6001	TNN32E% 6001	0.10	1.79	13	0.25	0.22	0.20	0.18	0.16	0.12	0.10	0.09	0.07	0.04	0.08	0.05	0.04		
		2.50mm	6002	6002	0.20	1.69	12	0.25	0.22	0.20	0.18	0.16	0.12	0.10	0.08	0.06	0.04					
		0.75mm	11I% 60005	TNN22I% 60005	0.05	0.44	5	0.14	0.12	0.10	0.06	0.02										
		1.00mm	11I% 60005	TNN22I% 60005	0.05	0.60	6	0.18	0.15	0.10	0.08	0.05	0.04									
	1.25mm	11I% 60005	TNN22I% 60005	0.05	0.76	7	0.18	0.15	0.10	0.10	0.10	0.07	0.04									
	1.50mm	11I% 60005	TNN22I% 60005	0.05	0.92	9	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.06	0.04							
	1.50mm	16I% 6001	TNN32I% 6001	0.10	0.87	8	0.18	0.16	0.12	0.10	0.10	0.08	0.08	0.05								
	1.75mm	16I% 6001	TNN32I% 6001	0.10	1.04	9	0.20	0.18	0.15	0.12	0.12	0.10	0.08	0.05	0.04							
	2.00mm	16I% 6001	TNN32I% 6001	0.10	1.20	11	0.20	0.18	0.15	0.12	0.12	0.10	0.10	0.08	0.06	0.05	0.04					
	2.50mm	16I% 6001	TNN32I% 6001	0.10	1.52	14	0.20	0.18	0.16	0.14	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.06	0.04	0.02		
	2.50mm	60015	60015	0.15	1.47	13	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.10	0.08	0.06	0.04	0.02			
	Parallel Pipe / Tapered Pipe	External Threading	28 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0240	5	0.008	0.006	0.005	0.003	0.002									
			19 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0374	7	0.009	0.008	0.006	0.006	0.004	0.003	0.002							
			14 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0528	10	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002					
			14 TPI	5502	5502	0.0079	0.0480	9	0.009	0.008	0.007	0.006	0.004	0.004	0.004	0.003	0.002					
			11 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0681	13	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002	0.002	0.001		
11 TPI			5502	5502	0.0079	0.0638	12	0.010	0.009	0.008	0.007	0.006	0.005	0.004	0.003	0.002	0.001					
28 TPI			11I% 55005	TNN22I% 55005	0.0020	0.0264	7	0.007	0.006	0.005	0.003	0.002	0.002	0.001								
28 TPI			16I% 5501	TNN32I% 5501	0.0039	0.0240	6	0.007	0.006	0.005	0.003	0.002	0.001									
19 TPI			11I% 55005	TNN22I% 55005	0.0020	0.0398	8	0.008	0.007	0.006	0.006	0.005	0.003	0.003	0.002							
19 TPI			16I% 5501	TNN32I% 5501	0.0039	0.0374	7	0.008	0.007	0.006	0.006	0.005	0.004	0.002								
14 TPI			11I% 55005	TNN22I% 55005	0.0020	0.0547	11	0.008	0.007	0.006	0.006	0.005	0.005	0.005	0.004	0.004	0.003	0.002				
14 TPI			16I% 5501	TNN32I% 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					
14 TPI		5502	5502	0.0079	0.0480	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002							
11 TPI		16I% 5501	TNN32I% 5501	0.0039	0.0681	12	0.010	0.008	0.007	0.007	0.006	0.006	0.005	0.005	0.004	0.003	0.002					
11 TPI		5502	5502	0.0079	0.0638	11	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.003	0.002					
Whitworth		External Threading	24 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0287	6	0.009	0.007	0.005	0.004	0.003	0.002								
			20 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0354	6	0.009	0.007	0.007	0.006	0.005	0.002								
			18 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0398	7	0.009	0.008	0.007	0.006	0.004	0.003	0.002							
			16 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0453	9	0.009	0.008	0.006	0.006	0.005	0.004	0.003	0.002	0.002					
			16 TPI	5502	5502	0.0079	0.0409	8	0.009	0.008	0.006	0.006	0.004	0.003	0.003	0.002						
			14 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0528	10	0.009	0.008	0.007	0.006	0.005	0.004	0.004	0.003	0.002					
			14 TPI	5502	5502	0.0079	0.0480	9	0.009	0.008	0.007	0.006	0.004	0.004	0.003	0.002						
			12 TPI	16E% 5501	TNN32E% 5501	0.0039	0.0622	12	0.010	0.008	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.003	0.003	0.002		
			12 TPI	5502	5502	0.0079	0.0575	11	0.010	0.008	0.007	0.006	0.006	0.006	0.004	0.003	0.003	0.003	0.002			
	11 TPI		16E% 5501	TNN32E% 5501	0.0039	0.0681	12	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.005	0.004	0.003	0.002			
	11 TPI		5502	5502	0.0079	0.0638	11	0.010	0.008	0.007	0.007	0.006	0.006	0.006	0.005	0.004	0.003	0.002				
	10 TPI		16E% 5501	TNN32E% 5501	0.0039	0.0756	14	0.010	0.009	0.009	0.008	0.007	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.001	
	10 TPI	5502	5502	0.0079	0.0709	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			
	9 TPI	16E% 5502	TNN32E% 5502	0.0079	0.0799	14	0.010	0.009	0.009	0.008	0.008	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.002	0.001		
	24 TPI	11I% 55005	TNN22I% 55005	0.0020	0.0280	7	0.007	0.006	0.005	0.004	0.003	0.002										
	24 TPI	16I% 5501	TNN32I% 5501	0.0039	0.0256	6	0.007	0.006	0.005	0.004	0.003	0.001										
	20 TPI	11I% 55005	TNN22I% 55005	0.0020	0.0343	8	0.007	0.006	0.006	0.005	0.004	0.002	0.002	0.002								
	20 TPI	16I% 5501	TNN32I% 5501	0.0039	0.0319	7	0.007	0.006	0.006	0.005	0.004	0.002	0.002									
	18 TPI	11I% 55005	TNN22I% 55005	0.0020	0.0382	8	0.008	0.007	0.006	0.006	0.004	0.003	0.002	0.002								
	18 TPI	16I% 5501	TNN32I% 5501	0.0039	0.0358	7	0.008	0.007	0.006	0.006	0.004	0.003	0.002									
	16 TPI	11I% 55005	TNN22I% 55005	0.0020	0.0429	9	0.008	0.007	0.006	0.006	0.004	0.004	0.003	0.003	0.002							
	16 TPI	16I% 5501	TNN32I% 5501	0.0039	0.0409	8	0.008	0.007	0.006	0.006	0.005	0.004	0.003	0.002								
	16 TPI	5502	5502	0.0079	0.0362	7	0.008	0.007	0.006	0.006	0.004	0.003	0.002									
	14 TPI	11I% 55005	TNN22I% 55005	0.0020	0.0496	10	0.008	0.007	0.006	0.006	0.005	0.005	0.004	0.004	0.003	0.002						
14 TPI	16I% 5501	TNN32I% 5501	0.0039	0.0472	9	0.008	0.007	0.007	0.006	0.006	0.005	0.004	0.003	0.002								
14 TPI	5502	5502	0.0079	0.0425	8	0.008	0.007															

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)

Nominal Thread		TPI	Male Thread (G)			Internal Threading (G,Rp)				Root's Radius Male/Female (mm)
Inch	Symbol (Previous Symbol)		Toolholder	Insert		Toolholder	Insert		Min. Bore Dia.(mm)	
				Partial Profile	Full Profile		Partial Profile	Full Profile		
-	G 1/16 (-)	28	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF	-	SINR0612S-06E (HPT J14)	06IR5501	-	6.56	0.12
	'1/8	G 1/8 (PF 1/8)		28				16ERAG55-TF 16ERA55 16ERAG55	-	
'2/8	G 1/4 (PF 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	16ERA55-TF	16ER19W-TF 16ER19W	SINR0816S-08E (HPT J14)	08IR5501	-	11.45	0.18
	'3/8	G 3/8 (PF 3/8)		19				16ERAG55-TF 16ERA55 16ERAG55	-	
'4/8	G 1/2 (PF 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	16ERAG55-TF 16ERAG55	16ER14W-TF 16ER14W	SINR1516S-11	11IR55005	-	18.63	0.25
	'5/8	G 5/8 (PF 5/8)				14		SINR1616S-16	16IRAG55 16IRG55 16IR5501 16IR5502	
'6/8	G 3/4 (PF 3/4)	14						24.12		
'7/8	G 7/8 (PF 7/8)	14						27.88		

Tapered Pipe [R, Rc(PT), (BSPT)]

Nominal Thread		TPI	Male Thread (G)			Female Thread (Rc)			Root's Radius Male/Female (mm)
Inch	Symbol (Previous Symbol)		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) (16ERAG55-TF)	16ER28BSPT-TF 16ER28BSPT	SINR0612S-06E (HPT J14)	06IR5501	-	0.12
	'1/8	R 1/8, Rc 1/8 (PT 1/8)		28				(16ERA55) (16ERAG55)	-
'2/8	R 1/4, Rc 1/4 (PT 1/4)	19	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERA55-TF) (16ERAG55-TF)	16ER19BSPT-TF 16ER19BSPT	SINR0816S-08E (HPT J14)	08IR5501	-	0.18
	'3/8	R 3/8, Rc 3/8 (PT 3/8)		19		(16ERA55) (16ERAG55)		-	
'4/8	R 1/2, Rc 1/2 (PT 1/2)	14	KTNR○○○○□-16 KTNSR○○○○□-16	(16ERAG55-TF) (16ERAG55)	16ER14BSPT-TF 16ER14BSPT	SINR1516S-11	(11IR55005)	11IR14BSPT-TF 11IR14BSPT	0.25
	'6/8	R 3/4, Rc 3/4 (PT 3/4)		14		(16ERAG55) (16ERAG55) (16ERAG55)		-	

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]

Applicable Thread	TPI	External Threading			Internal Threading		
		Toolholder	Insert		Toolholder	Insert	
			Partial Profile	Full Profile		Partial Profile	Full Profile
1/16 NPT 1/8 NPT	27	KTTRO○○○○□-16 KTTXRO○○○○□-16F	TT32R6000 TTX32R6000	-	No Tools Available		
1/4 NPT 3/8 NPT	18	KTNR○○○○□-16 KTNSRO○○○○□-16	-	16ER18NPT	EZH Sleeve See J11	EZTR060050-60-004 EZTR070060-60-004 HPTR06005-60-005 HPTR07507-60-005	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSRO○○○○□-16	-	16ER14NPT	EZH Sleeve See J11	EZTR070060-60-004 HPTR07507-60-005	-
1/2 NPT 3/4 NPT	14	KTNR○○○○□-16 KTNSRO○○○○□-16	-	16ER14NPT	SINR1616S-16 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 available to NPTF.

30° Trapezoidal

The JIS Standard Trapezoidal Size to be machined by TNN Insert are shown.

Applicable Thread	Pitch (mm)	External Threading			Internal Threading			Min. Bore Dia.(mm)
		Toolholder	Insert		Toolholder	Insert		
			Partial Profile	Full Profile		Partial Profile	Full Profile	
Tr 16X2 Tr 18X2 Tr 20X2	2	KTNR○○○○□-16 KTNSRO○○○○□-16	No Tools Available		No Tools Available	-	-	14.00
	16ER200TR		-	SINR1616S-16	16IR200TR	-	16.00 18.00	
Tr 22X3	3	KTNR○○○○□-16 KTNSRO○○○○□-16	16ER300TR		SINR1616S-16	16IR300TR		19.00
Tr 24X3 Tr 26X3	3				SINR2016S-16			-

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.

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Metric Coarse Thread: M

A GRADES	Applicable Thread	Pitch (mm)	Internal Threading		Min. Bore Dia.(mm)	
			Toolholder	Insert		
				Partial Profile		Full Profile
B INSERTS	M1	0.25	No Tools Available	-	-	0.73
	M3	0.50		-	-	2.46
	M4	0.70		No Tools Available	EZTR030025-60-002	-
C CBN & PCD	M5	0.80	No Tools Available	EZTR040035-60-004	-	4.13
	M6	1.00	-	HPTR04504-60 / VNTR045-11	-	4.92
	M7	1.00	-	EZTR050040-60-004	-	5.92
E TURNING	M8	1.25	-	HPTR04504-60 / VNTR045-11	-	6.65
	M8	1.25	-	EZTR060050-60-004	-	
	M8	1.25	-	HPTR06005-60 / VNTR060-11	-	
F BORING	M9	1.25	SINR0612S-06E	06IR60005	-	7.65
	M9	1.25	-	EZTR070060-60-004	-	8.38
	M10	1.50	SINR0816S-08E	08IR60007	-	
G GROOVING	M11	1.50	SINR0816S-08E	08IR60007	-	9.38
	M12	1.75	SINR0816S-08E	08IR60007	-	10.11
	M16	2.00	SINR1216S-11E	-	11R200ISO	13.84
H CUT-OFF	M18	2.50	No Tools Available		15.29	
	M20	2.50	SINR1616S-16	Table 5	16R250ISO-□□	17.29
	M22	2.50	SINR1616S-16	Table 5	16R250ISO-□□	19.29
J THREADING	M24	3.00	SINR2016S-16	Table 4	16R300ISO-□□	20.75
	M27	3.00	SINR2016S-16	Table 4	16R300ISO-□□	23.75

Metric Fine Thread: M

Part 1

A GRADES	Applicable Thread	Pitch (mm)	Internal Threading		Min. Bore Dia.(mm)	
			Toolholder	Insert		
				Partial Profile		Full Profile
B INSERTS	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	-
C CBN & PCD	M4.5x0.50	0.50	-	EZTR035030-60-002	-	5.19
	M5.0x0.50	0.50	-	EZTR040035-60-004	-	5.19
	M6.0x0.75	0.75	-	HPTR04504-60 / VNTR045-11	-	
M7.0x0.75	0.75	-	EZTR050040-60-004	-	6.20	
E TURNING	M8.0x1.00	1.00	-	HPTR06005-60 / VNTR060-11	-	6.92
	M8.0x1.00	1.00	SINR0612S-06E	06IR60005	-	
	M8.0x1.00	1.00	-	EZTR060050-60-004	-	
F BORING	M8.0x0.75	0.75	-	HPTR06005-60 / VNTR060-11	-	7.19
	M8.0x0.75	0.75	SINR0612S-06E	06IR60005	-	
	M8.0x0.75	0.75	-	EZTR070060-60-004	-	
G GROOVING	M9.0x1.00	1.00	-	HPTR07507-60 / VNTR060-11	-	7.92
	M9.0x1.00	1.00	SINR0612S-06E	06IR60005	-	
	M9.0x1.00	1.00	SINR0816S-08E	08IR60007	-	
H CUT-OFF	M9.0x0.75	0.75	-	EZTR070060-60-004	-	8.19
	M9.0x0.75	0.75	-	HPTR07507-60 / VNTR060-11	-	
	M9.0x0.75	0.75	SINR0612S-06E	06IR60005	-	
J THREADING	M10.0x1.25	1.25	-	HPTR07507-60 / VNTR060-11	-	8.65
	M10.0x1.25	1.25	SINR0816S-08E	08IR60007	-	
	M10.0x1.00	1.00	-	HPTR07507-60 / VNTR060-11	-	8.92
L SOLID END MILLS	M10.0x0.75	0.75	-	HPTR07507-60 / VNTR060-11	-	9.19
	M10.0x0.75	0.75	SINR0612S-06E	06IR60005	-	
	M11.0x1.00	1.00	-	HPTR07507-60 / VNTR060-11	-	9.92
M MILLING	M11.0x0.75	0.75	-	HPTR07507-60 / VNTR060-11	-	10.19
	M11.0x0.75	0.75	SINR0612S-06E	06IR60005	-	
	M12.0x1.50	1.50	SINR0816S-08E	08IR60007	-	10.38
P SPARE PARTS	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	11RA60	11R150ISO-□□	12.38
R TECHNICAL	M14.0x1.25	1.25	SINR1216S-11E	11RA60	11R125ISO-□□	12.65
	M14.0x1.00	1.00	SINR1216S-11E	11R60005	11R100ISO-□□	12.92

• Above shows the usage example of applicable Toolholders / Inserts.

Metric Fine Thread: M

Part 2

Applicable Thread	Pitch (mm)	Internal Threading		Min. Bore Dia.(mm)	
		Toolholder	Insert		
			Partial Profile		Full Profile
M15.0x1.50	1.50	SINR1216S-11E	11RA60	11R150ISO-□□	13.38
M15.0x1.00	1.00	SINR1216S-11E	11R60005	11R100ISO-□□	13.92
M16.0x1.50	1.50	SINR1216S-11E	11RA60	11R150ISO-□□	14.38
M16.0x1.00	1.00	SINR1216S-11E	11R60005	11R100ISO-□□	14.92
M17.0x1.50	1.50	SINR1516S-11E	11RA60	11R150ISO-□□	15.38
M17.0x1.00	1.00	SINR1516S-11E	11R60005	11R100ISO-□□	15.92
M18.0x2.00	2.00	SINR1516S-11E	-	11R200ISO	15.84
M18.0x1.50	1.50	SINR1616S-16	Table 2	16R150ISO-□□	16.38
M18.0x1.00	1.00	SINR1616S-16	Table 3	16R100ISO-□□	16.92
M20.0x2.00	2.00	SINR1616S-16	Table 1	16R200ISO-□□	17.84
M20.0x1.50	1.50	SINR1616S-16	Table 2	16R150ISO-□□	18.38
M20.0x1.00	1.00	SINR1616S-16	Table 3	16R100ISO-□□	18.92
M22.0x2.00	2.00	SINR1616S-16	Table 1	16R200ISO-□□	19.84
M22.0x1.50	1.50	SINR2016S-16	Table 2	16R150ISO-□□	20.38
M22.0x1.00	1.00	SINR2016S-16	Table 3	16R100ISO-□□	20.92
M24.0x2.00	2.00	SINR2016S-16	Table 1	16R200ISO-□□	21.84
M24.0x1.50	1.50	SINR2016S-16	Table 2	16R150ISO-□□	22.38
M24.0x1.00	1.00	SINR2016S-16	Table 3	16R100ISO-□□	22.92
M25.0x2.00	2.00	SINR2016S-16	Table 1	16R200ISO-□□	22.84
M25.0x1.50	1.50	SINR2016S-16	Table 2	16R150ISO-□□	23.38
M25.0x1.00	1.00	SINR2016S-16	Table 3	16R100ISO-□□	23.92
M26.0x1.50	1.50	SINR2420S-16	Table 2	16R150ISO-□□	24.38
M27.0x2.00	2.00	SINR2420S-16	Table 1	16R200ISO-□□	24.84
M27.0x1.50	1.50	SINR2420S-16	Table 2	16R150ISO-□□	25.38
M27.0x1.00	1.00	SINR2420S-16	Table 3	16R100ISO-□□	25.92
M28.0x2.00	2.00	SINR2420S-16	Table 1	16R200ISO-□□	25.84
M28.0x1.50	1.50	SINR2420S-16	Table 2	16R150ISO-□□	26.38
M28.0x1.00	1.00	SINR2420S-16	Table 3	16R100ISO-□□	26.92
M30.0x3.00	3.00	SINR2420S-22	-	22R300ISO	26.75
M30.0x2.00	2.00	SINR2420S-16	Table 4	16R300ISO-□□	27.84
M30.0x1.50	1.50	SINR2420S-16	Table 2	16R150ISO-□□	
M30.0x1.00	1.00	SINR2420S-16	Table 3	16R100ISO-□□	28.92
M32.0x2.00	2.00	SINR2420S-16	Table 1	16R200ISO-□□	29.84
M32.0x1.50	1.50	CINR3025S-16	Table 2	16R150ISO-□□	30.38

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

APPLICABLE TOOLHOLDERS & INSERTS (INTERNAL)

Unified Coarse Thread: UNC

Applicable 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
		-	HPTR04504-60 / VNTR045-11	-	
5/16-18 UNC	18	-	EZTR060050-60-004	-	6.41
		-	HPTR06005-60 / VNTR060-11	-	
3/8-16 UNC	16	-	EZTR070060-60-004	-	7.81
		-	HPTR07507-60-005	-	
7/16-14 UNC	14	No Tools Available			9.15
1/2-13 UNC	13				10.58
9/16-12 UNC	12				12.00
5/8-11 UNC	11				13.38
3/4-10 UNC	10				16.30
7/8-9 UNC	9	SINR1616S-16	16IRG60	16IR10UN-TF	19.17
1-8 UNC	8	SINR2016S-16	16IRAG60	-	21.96
1 1/8-7 UNC	7	SINR2420S-22	22IRN60	16IR08UN-TF	24.65

Unified Fine Thread: UNF

Applicable 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
		-	HPTR04504-60 / VNTR045-11	-	
5/16-24 UNF	24	-	HPTR06005-60 / VNTR060-11	-	6.79
		SINR0612S-06E	06IR60005	-	
3/8-24 UNF	24	-	EZTR070060-60-004	-	8.38
		-	HPTR07507-60-005	-	
		SINR0612S-06E	06IR60005	-	
7/16-20 UNF	20	SINR0816S-08E	08IR60007	-	9.74
1/2-20 UNF	20	SINR0816S-08E	08IR60007	-	11.33
9/16-18 UNF	18	SINR1216S-11E	11IRA60	-	12.76
5/8-18 UNF	18	SINR1216S-11E	11IR60005	-	14.35
3/4-16 UNF	16	SINR1516S-11	11IRA60	-	17.33
		SINR1616S-16	11IR60005	-	
7/8-14 UNF	14	SINR2016S-16	-	16IR16UN(-TF)	20.26
1-12 UNF	12	SINR2016S-16	16IRAG60	16IR14UN(-TF)	23.10
1 1/8-12 UNF	12	SINR2420S-16	16IRG60	-	26.28
1 1/4-12 UNF	12	SINR2420S-16	16IR6001	16IR12UN(-TF)	29.46
1 3/8-12 UNF	12	CINR3025S-16	-	-	32.63
1 1/2-12 UNF	12	CINR3025S-16	-	-	36.81

Whitworth Coarse Thread: W

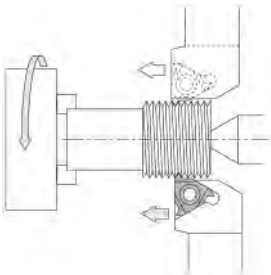
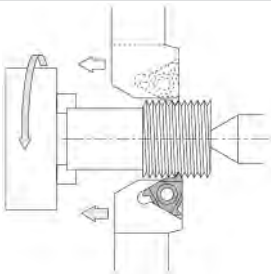
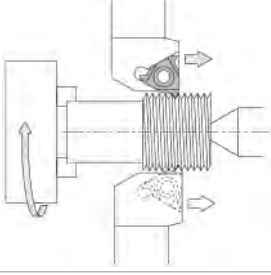
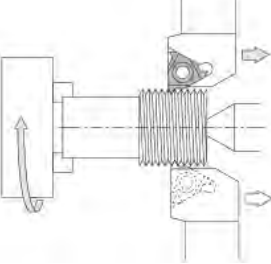
Applicable Thread	TPI	Internal Threading			Min. Bore Dia.(mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W 1/4	20	No Tools Available	-	-	4.91
W 5/16	18				6.34
W 3/8	16				7.73
W 7/16	14	No Tools Available			9.06
W 1/2	12				10.30
W 9/16	12				11.89
W 5/8	11				13.26
W 3/4	10				16.17
W 7/8	9	SINR1616S-16	16IRAG55	-	19.03
W 1	8	SINR2016S-16	16IRG55	-	21.08

Whitworth Coarse Thread: W

Applicable Thread	TPI	Internal Threading			Min. Bore Dia.(mm)
		Toolholder	Insert		
			Partial Profile	Full Profile	
W9.5 - 24	24	SINR0816S-08E	08IR5501	-	8.30
W10.0 - 24		-	EZTR060050-55-008	-	8.80
W10.5 - 24		-	HPTR06005-55	-	9.30
W9.5 - 20	20	SINR0816S-08E	08IR5501	-	8.06
W10.0 - 20		-	-	-	8.56
W10.5 - 20		-	-	-	9.06
W11.0 - 20		-	EZTR060050-55-008	-	9.56
W11.5 - 20		-	EZTR080070-55-008	-	10.06
W12.0 - 20		-	HPTR06005-55	-	10.56
W12.5 - 20		-	HPTR08007-55	-	11.06
W13.0 - 20	20	-	-	-	11.56
W13.5 - 20		SINR1216S-11E	11IRA55	-	12.06
			11IR55005	-	
W11.0 - 18	18	No Tools Available			9.40
W11.5 - 18					9.90
W12.0 - 18					10.40
W12.5 - 18					10.90
W14.0 - 18					12.40
W14.5 - 18	18	SINR1216S-11E	11IRA55	-	12.90
W15.0 - 18		SINR1216S-11E	11IR55005	-	13.40
W16.0 - 18		SINR1516S-11	-	-	14.40
W13.0 - 16	16	No Tools Available			11.20
W13.5 - 16					11.70
W14.0 - 16	16	SINR1216S-11E	-	-	12.20
W14.5 - 16		SINR1216S-11E	11IRA55	-	12.70
W15.0 - 16		SINR1216S-11E	11IR55005	-	13.20
W17.0 - 16		SINR1516S-11E	-	-	15.20
W18.0 - 16	16	SINR1616S-16	16IRAG55	(16IR16W-TF)	16.20
W19.0 - 16		SINR1616S-16	16IRG55	(16IR16W-TF)	17.20
W20.0 - 16		SINR1616S-16	16IR5501	(16IR16W-TF)	18.20
			16IR5502		
W16.0 - 14	14	SINR1216S-11E	11IRA55	-	13.94
W17.0 - 14		SINR1216S-11E	11IR55005	-	14.94
W18.0 - 14	14	SINR1516S-11	-	-	15.94
W21.0 - 14		SINR1616S-16	-	-	18.94
W22.0 - 14	14	SINR1616S-16	16IRAG55	(16IR14W-TF)	19.94
W23.0 - 14		SINR2016S-16	16IRG55	(16IR14W)	20.94
W24.0 - 14	14	SINR2016S-16	16IR5501	-	21.94
W25.0 - 14		SINR2016S-16	16IR5502	-	22.94
W26.0 - 14	14	SINR2016S-16	-	-	23.94
W19.0 - 12		SINR1616S-16	-	-	16.60
W20.0 - 12	12	SINR1616S-16	-	-	17.60
W21.0 - 12		SINR1616S-16	-	-	18.60
W22.0 - 12	12	SINR1616S-16	-	-	19.60
W28.0 - 12		SINR2420S-16	-	-	25.60
W30.0 - 12	12	SINR2420S-16	-	-	27.60
W32.0 - 12		SINR2420S-16	16IRAG55	-	29.60
W34.0 - 12	12	CINR3025S-16	16IRG55	-	31.60
W35.0 - 12		CINR3025S-16	16IR5501	-	32.60
W36.0 - 12	12	CINR3025S-16	16IR5502	-	33.60
W38.0 - 12		CINR3025S-16	-	-	35.60
W40.0 - 12	12	CINR3732S-16	-	-	37.60
W42.0 - 12		CINR3732S-16	-	-	39.60
W44.0 - 12	12	CINR3732S-16	-	-	41.60
W45.0 - 12		CINR3732S-16	-	-	42.60
W46.0 - 12	12	CINR3732S-16	-	-	43.60
W48.0 - 12		-	-	-	45.60
W50.0 - 12	12	Hereafter, 12 TPI Whitworth Fine Thread can be machined by the same tool as above.			47.60
•					•
•					•
W23.0 - 10	10	SINR2016S-16	-	-	20.12
W24.0 - 10		SINR2016S-16	-	-	21.12
W25.0 - 10		SINR2016S-16	16IRAG55	-	22.12
W26.0 - 10		SINR2016S-16	16IRG55	-	23.12
W28.0 - 9	9	SINR2420S-16	-	-	24.80
W30.0 - 9		SINR2420S-16	-	-	26.80
W32.0 - 9		SINR2420S-16	-	-	28.80

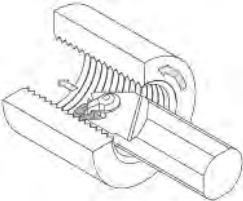
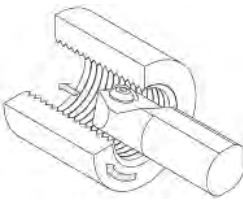
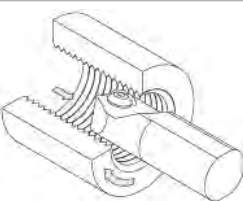
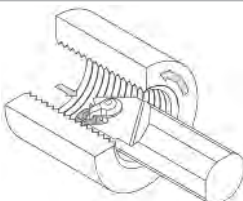
• Above shows the usage example of applicable Toolholders / Inserts.

External Threading (R-hand Thread / L-hand Thread)

		External Threading				
		Right-Hand Thread		Left-Hand Thread		
A	GRADES	Toolholder	(R) R-hand		Toolholder	(L) L-hand
		Insert	(R) R-hand		Insert	(L) L-hand
B	INSERTS	The direction of spindle revolution	M03		The direction of spindle revolution	M04
C	CBN & PCD					
E	TURNING	Toolholder	(L) L-hand		Toolholder	(R) R-hand
		Insert	(L) L-hand		Insert	(R) R-hand
F	BORING	The direction of spindle revolution	M03		The direction of spindle revolution	M04
G	GROOVING	Toolholder	(R) R-hand		Toolholder	(L) L-hand
		Insert	(R) R-hand		Insert	(L) L-hand
H	CUT-OFF	The direction of spindle revolution	M04		The direction of spindle revolution	M03
J	THREADING	Toolholder	(L) L-hand		Toolholder	(R) R-hand
		Insert	(L) L-hand		Insert	(R) R-hand
L	SOLID END MILLS	The direction of spindle revolution	M04		The direction of spindle revolution	M03
M	MILLING					

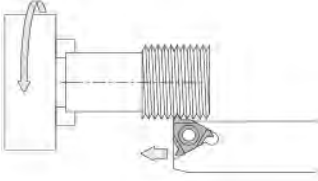
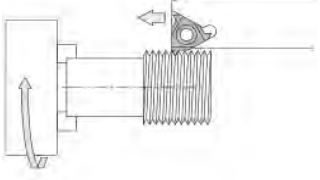
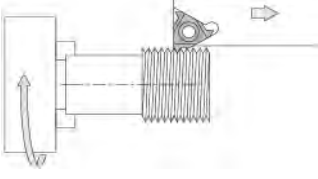
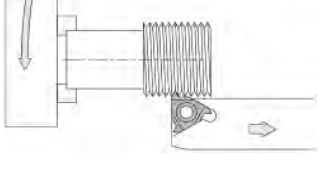
※ These tables are based on KTN/KTNS/KTTX Toolholder.

Internal Threading (R-hand Thread / L-hand Thread)

		Internal Threading					
		Right-Hand Thread		Left-Hand Thread			
P	SPARE PARTS		Toolholder	(R) R-hand		Toolholder	(L) L-hand
			Insert	(R) R-hand		Insert	(L) L-hand
R	TECHNICAL		The direction of spindle revolution	M03		The direction of spindle revolution	M04
T	INDEX		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

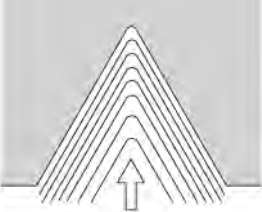
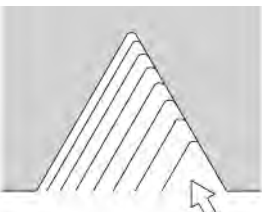
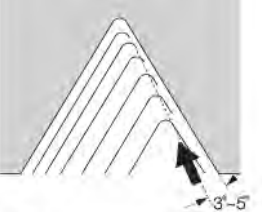
※ These tables are based on SIN type Toolholder.

Internal threading tool holder and the method of cutting "External Thread"

External Threading			
Right-Hand Thread		Left-Hand Thread	
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 (R) R-hand		Toolholder (L) L-hand	
Insert (R) R-hand		Insert (L) L-hand	
The direction of spindle revolution M04		The direction of spindle revolution M03	

• Use Inserts with Partial Profile.

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.

Thread Types & Basic Profile/Applicable Toolholders & Inserts

A	GRADES					
B	INSERTS					
C	CBN & PCD					
E	TURNING					
F	BORING					
G	GROOVING					
H	CUT-OFF					
J	THREADING					
L	SOLID END MILLS					
M	MILLING					
P	SPARE PARTS					
R	TECHNICAL					
T	INDEX					
Metric		Symbol (Previous Symbol) M e.g.) M30	Thread Type External Threading Internal Threading	Applicable Insert 16E%○○○ISO 16E%○○○ISO-TF 16E%60○○ TTX32%60○○ ○○I%○○○ISO ○○I%○○○ISO-TF ○○I%60○○(○)	Applicable Toolholder KTN%○○○○□-16 KTNSR○○○○□-16 KTTX%○○○○□-16F, S○○□-KTTX%16 SIN%○○○○S-○○(E)	
		Unified UN UNC UNF UNEF e.g.) 3/4 -16 UNF	External Threading Internal Threading	KCT(K/P)○% 16E%○○UN-TF 16E%60○○ TTX32%60○○ ○○I%○○○UN-TF ○○I%60○○(○)	KKC%○○-○ KTN%○○○○□-16 KTNS%○○○○□-16 KTTX%○○○○□-16F, S○○□-KTTX%16 SIN%○○○○S-○○(E)	
Parallel Pipe		External Threading: G(PF) Internal Threading: G(PF) Rp(PS) e.g.) G3/4 (PF3/4)	External Threading Internal Threading	16E%○○○W 16E%○○○W-TF 16E%55○○ TTX32%55○○ ○○I%○○W ○○I%○○W-TF ○○I%55○○(○)	KTN%○○○○□-16 KTNSR○○○○□-16 KTTX%○○○○□-16F, S○○□-KTTX%16 SIN%○○○○S-○○(E)	
		Whitworth W e.g.) W3/8	External Threading Internal Threading	16E%○○W 16E%○○W-TF 16E%55○○ TTX32%55○○ ○○I%○○W ○○I%○○W-TF ○○I%55○○(○)	KTN%○○○○□-16 KTNS%○○○○□-16 KTTX%○○○○□-16F, S○○□-KTTX%16 SIN%○○○○S-○○(E)	
Tapered Pipe		External Threading: R(PT) (BSPT) Internal Threading: Rc(PT) (BSPT) e.g.) R1/2 (PT1/2)	External Threading Internal Threading	16E%○○○PT TTX32%55○○* ○○I%○○○PT ○○I%○○○PT-TF	KTN%○○○○□-16 KTNS%○○○○□-16 KTTX%○○○○□-16F, S○○□-KTTX%16 SIN%○○○○S-○○□(E)	
		American National Pipe NPT e.g.) 3/8 -18 NPT	External Threading Internal Threading	16E%○○○NPT 16I%○○○NPT	KTN%○○○○□-16 KTNS%○○○○□-16 SIN%○○○○S-16	
30° Trapezoidal		Tr e.g.) Tr 26x3	External Threading Internal Threading	16E%○○○Tr 16I%○○○Tr	KTN%○○○○□-16 KTNS%○○○○□-16 SIN%○○○○S-16	

• Above shows the usage example of applicable Toolholders / Inserts.

*...For the case when the thread root's corner-R can be smaller than the standard.

SOLID END MILLS



L1 - L16

TOOL SELECTION GUIDE

L2 - L4

APPLICATION AND SELECTION

L2

SOLID END MILL IDENTIFICATION SYSTEM / ICON GLOSSARY

L2

CASE STUDIES

L4

SURFACE FINISH ORIENTED

L5 - L9

SQUARE

L5

SQUARE (FOR AUTOMATIC LATHES) FESW

L9

HIGH EFFICIENCY CHIP EVACUATION

L10 - L11

MULTI-FUNCTION HIGH EFFICIENCY 3ZFK

L11




RECOMMENDED CUTTING CONDITIONS

L12 - L16

See our large selection of solid end mills
in our [Solid Round Tools Catalog](#)



Application and selection

Ref. Page	Applications	Part Number	Features	Shape	Coating	No. of Flutes	Helix Angle	Outside Dia. ØDc (mm)
L5	Surface finish oriented	2FESS	2 flutes, sharp corner edge		MEGACOAT	2	30°	Ø1.0-Ø16.0
L5, L6		2FESM				2		Ø0.2-Ø16.0
L6		2FESL				2		Ø1.0-Ø16.0
L7		2FEKS	2 flutes, tough corner edge	2		Ø3.0-Ø16.0		
L8		2FEKM		2		Ø1.0-Ø16.0		
L8		4FESM	4 flutes, sharp corner edge	4		Ø1.0-Ø16.0		
L8		4FEKM		4		Ø3.0-Ø16.0		
L9		For Automatic Lathe	2FESW			2	35°	Ø3.0-Ø13.0
L9	3FESW		3		Ø3.0-Ø13.0			
L9	4FESW		4		Ø3.0-Ø13.0			
L11	High efficiency chip evacuation	3ZFKS	Multi-functional, high efficiency		MEGACOAT	3	40°	Ø6.0-Ø12.0
L11	3ZFKM	3				Ø3.0-Ø12.0		

Solid Endmill Identification System

2 F E S M 020 - 060 - 04 XXXXXXXX


① No. of Flutes	② Applications	③ Helix Angle	④ Series	⑤ Length of cut	⑥ Outside Dia.	⑦ Length of cut	⑧ Shank Dia.	⑨ Others
2 3 4	F : Surface finish oriented Z : Multi-functional, high efficiency	E : 30-39° F : 40-49°	S : Square K : Tough corner edge	S : Short M : Medium L : Long W : For Automatic Lathe	020 ↓ 2.0mm	060 ↓ 6.0mm	04 ↓ 4.0mm	Corner Radius C width etc...

Icon Glossary

Coating

 MEGACOAT

Shank Diameter Tolerance

 Shank Dia. Shank Diameter Tolerance is h5.


Super Micro-Grain Carbide

The products made from super micro-grain cemented carbide

Corner Form

 Sharp corner edge
  With corner land

Shank Diameter Tolerance

 Shank Dia. Shank Diameter Tolerance is h6.

Flutes

 3-edge design
 Helix Angle
 Helix Angle 30°

See our large selection of solid end mills in our Solid Round Tools Catalog



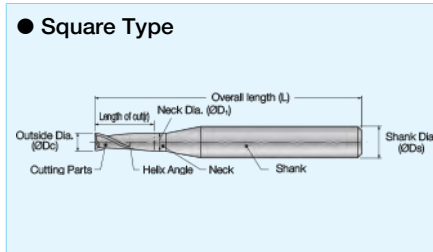
Substrate of all solid end mills is carbide

Carbide Material

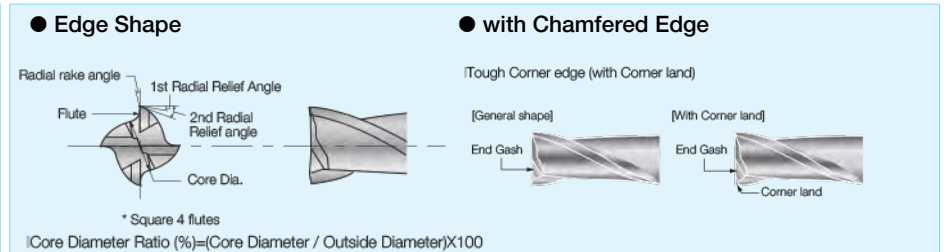
Ref. Page	Part Number	Workpiece Material								
		Steel		Hardened Steel		Stainless Steel	Titanium Alloys	Heat-Resistant Alloys	Cast Iron	Aluminum & Non-Ferrous Metals
		~30HRC	~40HRC	~55HRC	~68HRC	Stainless steel	Titanium Alloy	Heat-resistant Alloy	Cast Iron	Aluminum & Non-Ferrous Material
L5	2FESS									
L5, L6	2FESM									
L6	2FESL									
L7	2FEKS									
	2FEKM	★	☆	☆		★			☆	☆
L8	4FESM									
	4FEKM									
L9	2FESW									
	3FESW									
	4FESW									
L11	3ZFKS	★	☆			★	☆		☆	☆
	3ZFKM									

★ : 1st Recommendation ☆ : 2nd Recommendation

Name of parts



Cutting parts shape



Introduction

Surface finish oriented

L5~L9

F
Series

MEGACOAT is applied

(FES)

The MEGACOAT coating and a sharp cutting edge enable high precision finishing due to excellent wear resistance and heat-resistance.

Total lengths of 35mm and 45mm are available for automatic lathes.

L5~L9

High efficiency chip evacuation

L10~L11

Z
Series

MEGACOAT is applied

(3ZEKS)

Multi-functional, high efficiency endmill

Applicable for plunge milling, slotting and finishing with one end mill.

Smooth chip evacuation resulting from the sub-groove on the gash breaks chips during plunge milling

L10~L11

New PVD technology, MEGACOAT



MEGACOAT for High Precision Finishing



MEGACOAT enables high precision finishing with a sharp cutting edge.

F Series
L10-L14

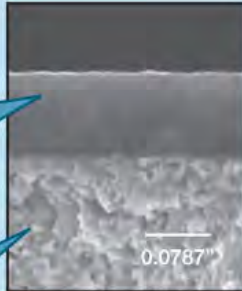
Wear and high heat resistance

MEGACOAT

Nitride solid solution metal with a high melting point
High hardness with oxidation resistance
Smooth surface

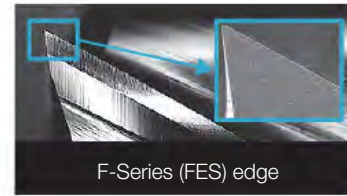
Fracture resistance with stable cutting

Super Micro-grain cemented carbide



High Quality, Sharp Edge

Smooth surface quality

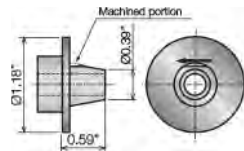


F-Series (FES) edge

Case Studies

Free Cutting Carbon Steel

- OA parts
- Vc=289 sfm (n=3,500min⁻¹)
- ap=0.0197"
- fz=0.0091 ipt (Vf=126.0 ipm)
- Wet
- 4FESM080-190-08



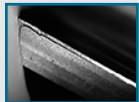
MEGACOAT

230 pcs/edge

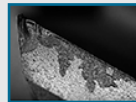
Competitor Coated Carbide E

100 pcs/edge

- Kyocera showed 2.3 times longer tool life than Competitor E.
- Kyocera's new coating technology resolved edge fracturing and provided stability compared with Competitor E.
- Kyocera showed superior finished surface compared with Competitor E.



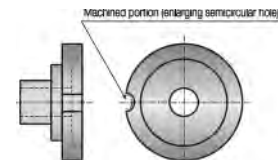
MEGACOAT
(Number of workpiece processed: 230 pcs/edge)



Competitor Coated Carbide E
(Number of workpiece processed: 100 pcs/edge)
(Customer Evaluation)

Chromium Steel

- Automotive parts
- Vc=131 sfm (n=3,200min⁻¹)
- ap=0.0039"
- fz=0.0004 ipt (Vf=2.8 ipm)
- Wet
- 2FESM040-110-06



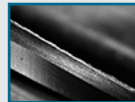
MEGACOAT

700 pcs/edge

Competitor Coated Carbide F

350 pcs/edge

- Kyocera processed twice as many workpieces compared to Competitor F.
- Competitor F is limited to 350 workpieces due to excessive wear.
- Kyocera prevents chipping there by enabling long-life and stabilized machining.



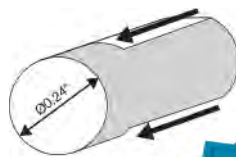
MEGACOAT
(Number of workpiece processed: 700 pcs/edge)



Competitor Coated Carbide F
(Number of workpiece processed: 350 pcs/edge)
(Customer Evaluation)

Carbon Steel

- Machine parts
- Vc=328 sfm (n=3,980min⁻¹)
- ap=0.0177"
- fz=0.0020 ipt (Vf=31.5 ipm)
- Wet
- 4 flutes
- Tool life 4000 pcs/edge
- 4FESW080-080-08



Four times the productivity!

4FESW080-080-08

Table feed Vf=31.5 ipm

Competitor Coated Carbide G

Table feed Vf=7.9 ipm

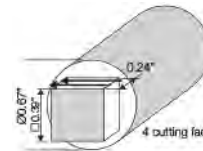
[Competitor Coated Carbide G]
Ø8-4 flutes
Vc=207 sfm (n=2508min⁻¹)
ap=0.0177"
Tool life 4000 pcs/edge
fz=0.0008 ipt (Vf=7.9 ipm)

User comments:
• Was able to increase both cutting speed and table feed rate.
• Despite the increase in machining conditions, burr formation decreased.

(Customer Evaluation)

Free Cutting Carbon Steel

- Machine parts
- Vc=144 sfm (n=3,200min⁻¹)
- ap x ae=0.1378" x 0.1181"
- fz=0.0020 ipt (Vf=25.2 ipm)
- Wet
- 4 flutes
- 4FESW100-080-10



1.6 times the productivity! Five times the tool life!

4FESW100-080-10

Table feed Vf=25.2 ipm

Competitor Coated Carbide H

Table feed Vf=15.7 ipm

[Competitor Coated Carbide H]
Ø7-4 flutes
Vc=144 sfm (n=2000min⁻¹)
ap x ae=0.1378" x 0.1181"
fz=0.0020 ipt (Vf=15.7 ipm)

User comments:
• Automatic general purpose end mills have a shorter edge length with improved rigidity, which enabled an increase from conventional Ø7 to Ø10, thus improving machining conditions.
• Compared to conventional tools, tool life improved five times.

(Customer Evaluation)

SURFACE FINISH ORIENTED, 2 FLUTES, SHARP CORNER EDGE

2FESS, 2FESM, 2FESL



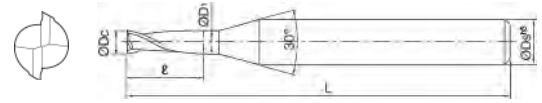
MEGACOAT is applied

Super Micro-Grain Carbide

No. of Flutes: 2

Workpiece Materials

★: 1st Recommendation



2FESS (Short)

Shouldering

Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	ℓ	ØD1	ØDs	L	Z
2FESS010-015-04	○	1.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	1.5	1.1	4	45	2
2FESS015-023-04	○	1.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	2.3	1.6	4	45	2
2FESS020-030-04	○	2.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	3.0	2.1	4	45	2
2FESS025-037-04	○	2.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	3.7	2.6	4	45	2
2FESS030-045-06	○	3.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	4.5	3.2	6	50	2
2FESS035-052-06	○	3.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	5.2	3.7	6	50	2
2FESS040-060-06	○	4.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.0	4.2	6	50	2
2FESS045-067-06	○	4.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.7	4.7	6	50	2
2FESS050-075-06	○	5.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	7.5	5.2	6	50	2
2FESS055-082-06	○	5.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.2	5.7	6	50	2
2FESS060-090-06	○	6.0	$\begin{matrix} 0 \\ -0.020 \end{matrix}$	9.0	-	6	50	2
2FESS080-120-08	○	8.0	$\begin{matrix} -0.005 \\ -0.025 \end{matrix}$	12.0	-	8	60	2
2FESS100-150-10	○	10.0	$\begin{matrix} -0.005 \\ -0.025 \end{matrix}$	15.0	-	10	70	2
2FESS120-180-12	○	12.0	$\begin{matrix} -0.010 \\ -0.030 \end{matrix}$	18.0	-	12	75	2
2FESS140-210-16	○	14.0	$\begin{matrix} -0.010 \\ -0.030 \end{matrix}$	21.0	14.2	16	75	2
2FESS150-230-16	○	15.0	$\begin{matrix} -0.010 \\ -0.030 \end{matrix}$	23.0	15.2	16	90	2
2FESS160-240-16	○	16.0	$\begin{matrix} -0.010 \\ -0.030 \end{matrix}$	24.0	-	16	90	2

2FESM (Medium)

Shouldering

Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	ℓ	ØD1	ØDs	L	Z
2FESM002-004-04	○	0.2	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	0.4	0.22	4	45	2
2FESM003-006-04	○	0.3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	0.6	0.32	4	45	2
2FESM004-008-04	○	0.4	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	0.8	0.42	4	45	2
2FESM005-010-04	○	0.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	1.0	0.53	4	45	2
2FESM006-012-04	○	0.6	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	1.2	0.63	4	45	2
2FESM007-014-04	○	0.7	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	1.4	0.74	4	45	2
2FESM008-016-04	○	0.8	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	1.6	0.84	4	45	2
2FESM009-020-04	○	0.9	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	2.0	0.95	4	45	2
2FESM010-025-04	○	1.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	2.5	1.10	4	45	2
2FESM011-025-04	○	1.1	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	2.5	1.20	4	45	2
2FESM012-040-04	○	1.2	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	4.0	1.30	4	45	2
2FESM013-040-04	○	1.3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	4.0	1.40	4	45	2
2FESM014-040-04	○	1.4	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	4.0	1.50	4	45	2
2FESM015-040-04	○	1.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	4.0	1.60	4	45	2
2FESM016-050-04	○	1.6	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	5.0	1.70	4	45	2
2FESM017-050-04	○	1.7	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	5.0	1.80	4	45	2
2FESM018-050-04	○	1.8	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	5.0	1.90	4	45	2
2FESM019-050-04	○	1.9	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	5.0	2.00	4	45	2
2FESM020-060-04	○	2.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.0	2.10	4	45	2
2FESM021-060-04	○	2.1	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.0	2.20	4	45	2
2FESM022-060-04	○	2.2	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.0	2.30	4	45	2
2FESM023-060-04	○	2.3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	6.0	2.40	4	45	2
2FESM024-080-04	○	2.4	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	2.50	4	45	2
2FESM025-080-04	○	2.5	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	2.60	4	45	2
2FESM026-080-04	○	2.6	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	2.70	4	45	2
2FESM027-080-04	○	2.7	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	2.80	4	45	2
2FESM028-080-04	○	2.8	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	2.90	4	45	2
2FESM029-080-04	○	2.9	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	8.0	3.10	4	45	2
2FESM030-100-06	○	3.0	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	10.0	3.20	6	50	2
2FESM031-100-06	○	3.1	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	10.0	3.30	6	50	2
2FESM032-100-06	○	3.2	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	10.0	3.40	6	50	2
2FESM033-100-06	○	3.3	$\begin{matrix} 0 \\ -0.015 \end{matrix}$	10.0	3.50	6	50	2

Sharp Cutting Edge Reduced Burrs

Stainless Steel

Block
 · Vc=230 sfm
 (n=2,230min⁻¹)
 · ap×ae=0.20"×0.04"
 · fz=0.012 ipt
 (Vf=5.3 ipm)

Shouldering

Upper workpiece area

2FESM100-220-10 Competitor Coated Carbide D

Target icon (bullseye) next to the 2FESM100-220-10 result, and a crossed-out 'X' next to the Competitor Coated Carbide D result. A blue arrow labeled 'burrs' points to the burrs on the competitor's result.

Recommended Cutting Conditions ➔ L12

SURFACE FINISH ORIENTED, 2 FLUTES, SHARP CORNER EDGE

2FESM (Medium)

Shouldering

Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ØDs	L	Z
2FESM034-100-06	○	3.4	0 -0.015	10.0	3.6	6	50	2
2FESM035-100-06	○	3.5	0 -0.015	10.0	3.7	6	50	2
2FESM036-100-06	○	3.6	0 -0.015	10.0	3.8	6	50	2
2FESM037-100-06	○	3.7	0 -0.015	10.0	3.9	6	50	2
2FESM038-110-06	○	3.8	0 -0.015	11.0	4.0	6	50	2
2FESM039-110-06	○	3.9	0 -0.015	11.0	4.1	6	50	2
2FESM040-110-06	○	4.0	0 -0.015	11.0	4.2	6	50	2
2FESM041-110-06	○	4.1	0 -0.015	11.0	4.3	6	50	2
2FESM042-110-06	○	4.2	0 -0.015	11.0	4.4	6	50	2
2FESM043-110-06	○	4.3	0 -0.015	11.0	4.5	6	50	2
2FESM044-110-06	○	4.4	0 -0.015	11.0	4.6	6	50	2
2FESM045-110-06	○	4.5	0 -0.015	11.0	4.7	6	50	2
2FESM046-110-06	○	4.6	0 -0.015	11.0	4.8	6	50	2
2FESM047-110-06	○	4.7	0 -0.015	11.0	4.9	6	50	2
2FESM048-130-06	○	4.8	0 -0.015	13.0	5.0	6	50	2
2FESM049-130-06	○	4.9	0 -0.015	13.0	5.1	6	50	2
2FESM050-130-06	○	5.0	0 -0.015	13.0	5.2	6	50	2
2FESM051-130-06	○	5.1	0 -0.015	13.0	5.3	6	50	2
2FESM052-130-06	○	5.2	0 -0.015	13.0	5.4	6	50	2
2FESM053-130-06	○	5.3	0 -0.015	13.0	5.5	6	50	2
2FESM054-130-06	○	5.4	0 -0.015	13.0	5.6	6	50	2
2FESM055-130-06	○	5.5	0 -0.015	13.0	5.7	6	50	2
2FESM056-130-06	○	5.6	0 -0.015	13.0	5.8	6	50	2
2FESM057-130-06	○	5.7	0 -0.015	13.0	-	6	50	2
2FESM058-130-06	○	5.8	0 -0.015	13.0	-	6	50	2
2FESM059-130-06	○	5.9	0 -0.015	13.0	-	6	50	2
2FESM060-130-06	○	6.0	0 -0.020	13.0	-	6	50	2
2FESM061-160-08	○	6.1	0 -0.020	16.0	6.3	8	60	2
2FESM062-160-08	○	6.2	0 -0.020	16.0	6.4	8	60	2
2FESM063-160-08	○	6.3	0 -0.020	16.0	6.5	8	60	2
2FESM064-160-08	○	6.4	0 -0.020	16.0	6.6	8	60	2
2FESM065-160-08	○	6.5	0 -0.020	16.0	6.7	8	60	2
2FESM066-160-08	○	6.6	0 -0.020	16.0	6.8	8	60	2
2FESM067-160-08	○	6.7	0 -0.020	16.0	6.9	8	60	2
2FESM068-160-08	○	6.8	0 -0.020	16.0	7.0	8	60	2
2FESM069-160-08	○	6.9	0 -0.020	16.0	7.1	8	60	2
2FESM070-160-08	○	7.0	0 -0.020	16.0	7.2	8	60	2
2FESM071-160-08	○	7.1	0 -0.020	16.0	7.3	8	60	2
2FESM072-160-08	○	7.2	0 -0.020	16.0	7.4	8	60	2
2FESM073-160-08	○	7.3	0 -0.020	16.0	7.5	8	60	2
2FESM074-160-08	○	7.4	0 -0.020	16.0	7.6	8	60	2
2FESM075-190-08	○	7.5	0 -0.020	19.0	7.7	8	60	2
2FESM076-190-08	○	7.6	0 -0.020	19.0	-	8	60	2
2FESM077-190-08	○	7.7	0 -0.020	19.0	-	8	60	2
2FESM078-190-08	○	7.8	0 -0.020	19.0	-	8	60	2
2FESM079-190-08	○	7.9	0 -0.020	19.0	-	8	60	2

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ØDs	L	Z
2FESM080-190-08	○	8.0	-0.005 -0.025	19.0	-	8	60	2
2FESM081-190-10	○	8.1	-0.005 -0.025	19.0	8.3	10	70	2
2FESM082-190-10	○	8.2	-0.005 -0.025	19.0	8.4	10	70	2
2FESM083-190-10	○	8.3	-0.005 -0.025	19.0	8.5	10	70	2
2FESM084-190-10	○	8.4	-0.005 -0.025	19.0	8.6	10	70	2
2FESM085-190-10	○	8.5	-0.005 -0.025	19.0	8.7	10	70	2
2FESM086-190-10	○	8.6	-0.005 -0.025	19.0	8.8	10	70	2
2FESM087-190-10	○	8.7	-0.005 -0.025	19.0	8.9	10	70	2
2FESM088-190-10	○	8.8	-0.005 -0.025	19.0	9.0	10	70	2
2FESM089-190-10	○	8.9	-0.005 -0.025	19.0	9.1	10	70	2
2FESM090-190-10	○	9.0	-0.005 -0.025	19.0	9.2	10	70	2
2FESM091-190-10	○	9.1	-0.005 -0.025	19.0	9.3	10	70	2
2FESM092-190-10	○	9.2	-0.005 -0.025	19.0	9.4	10	70	2
2FESM093-190-10	○	9.3	-0.005 -0.025	19.0	9.5	10	70	2
2FESM094-190-10	○	9.4	-0.005 -0.025	19.0	9.6	10	70	2
2FESM095-190-10	○	9.5	-0.005 -0.025	19.0	9.7	10	70	2
2FESM096-220-10	○	9.6	-0.005 -0.025	22.0	-	10	70	2
2FESM097-220-10	○	9.7	-0.005 -0.025	22.0	-	10	70	2
2FESM098-220-10	○	9.8	-0.005 -0.025	22.0	-	10	70	2
2FESM099-220-10	○	9.9	-0.005 -0.025	22.0	-	10	70	2
2FESM100-220-10	○	10.0	-0.005 -0.025	22.0	-	10	70	2
2FESM105-220-12	○	10.5	-0.005 -0.025	22.0	10.7	12	75	2
2FESM110-220-12	○	11.0	-0.005 -0.025	22.0	11.2	12	75	2
2FESM115-220-12	○	11.5	-0.005 -0.025	22.0	11.7	12	75	2
2FESM120-260-12	○	12.0	-0.010 -0.030	26.0	-	12	75	2
2FESM130-260-16	○	13.0	-0.010 -0.030	26.0	13.2	16	75	2
2FESM140-260-16	○	14.0	-0.010 -0.030	26.0	14.2	16	75	2
2FESM150-300-16	○	15.0	-0.010 -0.030	30.0	15.2	16	90	2
2FESM160-320-16	○	16.0	-0.010 -0.030	32.0	-	16	90	2

2FESL (Long)

Shouldering

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ØDs	L	Z
2FESL010-040-04	○	1.0	0 -0.015	4.0	1.1	4	45	2
2FESL015-060-04	○	1.5	0 -0.015	6.0	1.6	4	45	2
2FESL020-090-04	○	2.0	0 -0.015	9.0	2.1	4	45	2
2FESL025-120-04	○	2.5	0 -0.015	12.0	2.6	4	45	2
2FESL030-140-06	○	3.0	0 -0.015	14.0	3.2	6	50	2
2FESL040-170-06	○	4.0	0 -0.015	17.0	4.2	6	50	2
2FESL050-200-06	○	5.0	0 -0.015	20.0	5.2	6	60	2
2FESL060-240-06	○	6.0	-0.005 -0.025	24.0	-	6	60	2
2FESL080-280-08	○	8.0	-0.005 -0.025	28.0	-	8	70	2
2FESL100-340-10	○	10.0	-0.005 -0.025	34.0	-	10	90	2
2FESL120-400-12	○	12.0	-0.010 -0.030	40.0	-	12	90	2
2FESL160-480-16	○	16.0	-0.010 -0.030	48.0	-	16	115	2

Recommended Cutting Conditions L12~ L13

SURFACE FINISH ORIENTED, 2 FLUTES, SHARP CORNER EDGE

No. of Flutes: 2

2FEKS, 2FEKM

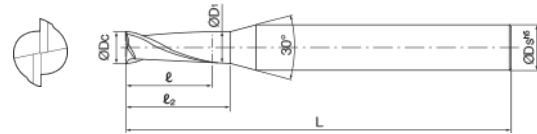


MEGACOAT is applied

Super Micro-Grain Carbide

Workpiece Materials

★: 1st Recommendation



2FEKS (Short)

Shouldering Slotting

(Unit : mm)

Part Number	Stock	Outside Dia. ØDc	Mill Dia. tolerance	Length of cut ℓ	Neck Dia. ØD1	Under Neck Length ℓ2	Shank Dia. ØDs	Overall length L	No. of Flutes Z
2FEKS035-052-06	○	3.5	⁰ _{-0.015}	5.2	3.68	7.2	6	50	2
2FEKS040-060-06	○	4.0	⁰ _{-0.015}	6.0	4.2	8.2	6	50	2
2FEKS045-067-06	○	4.5	⁰ _{-0.015}	6.7	4.7	8.9	6	50	2
2FEKS050-075-06	○	5.0	⁰ _{-0.015}	7.5	5.2	10.1	6	50	2
2FEKS055-082-06	○	5.5	⁰ _{-0.015}	8.2	5.7	10.8	6	50	2
2FEKS060-090-06	○	6.0	⁰ _{-0.020}	9.0	-	-	6	50	2
2FEKS080-120-08	○	8.0	⁰ _{-0.005 -0.025}	12.0	-	-	8	60	2
2FEKS100-150-10	○	10.0	⁰ _{-0.005 -0.025}	15.0	-	-	10	70	2
2FEKS120-180-12	○	12.0	⁰ _{-0.010 -0.030}	18.0	-	-	12	75	2
2FEKS140-210-16	○	14.0	⁰ _{-0.010 -0.030}	21.0	14.2	31.4	16	75	2
2FEKS150-230-16	○	15.0	⁰ _{-0.010 -0.030}	23.0	15.2	35.0	16	90	2
2FEKS160-240-16	○	16.0	⁰ _{-0.010 -0.030}	24.0	-	-	16	90	2

2FEKM (Medium)

Shouldering Slotting

(Unit : mm)

Part Number	Stock	Outside Dia. ØDc	Mill Dia. tolerance	Length of cut ℓ	Neck Dia. ØD1	Under Neck Length ℓ2	Shank Dia. ØDs	Overall length L	No. of Flutes Z
2FEKM035-100-06	○	3.5	⁰ _{-0.015}	10.0	3.68	12.0	6	50	2
2FEKM040-110-06	○	4.0	⁰ _{-0.015}	11.0	4.2	13.2	6	50	2
2FEKM045-110-06	○	4.5	⁰ _{-0.015}	11.0	4.7	13.2	6	50	2
2FEKM050-130-06	○	5.0	⁰ _{-0.015}	13.0	5.2	15.6	6	50	2
2FEKM055-130-06	○	5.5	⁰ _{-0.015}	13.0	5.7	15.6	6	50	2
2FEKM060-130-06	○	6.0	⁰ _{-0.020}	13.0	-	-	6	50	2
2FEKM065-160-08	○	6.5	⁰ _{-0.020}	16.0	6.7	22.4	8	60	2
2FEKM070-160-08	○	7.0	⁰ _{-0.020}	16.0	7.2	22.4	8	60	2
2FEKM075-190-08	○	7.5	⁰ _{-0.020}	19.0	7.7	26.6	8	60	2
2FEKM080-190-08	○	8.0	⁰ _{-0.005 -0.025}	19.0	-	-	8	60	2
2FEKM085-190-10	○	8.5	⁰ _{-0.005 -0.025}	19.0	8.7	26.6	10	70	2
2FEKM090-190-10	○	9.0	⁰ _{-0.005 -0.025}	19.0	9.2	26.6	10	70	2
2FEKM095-190-10	○	9.5	⁰ _{-0.005 -0.025}	19.0	9.7	26.6	10	70	2
2FEKM100-220-10	○	10.0	⁰ _{-0.005 -0.025}	22.0	-	-	10	70	2
2FEKM110-220-12	○	11.0	⁰ _{-0.005 -0.025}	22.0	11.2	30.8	12	75	2
2FEKM120-260-12	○	12.0	⁰ _{-0.010 -0.030}	26.0	-	-	12	75	2
2FEKM130-260-16	○	13.0	⁰ _{-0.010 -0.030}	26.0	13.2	36.4	16	75	2
2FEKM140-260-16	○	14.0	⁰ _{-0.010 -0.030}	26.0	14.2	36.4	16	75	2
2FEKM150-300-16	○	15.0	⁰ _{-0.010 -0.030}	30.0	15.2	42.0	16	90	2
2FEKM160-320-16	○	16.0	⁰ _{-0.010 -0.030}	32.0	-	-	16	90	2

- MEGACOAT and sharp cutting edge enable high precision finishing due to excellent wear and heat resistance.

Recommended Cutting Conditions **L13**

4 flutes, Sharp corner edge

4FESM

4 flutes, Tough corner edge

4FEKM

Workpiece Materials

★: 1st Recommendation



Workpiece Materials

★: 1st Recommendation



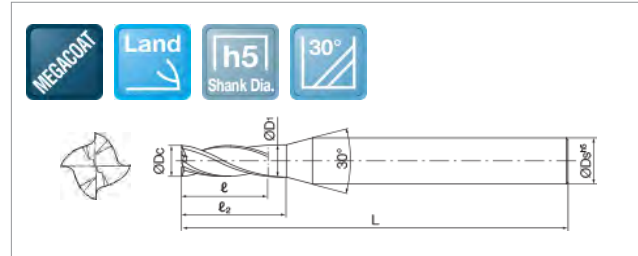
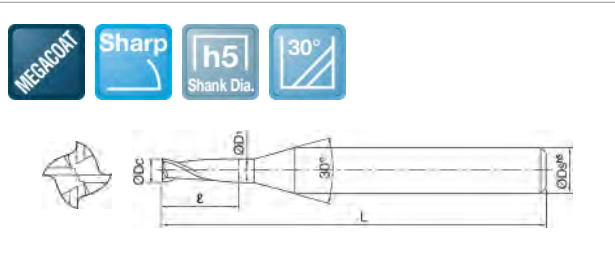
MEGACOAT is applied

Super Micro-Grain Carbide



MEGACOAT is applied

Super Micro-Grain Carbide



4FESM

Shouldering

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ØDs	L	
4FESM010-025-04	○	1.0	0 -0.015	2.5	1.1	4	45	4
4FESM015-040-04	○	1.5	0 -0.015	4.0	1.6	4	45	4
4FESM020-060-04	○	2.0	0 -0.015	6.0	2.1	4	45	4
4FESM025-080-04	○	2.5	0 -0.015	8.0	2.6	4	45	4
4FESM030-100-06	○	3.0	0 -0.015	10.0	3.2	6	50	4
4FESM035-100-06	○	3.5	0 -0.015	10.0	3.7	6	50	4
4FESM040-110-06	○	4.0	0 -0.015	11.0	4.2	6	50	4
4FESM045-110-06	○	4.5	0 -0.015	11.0	4.7	6	50	4
4FESM050-130-06	○	5.0	0 -0.015	13.0	5.2	6	50	4
4FESM055-130-06	○	5.5	0 -0.015	13.0	5.7	6	50	4
4FESM060-130-06	○	6.0	0 -0.020	13.0	-	6	50	4
4FESM080-190-08	○	8.0	-0.005 -0.025	19.0	-	8	60	4
4FESM100-220-10	○	10.0	-0.005 -0.025	22.0	-	10	70	4
4FESM120-260-12	○	12.0	-0.010 -0.030	26.0	-	12	75	4
4FESM140-260-16	○	14.0	-0.010 -0.030	26.0	14.2	16	75	4
4FESM150-300-16	○	15.0	-0.010 -0.030	30.0	15.2	16	90	4
4FESM160-320-16	○	16.0	-0.010 -0.030	32.0	-	16	90	4

4FEKM

Shouldering

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Under Neck Length	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ℓ2	ØDs	L	
4FEKM030-100-06	○	3.0	0 -0.015	10.0	3.15	12.0	6	50	4
4FEKM035-100-06	○	3.5	0 -0.015	10.0	3.68	12.0	6	50	4
4FEKM040-110-06	○	4.0	0 -0.015	11.0	4.20	13.2	6	50	4
4FEKM045-110-06	○	4.5	0 -0.015	11.0	4.70	13.2	6	50	4
4FEKM050-130-06	○	5.0	0 -0.015	13.0	5.20	15.6	6	50	4
4FEKM055-130-06	○	5.5	0 -0.015	13.0	5.70	15.6	6	50	4
4FEKM060-130-06	○	6.0	0 -0.020	13.0	-	-	6	50	4
4FEKM080-190-08	○	8.0	-0.005 -0.025	19.0	-	-	8	60	4
4FEKM100-220-10	○	10.0	-0.005 -0.025	22.0	-	-	10	70	4
4FEKM120-260-12	○	12.0	-0.010 -0.030	26.0	-	-	12	75	4
4FEKM140-260-16	○	14.0	-0.010 -0.030	26.0	14.20	36.4	16	75	4
4FEKM150-300-16	○	15.0	-0.010 -0.030	30.0	15.20	42.0	16	90	4
4FEKM160-320-16	○	16.0	-0.010 -0.030	32.0	-	-	16	90	4

Recommended Cutting Conditions **L14**

2FESW, 3FESW, 4FESW



(2FESW)



Workpiece Material: Kovar alloy

2FES (Ø3-2flutes)		Facing of machine component
○ Smooth surface of shoulder wall		· Vc=66 sfm (n=2150min ⁻¹) · fz=0.001 ipt (Vf=3.9 ipm)
Competitor C (Ø3-2flutes)		
× Large burrs		Large burrs

Comparison with competitor's endmill after 600 passes



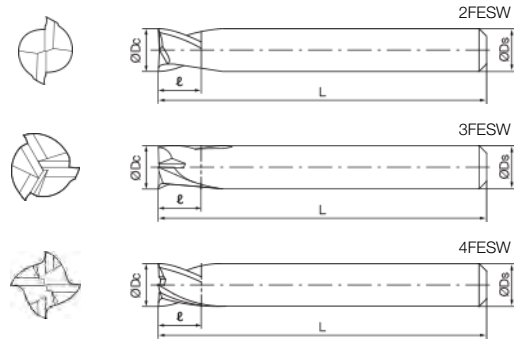
MEGACOAT is applied

Super Micro-Grain Carbide

No. of Flutes: 2,3,4

Workpiece Materials

★: 1st Recommendation



Sharp Cutting Edge Reduced Burrs

2FESW

Shouldering Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØDs	L	Z
2FESW050-050-05A	○	5.0	⁰ _{-0.020}	5.0	5	35	2
2FESW060-060-05A	○	6.0	⁰ _{-0.020}	6.0	5	35	2
2FESW030-030-04	○	3.0	⁰ _{-0.020}	3.0	4	45	2
2FESW035-035-04	○	3.5	⁰ _{-0.020}	3.5	4	45	2
2FESW040-040-04	○	4.0	⁰ _{-0.020}	4.0	4	45	2
2FESW050-050-06	○	5.0	⁰ _{-0.020}	5.0	6	45	2
2FESW060-060-06	○	6.0	⁰ _{-0.020}	6.0	6	45	2
2FESW070-070-07	○	7.0	⁰ _{-0.025}	7.0	7	45	2
2FESW080-080-07	○	8.0	⁰ _{-0.025}	8.0	7	45	2
2FESW080-080-08	○	8.0	⁰ _{-0.025}	8.0	8	45	2
2FESW100-080-07	○	10.0	⁰ _{-0.025}	8.0	7	45	2
2FESW100-080-10	○	10.0	⁰ _{-0.025}	8.0	10	45	2
2FESW120-080-10	○	12.0	⁰ _{-0.025}	8.0	10	45	2
2FESW120-080-12	○	12.0	⁰ _{-0.030}	8.0	12	45	2
2FESW130-080-13	○	13.0	⁰ _{-0.030}	8.0	13	45	2

4FESW

Shouldering Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØDs	L	Z
4FESW030-030-04	○	3.0	⁰ _{-0.020}	3.0	4	45	4
4FESW035-035-04	○	3.5	⁰ _{-0.020}	3.5	4	45	4
4FESW040-040-04	○	4.0	⁰ _{-0.020}	4.0	4	45	4
4FESW050-050-06	○	5.0	⁰ _{-0.020}	5.0	6	45	4
4FESW060-060-06	○	6.0	⁰ _{-0.020}	6.0	6	45	4
4FESW070-070-07	○	7.0	⁰ _{-0.025}	7.0	7	45	4
4FESW080-080-07	○	8.0	⁰ _{-0.025}	8.0	7	45	4

3FESW

Shouldering Slotting

(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØDs	L	Z
3FESW050-050-05A	○	5.0	⁰ _{-0.020}	5.0	5	35	3
3FESW060-060-05A	○	6.0	⁰ _{-0.020}	6.0	5	35	3
3FESW030-030-04	○	3.0	⁰ _{-0.020}	3.0	4	45	3
3FESW035-035-04	○	3.5	⁰ _{-0.020}	3.5	4	45	3
3FESW040-040-04	○	4.0	⁰ _{-0.020}	4.0	4	45	3
3FESW050-050-06	○	5.0	⁰ _{-0.020}	5.0	6	45	3
3FESW060-060-06	○	6.0	⁰ _{-0.020}	6.0	6	45	3
3FESW070-070-07	○	7.0	⁰ _{-0.025}	7.0	7	45	3
3FESW080-080-07	○	8.0	⁰ _{-0.025}	8.0	7	45	3
3FESW080-080-08	○	8.0	⁰ _{-0.025}	8.0	8	45	3
3FESW100-080-07	○	10.0	⁰ _{-0.025}	8.0	7	45	3
3FESW100-080-10	○	10.0	⁰ _{-0.025}	8.0	10	45	3
3FESW120-080-10	○	12.0	⁰ _{-0.025}	8.0	10	45	3
3FESW120-080-12	○	12.0	⁰ _{-0.030}	8.0	12	45	3
3FESW130-080-13	○	13.0	⁰ _{-0.030}	8.0	13	45	3

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØDs	L	Z
4FESW080-080-08	○	8.0	⁰ _{-0.025}	8.0	8	45	4
4FESW100-080-07	○	10.0	⁰ _{-0.025}	8.0	7	45	4
4FESW100-080-10	○	10.0	⁰ _{-0.025}	8.0	10	45	4
4FESW120-080-10	○	12.0	⁰ _{-0.025}	8.0	10	45	4
4FESW120-080-12	○	12.0	⁰ _{-0.030}	8.0	12	45	4
4FESW130-080-13	○	13.0	⁰ _{-0.030}	8.0	13	45	4

Recommended Cutting Conditions ● L15~ ● L16

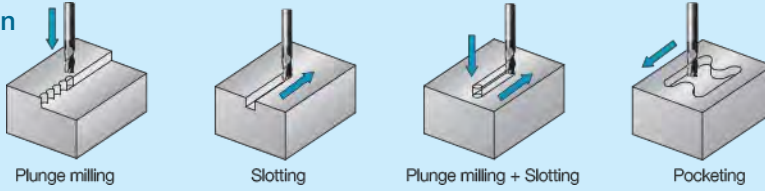
3ZFK

Triple Function

Plunge milling, slotting, and finishing with one end mill



Application

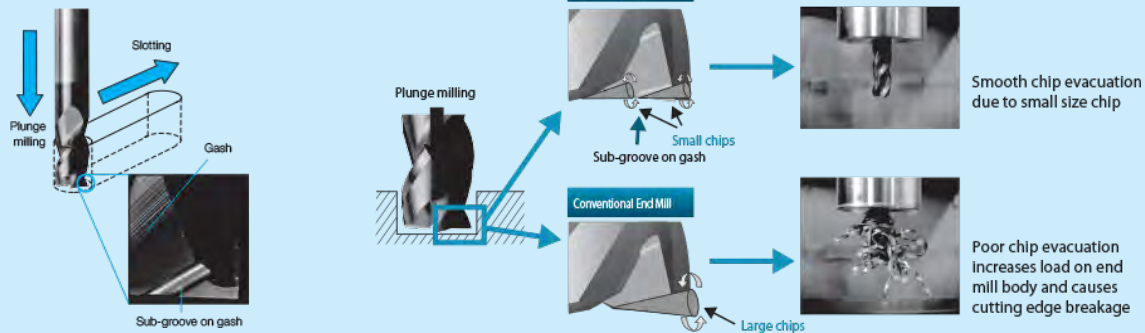


Triple Performance

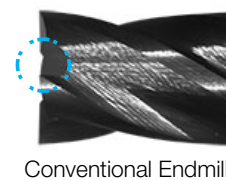
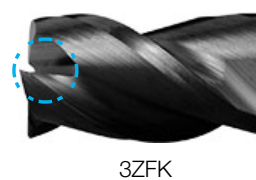
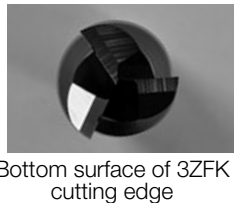
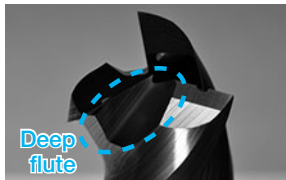
1. New design promotes high efficiency cutting

- Sub-groove on gash breaks chips during plunge milling resulting in smooth chip evacuation

Effect of sub-groove on gash



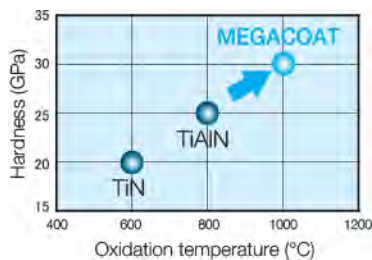
- Prevents **chip clogging** due to deep flute and gash design.



2. Longer tool life due to MEGACOAT

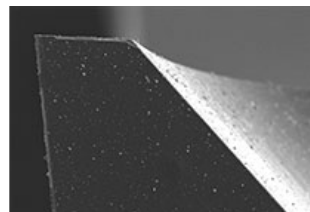
- Excellent wear resistance and heat-resistance

MEGACOAT (New PVD coat)



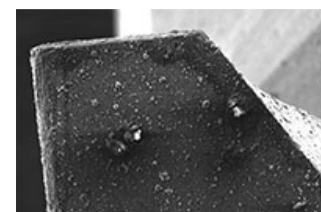
3. Better surface finish due to sharp cutting edge quality

- Smooth and sharp to the tip of the cutting edge
- Controls burr formation. Better surface roughness



MEGACOAT

Smooth and sharp to the tip of the cutting edge
Longer tool life and improved surface finish.



Competitor Coating A

Rough coating surface and round blunt cutting edge

3ZFKS, 3ZFKM

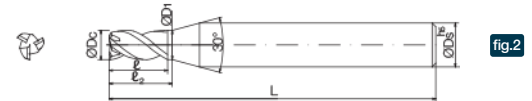
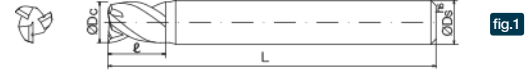


MEGACOAT is applied

Super Micro-Grain Carbide

Workpiece Materials

★: 1st Recommendation



3ZFKS (Short)

Shouldering Slotting Plunge milling
(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Under Neck Length	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ℓ2	ØDs	L	Z
3ZFKS060-090-06 fig.1	○	6.0	⁰ _{-0.020}	9.0	-	-	6	50	3
3ZFKS070-105-08 fig.2	○	7.0	⁰ _{-0.020}	10.5	7.2	11.3	8	60	3
3ZFKS080-120-08 fig.1	○	8.0	^{-0.005} _{-0.025}	12.0	-	-	8	60	3
3ZFKS100-150-10 fig.1	○	10.0	^{-0.005} _{-0.025}	15.0	-	-	10	70	3
3ZFKS120-180-12 fig.1	○	12.0	^{-0.010} _{-0.030}	18.0	-	-	12	75	3

3ZFKM (Medium)

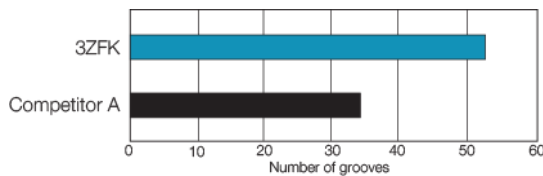
Shouldering Slotting Plunge milling
(Unit : mm)

Part Number	Stock	Outside Dia.	Mill Dia. tolerance	Length of cut	Neck Dia.	Under Neck Length	Shank Dia.	Overall length	No. of Flutes
		ØDc		ℓ	ØD1	ℓ2	ØDs	L	Z
3ZFKM030-060-06 fig.2	○	3.0	⁰ _{-0.015}	6.0	3.2	6.5	6	50	3
3ZFKM040-080-06 fig.2	○	4.0	⁰ _{-0.015}	8.0	4.2	8.6	6	50	3
3ZFKM050-100-06 fig.2	○	5.0	⁰ _{-0.015}	10.0	5.2	10.8	6	50	3
3ZFKM060-130-06 fig.1	○	6.0	⁰ _{-0.020}	13.0	-	-	6	50	3
3ZFKM070-160-08 fig.2	○	7.0	⁰ _{-0.020}	16.0	7.2	17.3	8	60	3
3ZFKM080-190-08 fig.1	○	8.0	^{-0.005} _{-0.025}	19.0	-	-	8	60	3
3ZFKM100-220-10 fig.1	○	10.0	^{-0.005} _{-0.025}	22.0	-	-	10	70	3
3ZFKM120-260-12 fig.1	○	12.0	^{-0.010} _{-0.030}	26.0	-	-	12	75	3

Case Studies

● Slotting of Titanium Alloy

Outside Dia.	Ø10	
Workpiece Material	Ti-6Al-4V	
Spindle Revolution	3ZFK:n=1700min ⁻¹ Competitor A: n=1300min ⁻¹	
Feed Rate	Vf=18.1 ipm	
Depth of Cut	ap×ae=0.08"×0.39"	



- Better surface finish and longer tool life with 3ZFK.
- Compared to competitor's coated products, the 3ZFK has a 1.4 times longer tool life.
- 3ZFK prevents burr formation due to sharp cutting edge.

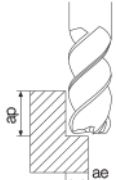

◆ Cutting edge after 35 passes

Competitor A	3ZFK	Competitor A	3ZFK
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GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

RECOMMENDED CUTTING CONDITIONS

2FESS

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø1	Ø2	Ø4	Ø6	Ø8	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0472Dc×0.0020Dc (Dc<Ø3) 0.0472Dc×0.0039Dc (Dc≥Ø3)</p>  <p>Slotting</p> <p>(ae) (inch)</p> <p>0.0039Dc (Dc<Ø1) 0.0118Dc (Ø1≤Dc<Ø3) 0.0197Dc (Dc≥Ø3)</p>	Carbon Steel	Shouldering	Spindle RPM	25,500	13,200	6,600	4,500	3,300	2,200	1,700
			Feed Rate (IPM)	8.858	9.055	14.764	16.339	16.535	16.142	16.142
		Slotting	Spindle RPM	15,300	8,000	4,000	2,700	2,000	1,300	1,000
			Feed Rate (IPM)	5.315	5.512	8.858	9.843	9.843	9.646	9.646
	Alloy Steel	Shouldering	Spindle RPM	22,000	11,000	5,600	3,700	2,800	1,900	1,400
			Feed Rate (IPM)	7.677	8.661	11.220	12.402	12.205	12.205	12.205
		Slotting	Spindle RPM	13,000	6,600	3,400	2,200	1,700	1,200	900
			Feed Rate (IPM)	4.528	5.118	6.693	7.480	7.283	7.283	7.283
	Pre-hardened steel (30-45HRC)	Shouldering	Spindle RPM	12,700	7,200	4,200	3,000	2,200	1,500	1,100
			Feed Rate (IPM)	2.165	3.150	3.937	4.134	4.134	4.331	4.331
		Slotting	Spindle RPM	7,600	4,300	2,500	1,800	1,300	900	700
			Feed Rate (IPM)	1.378	1.969	2.362	2.480	2.480	2.559	2.559
Stainless Steel	Shouldering	Spindle RPM	22,000	11,000	5,600	3,700	2,800	1,900	1,400	
		Feed Rate (IPM)	3.740	3.740	4.331	4.528	4.528	4.528	4.528	
	Slotting	Spindle RPM	13,000	6,600	3,400	2,200	1,700	1,200	900	
		Feed Rate (IPM)	2.362	2.362	2.559	2.756	2.756	2.756	2.756	

* Cutting with coolant is recommended for stainless steel.

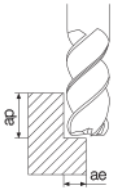
2FESM

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø0.5	Ø1	Ø2	Ø4	Ø6	Ø8	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0591Dc×0.0020Dc (Dc<Ø3) 0.0591Dc×0.0039Dc (Dc≥Ø3)</p>  <p>Slotting</p> <p>(ae) (inch)</p> <p>0.0039Dc (Dc<Ø1) 0.0118Dc (Ø1≤Dc<Ø3) 0.0197Dc (Dc≥Ø3)</p>	Carbon Steel	Shouldering	Spindle RPM	32,000	25,500	13,200	6,600	4,500	3,300	2,200	1,700
			Feed Rate (IPM)	8.268	8.858	9.055	14.764	16.339	16.535	16.142	16.142
		Slotting	Spindle RPM	19,000	15,300	8,000	4,000	2,700	2,000	1,300	1,000
			Feed Rate (IPM)	5.118	5.315	5.512	8.858	9.843	9.843	9.646	9.646
	Alloy Steel	Shouldering	Spindle RPM	27,000	22,000	11,000	5,600	3,700	2,800	1,900	1,400
			Feed Rate (IPM)	7.087	7.677	8.661	11.220	12.402	12.205	12.205	12.205
		Slotting	Spindle RPM	16,000	13,000	6,600	3,400	2,200	1,700	1,200	900
			Feed Rate (IPM)	4.134	4.528	5.118	6.693	7.480	7.283	7.283	7.283
	Pre-hardened Steel (30-45HRC)	Shouldering	Spindle RPM	22,500	12,700	7,200	4,200	3,000	2,200	1,500	1,100
			Feed Rate (IPM)	1.969	2.165	3.150	3.937	4.134	4.134	4.331	4.331
		Slotting	Spindle RPM	13,500	7,600	4,300	2,500	1,800	1,300	900	700
			Feed Rate (IPM)	1.181	1.378	1.969	2.362	2.480	2.480	2.559	2.559
Stainless Steel	Shouldering	Spindle RPM	27,000	22,000	11,000	5,600	3,700	2,800	1,900	1,400	
		Feed Rate (IPM)	2.362	3.740	3.740	4.331	4.528	4.528	4.528	4.528	
	Slotting	Spindle RPM	16,000	13,000	6,600	3,400	2,200	1,700	1,200	900	
		Feed Rate (IPM)	1.378	2.362	2.362	2.559	2.756	2.756	2.756	2.756	

* Cutting with coolant is recommended for stainless steel.

RECOMMENDED CUTTING CONDITIONS

2FESL (Shouldering)

Applications	Workpiece Material	Outside Dia. Dc (mm)	Ø1	Ø2	Ø4	Ø6	Ø8	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0984Dc×0.0020Dc (Dc<Ø3)</p> <p>0.0984Dc×0.0039Dc (Dc≥Ø3)</p>	Carbon Steel	Spindle RPM	19,000	9,500	4,800	3,200	2,400	1,600	1,200
		Feed Rate (IPM)	8.268	8.268	8.268	8.268	8.268	8.268	8.268
	Alloy Steel	Spindle RPM	14,300	7,200	3,600	2,400	2,000	1,300	1,000
		Feed Rate (IPM)	6.102	6.299	6.299	6.299	6.693	6.693	5.906
	Pre-hardened Steel (30~45HRC)	Spindle RPM	11,200	5,600	2,800	1,900	1,600	1,000	800
		Feed Rate (IPM)	3.346	3.346	3.543	3.543	3.937	3.740	3.150
	Stainless Steel	Spindle RPM	14,300	7,200	3,600	2,400	2,000	1,300	1,000
		Feed Rate (IPM)	3.740	3.740	3.740	3.740	4.134	4.134	3.150

* Cutting with coolant is recommended for stainless steel.

Slotting is not recommended.

2FEKS, 2FEKM

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0472Dc×0.0039Dc</p>  <p>Slotting</p> <p>(ae) (inch)</p> <p>0.0197Dc</p>	Carbon Steel	Shouldering	Spindle RPM	9,300	7,000	4,600	3,500	3,000	2,700	2,200
			Feed Rate (IPM)	17.717	17.717	18.504	18.504	18.504	18.504	17.323
		Slotting	Spindle RPM	7,500	6,000	4,400	3,300	2,700	2,300	1,900
			Feed Rate (IPM)	9.449	10.236	13.386	13.386	13.386	13.386	12.598
	Alloy Steel	Shouldering	Spindle RPM	8,800	6,600	4,400	3,300	2,600	2,200	1,800
			Feed Rate (IPM)	14.567	14.567	14.961	14.961	14.961	14.961	14.173
		Slotting	Spindle RPM	7,200	5,400	3,600	2,700	2,200	1,800	1,500
			Feed Rate (IPM)	10.630	10.630	10.630	10.630	10.630	10.630	10.630
	Pre-hardened Steel (30~45HRC)	Shouldering	Spindle RPM	6,400	4,800	3,200	2,400	1,900	1,600	1,200
			Feed Rate (IPM)	5.118	5.118	5.118	5.512	5.512	5.512	5.512
		Slotting	Spindle RPM	5,300	4,000	2,600	2,000	1,600	1,300	1,000
			Feed Rate (IPM)	4.724	4.724	4.724	4.724	4.724	4.724	4.724
Stainless Steel	Shouldering	Spindle RPM	8,000	6,000	4,000	3,000	2,400	2,000	1,500	
		Feed Rate (IPM)	5.512	5.512	5.512	5.512	5.512	5.512	5.512	
	Slotting	Spindle RPM	5,300	4,000	2,600	2,000	1,600	1,300	1,000	
		Feed Rate (IPM)	3.150	3.543	3.937	3.937	3.937	3.543	3.543	

* Cutting with coolant is recommended for stainless steel.

GRADES **A**

INSERTS **B**

CBN & PCD **C**

TURNING **E**

BORING **F**

GRINDING **G**

CUT-OFF **H**

THREADING **J**

SOLID END MILLS **L**

MILLING **M**

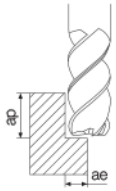
SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**

RECOMMENDED CUTTING CONDITIONS

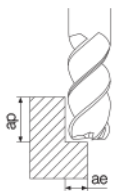
4FESM (Shouldering)

Applications	Workpiece Material	Outside Dia. Dc (mm)	Ø1	Ø2	Ø4	Ø6	Ø8	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0591Dc×0.0020Dc (Dc<Ø3)</p> <p>0.0591Dc×0.0039Dc (Dc≥Ø3)</p>	Carbon Steel	Spindle RPM	25,500	13,000	6,600	4,400	3,300	2,200	1,700
		Feed Rate (IPM)	13.189	13.583	22.835	24.409	24.606	24.803	23.622
	Alloy Steel	Spindle RPM	22,000	11,000	5,600	3,700	2,800	1,900	1,400
		Feed Rate (IPM)	11.417	11.417	15.551	17.913	17.913	18.504	18.110
	Pre-hardened Steel (30~45HRC)	Spindle RPM	12,000	7,200	4,200	3,000	2,200	1,500	1,100
		Feed Rate (IPM)	4.134	4.921	5.906	6.299	6.299	6.496	5.512
	Stainless Steel	Spindle RPM	22,000	11,000	5,600	3,700	2,800	1,900	1,400
		Feed Rate (IPM)	5.118	5.709	6.496	6.496	6.693	6.890	6.102

* Cutting with coolant is recommended for stainless steel.

Slotting is not recommended.

4FEKM (Tough corner edge) (Shouldering)

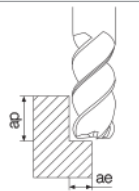
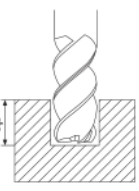
Applications	Workpiece Material	Outside Dia. Dc (mm)	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12	Ø16
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0591Dc×0.0039Dc</p>	Carbon Steel	Spindle RPM	10,600	8,000	5,300	4,000	3,200	2,700	2,100
		Feed Rate (IPM)	26.772	27.165	30.315	30.315	30.315	30.315	30.315
	Alloy Steel	Spindle RPM	8,800	6,600	4,400	3,300	2,600	2,200	2,000
		Feed Rate (IPM)	19.685	21.654	24.409	24.803	24.803	24.803	24.016
	Pre-hardened Steel (30~45HRC)	Spindle RPM	6,400	4,800	3,200	2,400	1,900	1,600	1,200
		Feed Rate (IPM)	7.087	7.087	7.087	7.480	7.480	7.480	7.480
	Stainless Steel	Spindle RPM	8,000	6,000	4,000	3,000	2,300	2,000	1,500
		Feed Rate (IPM)	7.480	7.874	7.874	7.874	8.268	8.268	8.268

* Cutting with coolant is recommended for stainless steel.

Slotting is not recommended.

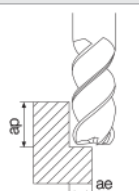
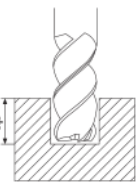
RECOMMENDED CUTTING CONDITIONS

2FESW

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø13
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0394Dc×0.0079Dc</p>  <p>Slotting</p> <p>(ae) (inch)</p> <p>0.0079Dc</p>	Carbon Steel	Shouldering	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	25.984	25.197	25.197	25.197	20.472	17.717	16.142	13.780
		Slotting	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	25.984	25.197	25.197	25.197	20.472	17.717	16.142	13.780
	Alloy Steel	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	16.535	16.929	16.929	16.929	13.780	11.811	10.630	9.055
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	16.535	16.929	16.929	16.929	13.780	11.811	10.630	9.055
	Pre-hardened Steel (30~45HRC)	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	16.535	16.929	16.929	16.929	13.780	11.811	10.630	9.055
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	16.535	16.929	16.929	16.929	13.780	11.811	10.630	9.055
Stainless Steel	Shouldering	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	12.598	12.598	12.598	12.598	10.236	9.055	8.268	7.087	
	Slotting	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	12.598	12.598	12.598	12.598	10.236	9.055	8.268	7.087	

* Cutting with coolant is recommended for stainless steel.

3FESW

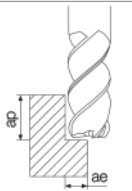

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø13
 <p>Shouldering</p> <p>(ap×ae) (inch)</p> <p>0.0394Dc×0.0079Dc</p>  <p>Slotting</p> <p>(ae) (inch)</p> <p>0.0079Dc</p>	Carbon Steel	Shouldering	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	31.890	31.496	31.496	31.496	25.591	22.047	20.079	17.717
		Slotting	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	31.890	31.496	31.496	31.496	25.591	22.047	20.079	17.717
	Alloy Steel	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	20.866	20.866	20.866	20.866	16.929	14.567	13.386	11.811
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	20.866	20.866	20.866	20.866	16.929	14.567	13.386	11.811
	Pre-hardened Steel (30~45HRC)	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	20.866	20.866	20.866	20.866	16.929	14.567	13.386	11.811
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	20.866	20.866	20.866	20.866	16.929	14.567	13.386	11.811
Stainless Steel	Shouldering	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	15.748	15.748	15.748	15.748	12.598	11.024	10.236	9.055	
	Slotting	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	15.748	15.748	15.748	15.748	12.598	11.024	10.236	9.055	

* Cutting with coolant is recommended for stainless steel.

GRADES **A**
 INSERTS **B**
 CBN & PCD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
 MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**


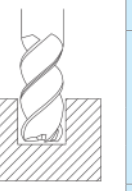
RECOMMENDED CUTTING CONDITIONS

4FESW

Applications	Workpiece Material	Application	Outside Dia. Dc (mm)	Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12	Ø13
 <p>Shouldering</p> <p>(ap×ae) (inch) 0.0394Dc×0.0079Dc</p>  <p>Slotting</p> <p>(ae) (inch) 0.0079Dc</p>	Carbon Steel	Shouldering	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	37.795	37.795	37.795	37.795	30.709	26.772	24.409	22.441
		Slotting	Spindle RPM	11,000	8,000	6,400	5,300	4,000	3,200	2,700	2,500
			Feed Rate (IPM)	37.795	37.795	37.795	37.795	30.709	26.772	24.409	22.441
	Alloy Steel	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	25.197	25.197	25.197	25.197	20.472	17.717	16.142	14.567
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	25.197	25.197	25.197	25.197	20.472	17.717	16.142	14.567
	Pre-hardened Steel (30-45HRC)	Shouldering	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	25.197	25.197	25.197	25.197	20.472	17.717	16.142	14.567
		Slotting	Spindle RPM	7,400	5,600	4,500	3,700	2,800	2,200	1,900	1,700
			Feed Rate (IPM)	25.197	25.197	25.197	25.197	20.472	17.717	16.142	14.567
Stainless Steel	Shouldering	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	18.898	18.898	18.898	18.898	15.354	13.386	12.205	11.417	
	Slotting	Spindle RPM	6,400	4,800	3,800	3,200	2,400	1,900	1,600	1,500	
		Feed Rate (IPM)	18.898	18.898	18.898	18.898	15.354	13.386	12.205	11.417	

* Cutting with coolant is recommended for stainless steel.

3ZFKS (Short), 3ZFKM (Medium)

Applications	Workpiece Material	Depth of Cut (ap×ae) (inch)	Outside Dia. Dc (mm)	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø10	Ø12		
 <p>Shouldering</p>  <p>Plunge milling Slotting</p>	Carbon Steel	Shouldering Short 0.0472Dc×0.0118Dc Medium 0.0591Dc×0.0118Dc Plunge milling Slotting 1Dc	Spindle RPM	13,800	10,700	8,800	7,500	6,600	6,000	4,800	4,000		
			Feed Rate (mm/min)	Shouldering	33.465	37.402	43.307	47.244	43.307	39.370	35.827	33.465	
				Plunge milling	7.087	6.693	6.693	6.693	6.299	5.906	4.724	3.937	
			Slotting	22.441	25.591	27.559	28.740	29.528	30.709	31.496	29.528		
	Alloy Steel	Shouldering Short 0.0472Dc×0.0118Dc Medium 0.0591Dc×0.0118Dc	Spindle RPM	10,600	9,300	8,300	7,400	6,500	6,000	4,700	3,500		
				Feed Rate (mm/min)	Shouldering	27.559	30.709	35.433	38.583	35.433	33.465	29.528	27.559
					Plunge milling	4.724	4.724	5.118	5.512	5.118	5.118	4.724	3.937
				Slotting	19.685	21.260	22.441	23.228	24.016	23.622	22.835	19.685	
	Pre-hardened Steel (30-45HRC)	Plunge milling Slotting 0.5Dc	Spindle RPM	5,200	4,000	3,200	2,600	2,300	2,000	1,600	1,400		
				Feed Rate (mm/min)	Shouldering	17.323	17.323	19.291	19.291	19.291	17.323	15.748	14.567
					Plunge milling	3.543	4.331	4.331	5.118	4.331	3.937	3.150	2.756
				Slotting	8.661	10.630	10.630	12.598	12.992	12.992	9.055	7.874	
Stainless Steel	Shouldering Short 0.0472Dc×0.0079Dc Medium 0.0591Dc×0.0079Dc	Spindle RPM	3,300	2,500	2,000	1,700	1,400	1,300	1,100	900			
			Feed Rate (mm/min)	Shouldering	11.024	10.630	12.992	13.386	12.992	12.992	13.780	12.598	
				Plunge milling	0.787	1.181	1.575	1.575	1.575	1.181	0.787	0.787	
			Slotting	4.331	4.331	5.118	5.512	5.118	5.118	4.724	4.724		
Titanium Alloys	Plunge milling Slotting 0.5Dc	Spindle RPM	3,300	2,500	2,000	1,700	1,400	1,300	1,100	900			
			Feed Rate (mm/min)	Shouldering	11.024	10.630	12.992	13.386	12.992	12.992	13.780	12.598	
				Plunge milling	0.787	1.181	1.575	1.575	1.575	1.181	0.787	0.787	
			Slotting	4.331	4.331	5.118	5.512	5.118	5.118	4.724	4.724		

- Compressed air is recommended for cutting steel.
- Water soluble coolant is recommended for machining stainless steel and titanium alloys.
- Adjust depth of cut (ap) to suit machine rigidity

MILLING



M

M1 - M12

INDEXABLE END MILLS	
MEC	M3
MECX	M6
MEW	M9

M3 - M12

MEC

M3

MECX

M6

MEW

M9

MILLING INDEXABLE INSERTS

Milling Inserts

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

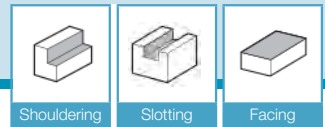
Insert	Part Number	Dimensions (inch)					Angle			Cermat TN100M	CVD CA6535	MN [®] PR1535	MEGA COAT PR1225 PR1210	PVD Coated Carbide PR830	Carbide GW25	Ref. Page for Toolholder
		A	T	Ød	W	rε	α	β	γ							
		Handed Insert shows Right-hand														
	BDMT 070302ER-JS	0.181	0.102	0.091	0.264	0.008	16°	15°	-		○	○	●		●	M6
	070304ER-JS	0.181	0.102	0.091	0.264	0.016	16°	15°	-		○	○	●		●	
	070308ER-JS	0.181	0.102	0.091	0.264	0.031	16°	15°	-		○	○	●		●	
	BDMT 070302ER-JT	0.181	0.102	0.091	0.264	0.008	16°	15°	-		○	○	●	●	●	M6
	070304ER-JT	0.181	0.102	0.091	0.264	0.016	16°	15°	-		○	○	●	●	●	
	070308ER-JT	0.181	0.102	0.091	0.264	0.031	16°	15°	-		○	○	●	●	●	
	BDGT 11T302FR-JA	0.264	0.150	0.110	0.433	0.008	18°	13°	-						○	M3
	11T304FR-JA	0.264	0.150	0.110	0.433	0.016	18°	13°	-					●		
	11T308FR-JA	0.264	0.150	0.110	0.433	0.031	18°	13°	-					●		
	BDMT 110302ER-JS	0.248	0.118	0.110	0.433	0.008	18°	15°	-		○	○	●		○	M3
	110304ER-JS	0.248	0.118	0.110	0.433	0.016	18°	15°	-		○	○	●		●	
	110308ER-JS	0.248	0.118	0.110	0.433	0.031	18°	15°	-		○	○	●		●	
	BDMT 11T302ER-JS	0.264	0.150	0.110	0.433	0.008	18°	13°	-		○	○	●		●	
	11T304ER-JS	0.264	0.150	0.110	0.433	0.016	18°	13°	-		●	●	●		●	
	11T308ER-JS	0.264	0.150	0.110	0.433	0.031	18°	13°	-		●	●	●		●	
	BDMT 110302ER-JT	0.248	0.118	0.110	0.433	0.008	18°	15°	-		○	○	●	●	○	M3
	110304ER-JT	0.248	0.118	0.110	0.433	0.016	18°	15°	-		○	○	●	●	●	
	110308ER-JT	0.248	0.118	0.110	0.433	0.031	18°	15°	-		○	○	●	●	●	
	BDMT 11T302ER-JT	0.264	0.150	0.110	0.433	0.008	18°	13°	-	●	○	○	●	●	●	
	11T304ER-JT	0.264	0.150	0.110	0.433	0.016	18°	13°	-		●	●	●	●	●	
	11T308ER-JT	0.264	0.150	0.110	0.433	0.031	18°	13°	-		●	●	●	●	●	
	11T312ER-JT	0.264	0.150	0.110	0.433	0.047	18°	13°	-		○	○	●	●	●	
	11T316ER-JT	0.264	0.150	0.110	0.433	0.063	18°	13°	-		●	●	●	●	●	
	11T320ER-JT	0.264	0.150	0.110	0.433	0.079	18°	13°	-		○	○	●	●	●	
	11T324ER-JT	0.264	0.150	0.110	0.433	0.094	18°	13°	-		○	○	●	●	●	
11T331ER-JT	0.264	0.150	0.110	0.433	0.122	18°	13°	-		○	○	●	●	●		

※ MN = MEGACOAT NANO

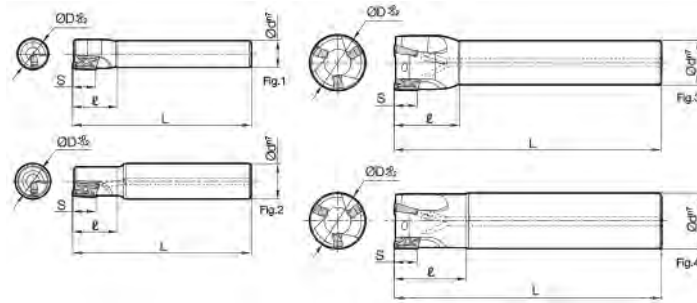
Insert	Part Number	Dimensions (inch)					Angle		PCD			Ref. Page for Toolholder	
		A	T	Ød	W	rε	S	α	β	KPD001	KPD010		KPD230
		Handed Insert shows Right-hand											
	BDMT 11T302FR	0.264	0.150	0.110	0.433	0.008	0.142	18°	13°	●		○	M3
	11T304FR	0.264	0.150	0.110	0.433	0.016	0.142	18°	13°	●		○	

Inserts are sold in 10 piece boxes

PCD Inserts are sold in 1 piece boxes



MEC End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Pre-set Torque Wrench* ^{NEW}	Max. Revolution (min-1)	
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.			Insert Screw	Wrench			
Cylindrical 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	PST-T8	50,800	
	MEC 0625-S500-11T	●	2	0.625	0.500	2.750	0.906	0.400	18°	-14°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,750	
	0625-S625-11T	●	2	0.625	0.625	3.000	1.024	0.400	18°	-14°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	43,750	
	0750-S625-11T	●	3	0.750	0.625	3.050	1.024	0.400	20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	41,000	
	0750-S750-11T	●	3	0.750	0.750	3.250	1.142	0.400	20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	41,000	
	MEC 10-S10-11	○	1	10	10	80	17	10	+10°	-24°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	54,800	
	10-S16-11	○	1	10	16	80	17	10	+10°	-24°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	54,800	
	12-S10-11	○	1	12	10	80	20	10	+12°	-21°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	50,800	
	12-S12-11	○	1	12	12	80	20	10	+12°	-21°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	50,800	
	12-S16-11	○	1	12	16	80	20	10	+12°	-21°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	50,800	
	13-S12-11	○	1	13	12	80	20	10	+12°	-19°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	49,200	
	14-S12-11	○	1	14	12	80	20	10	+12°	-19°	No	Fig.1	SB-2545TR	DTM-8	PST-T8	47,700	
	14-S16-11	○	1	14	16	80	20	10	+12°	-19°	Yes	Fig.2	SB-2545TR	DTM-8	PST-T8	47,700	
	Same Shank Size	MEC 16-S12-11T	○	2	16	12	100	23	10	+18°	-14°	No	Fig.1	SB-2555TRG	DTM-8	PST-T8	43,750
		17-S16-11T	○	2	17	16	100	23	10	+18°	-13°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,500
		18-S16-11T	○	2	18	16	100	23	10	+19°	-13°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	43,000
		19-S16-11T	○	3	19	16	100	26	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	42,000
		20-S16-11T	○	3	20	16	110	26	10	+20°	-10°	Yes	Fig.3	SB-2555TRG	DTM-8	PST-T8	41,000
		MEC 16-S16-11T	○	2	16	16	100	30	10	+18°	-14°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	43,750
		20-S20-11T	○	3	20	20	110	30	10	+20°	-10°	Yes	Fig.4	SB-2555TRG	DTM-8	PST-T8	41,000

*Pre-set Torque Wrench sold separately

Max. Revolution

When running the end mill and inserts at the maximum revolution, the insert or toolholder may be damaged by centrifugal force. For more details, see "Warning" on page 8.

Applicable Inserts

Toolholders	Applicable Inserts M2			
MEC...-11	BDMT1103OOER-JT	BDMT1103OOER-JS	-	-
MEC...-11T	BDMT11T3OOER-JT	BDMT11T3OOER-JS	BDGT11T3OOFR-JA	BDMT11T3OOFR

Chipbreaker

Recommended Cutting Conditions M4

JT Chipbreaker (General Purpose)

JS Chipbreaker (Low Cutting Force)

JA Chipbreaker (For Alminum)



Machining cutting reduced by 20%



When using inserts with corner radius R0.0630" or larger, additional modifications of the cutter body will be necessary. See the chart below for the recommended modifications. (Additional grind off is not necessary when corner-R is 0.0472" or less.)

Insert Corner-R(ℓ)	Additional modifications of the cutter body corner
0.0630	R0.0394
0.0787	R0.0394
0.0945	R0.0472

* Rounded shape is recommended when modifying the cutter corner. When chamfering cutter corner to modify, please make sure not to cut away too much.



Recommended Cutting Conditions

GRADES	INSERTS	CBN & PCD	TURNING	BORING	GROOVING	CUT-OFF	THREADING	SOLID END MILLS	MILLING	SPARE PARTS	TECHNICAL	INDEX	Chipbreaker	Workpiece Material	Toolholder fz (ipt)		Recommended Insert Grade Vc (sfm)							
															MEC0500-MEC0750 MEC10-MEC19	MEC20	Cermet TN100M	MEGACOAT NANO PR1535	MEGACOAT PR1225 PR1210		PVD Coated Carbide PR830	CVD Coated Carbide CA6535		
A	B	C	E	F	G	H	J	L	M	P	R	T	JT	Carbon Steel	0.002- 0.004 -0.006	0.003- 0.006 -0.010	390- 530 -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 Alloy	0.002- 0.003 -0.004	0.003- 0.006 -0.008	-	130- 200 -260	-	100- 160 -230	-	-	-
															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 Alloy	0.002- 0.003 -0.004	0.003- 0.004 -0.005	-	130- 200 -260	-	-	-	-		

* Machining with coolant is recommended for Ni-base Heat Resistant Alloys and Titanium Alloys.

★ 1st Recommendation ☆ 2nd Recommendation

JA Chipbreaker		
Workpiece Material	fz (ipt)	Insert Grades (Cutting Speed: sfm) Carbide GW25
Aluminum Alloys (Si 13% or less)	0.002~0.012	660~2620
Aluminum Alloys (Si 13% or above)	0.002~0.008	660~980

PCD		
Workpiece Material	fz (ipt)	Insert Grades (Cutting Speed: sfm) PCD KPD230 (KPD001)
Aluminum Alloys (Si 13% or less)	0.002~0.008	1640~4920
Aluminum Alloys (Si 13% or above)	0.002~0.006	980~3280

Ramping, Helical Milling and Plunge Milling

Ramping, Helical Milling

- Ramping angle is recommended to be less than α° .
- Refer to each tool's cutting performance list for the depth of helical milling. Use compressed air during cutting.

Cutting Dia.	Applicable Inserts	Maximum Ramping Angle (α°)
Ø0.625" Ø16-Ø18	BDMT11T3 type BDGT11T3 type	3°
Ø0.750" Ø19-Ø20	BDMT11T3 type BDGT11T3 type	5°

BDMT1103 type is not recommended for ramping and helical milling.

Plunge Milling

Cutting Dia.	Applicable Inserts	Maximum Width of Cut (ae)
Ø0.625" Ø16-Ø19	BDMT11T3 type BDGT11T3 type	0.0591"
Ø0.750" Ø20	BDMT11T3 type BDGT11T3 type	0.1969"

BDMT/BDGT1103 type is not recommended for plunge milling.

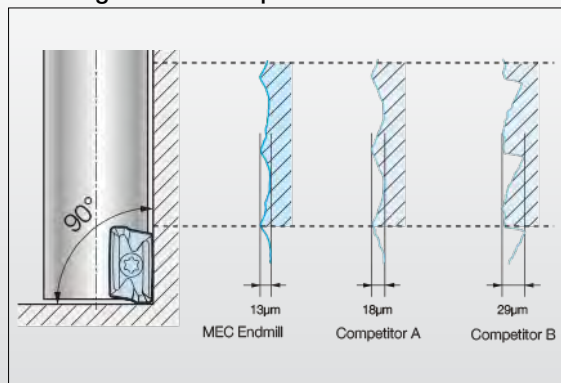
Guidance of minimum cutting dia. for helical cutting.

MEC	Toolholder Dia.	Ø16	Ø18	Ø20
BD_T11T3 type	Guidance of minimum cutting dia. for helical cutting.	Ø21	Ø25	Ø29
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.	Ø28	Ø32	Ø36

● Features of MEC

● Perfect 90° Shoulders

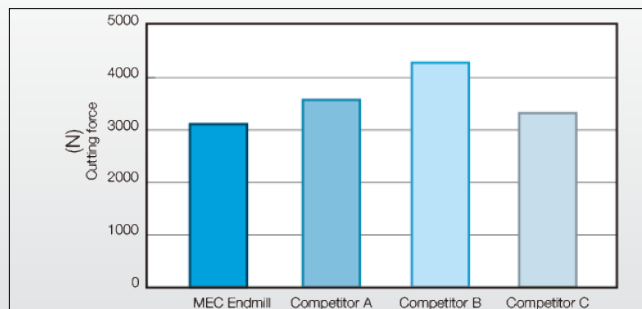
<Cutting Surface Comparison>



(Internal evaluation)

● Low cutting force

<Cutting Force Comparison>



Tool diameter Ø0.787" 1049
 Vc=328 sfm Shouldering ap×ae=0.354"×0.3936"
 fz=0.008 ipt Dry (In house evaluation)

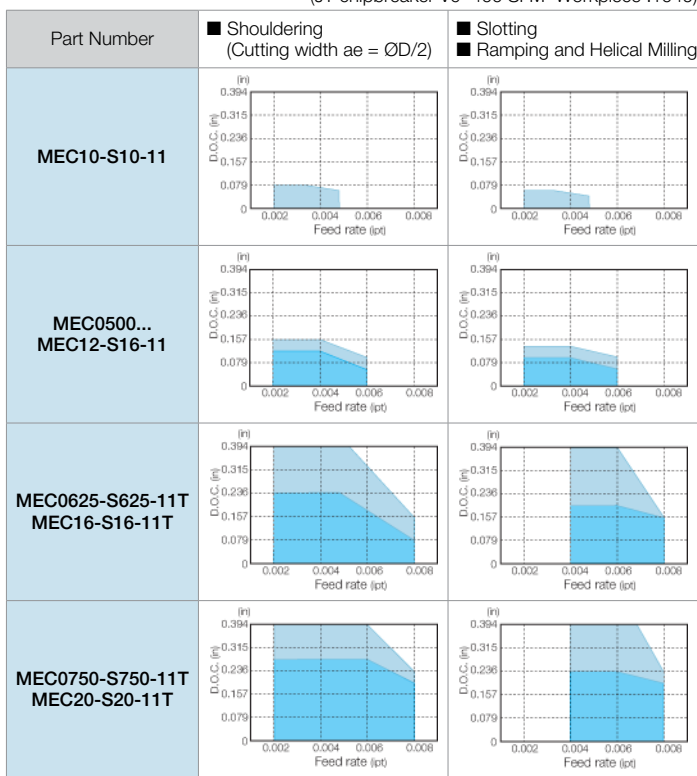
(Internal evaluation)

■ Cutting Performance of MEC End Mill

① Overhang Length When Using BDMT 11mm-type Insert (Standard / Straight Shank)

Cutting Dia.	Part Number (mm / inch)	Overhang Length A (in)	
		(Colors Refer to charts on right)	
Ø8mm	MEC10-S10-11	0.670	-
Ø12mm	MEC0500... MEC12-S16-11	0.787	1.180
Ø0.625in Ø16mm	MEC0625-S625-11T MEC16-S16-11T	1.180	1.790
Ø0.750in Ø20mm	MEC0750-S750-11T MEC20-S20-11T	1.180	1.790

(JT chipbreaker Vc=400 SFM Workpiece :1049)



■ Case Studies

RC55 (Prehardened Tool Steel)

- Test Piece (54~56HRC)
- Vc=175 sfm (n=800min-1)
- ap×ae=0.08" × 0.55"
- fz=0.005 ipt (Vf=11.8 ipm)
- Dry
- MEC20-S20-11T
- 3 Teeth
- BDMT11T308ER-JT (PR830)

Tool	Metal Removal Volume
MEC	4.35 in ³ (continuable)
Competitor A	0.18 in ³ (Chipping)

• Competitor A (Ø25 : 2 Teeth) caused chipping after 10 minutes machining with the conditions of Vc=131 sfm, fz=0.003 ipt, ap×ae=0.08"×0.12", and it was noisy. Also, higher feed rate was not possible because it would cause breakage.
 • MEC maintained a good edge condition even after 10 minutes and was still available for further machining.

(User Evaluation)

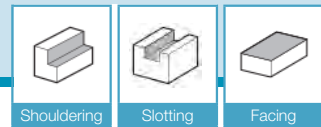
Structural Steel

- Plate
- Vc=300 sfm (n=1400min-1)
- ap=0.20"×2 Passes
- fz=0.005 ipt (Vf=19.7 ipm)
- Dry
- MEC20-S20-11T
- 3 Teeth
- BDMT11T308ER-JT (PR830)

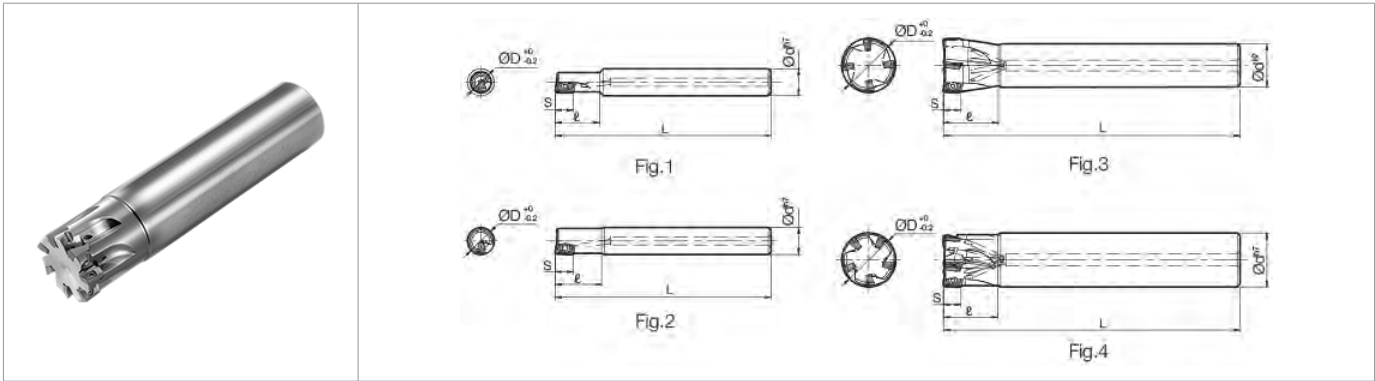
Tool	Edge Condition
MEC	23 pcs/edge
Competitor B	10~11 pcs/edge

• MEC doubled Competitor B's tool life under the same machining conditions.

(User Evaluation)



MECX End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimensions					Rake Angle (°)		Coolant Hole	Drawing	Spare Parts		Pre-set Torque Wrench*	Max. Revolution (min ⁻¹)			
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.			Insert Screw	Wrench					
Standard Shank	Standard	inch	MECX 0750-S625-07-4T	4	0.750	0.625	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	PST-T6	40,900		
			0750-S625-07-5T	5	0.750	0.625	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig. 3	SB-2042TRG	DTM-6	PST-T6	40,900		
			MECX 08-S10-07-1T	1	8	10	80	16	6	11.7°	-24.0°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	48,100		
			14-S12-07-2T	2	14	12	80	18	6	16.3°	-12.1°	Yes	Fig.3	SB-2035TRG	DTM-6	PST-T6	44,800		
			17-S16-07-3T	3	17	16	100	20	6	16.3°	-11.0°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	42,400		
			18-S16-07-3T	3	18	16	100	20	6	16.3°	-10.9°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	41,600		
			20-S16-07-4T	4	20	16	110	20	6	16.3°	-10.4°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	40,200		
	Fine pitch	mm	MECX 20-S16-07-5T	4	21	20	110	20	6	16.3°	-10.1°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	39,500		
			25-S20-07-5T	5	25	20	120	25	6	16.3°	-9.7°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	37,000		
			MECX 20-S16-07-5T	5	20	16	110	20	6	16.3°	-10.4°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	40,200		
			25-S20-07-7T	7	25	20	120	25	6	16.3°	-9.7°	Yes	Fig.3	SB-2042TRG	DTM-6	PST-T6	37,000		
			Standard	inch	MECX 0375-S375-07-1T	1	0.375	0.375	3.00	0.669	0.236	12.8°	-19.7°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	47,150
					0500-S500-07-2T	2	0.500	0.500	3.27	0.709	0.236	14.3°	-12.9°	Yes	Fig.1	SB-2035TRG	DTM-6	PST-T6	45,800
					0625-S625-07-3T	3	0.625	0.625	3.50	0.787	0.236	16.3°	-11.3°	Yes	Fig.2	SB-2042TRG	DTM-6	PST-T6	43,300
0750-S750-07-4T	4	0.750			0.750	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig.2	SB-2042TRG	DTM-6	PST-T6	40,900			
0750-S750-07-5T	5	0.750			0.750	4.00	0.787	0.236	16.3°	-10.9°	Yes	Fig.2	SB-2042TRG	DTM-6	PST-T6	40,900			
MECX 10-S10-07-1T	1	10			10	80	17	6	12.8°	-18.7°	Yes	Fig.2	SB-2035TRG	DTM-6	PST-T6	47,100			
12-S12-07-2T	2	12			12	80	18	6	14.3°	-13.7°	Yes	Fig.4	SB-2035TRG	DTM-6	PST-T6	46,200			
Fine pitch	mm	16-S16-07-3T	3	16	16	100	20	6	16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	43,200			
		20-S20-07-4T	4	20	20	110	20	6	16.3°	-10.4°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	40,200			
		MECX 16-S16-07-4T	4	16	16	100	20	6	16.3°	-11.3°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	43,200			
		20-S20-07-5T	5	20	20	110	20	6	16.3°	-10.4°	Yes	Fig.4	SB-2042TRG	DTM-6	PST-T6	40,200			

*Pre-set Torque Wrench sold separately

Max. Revolution

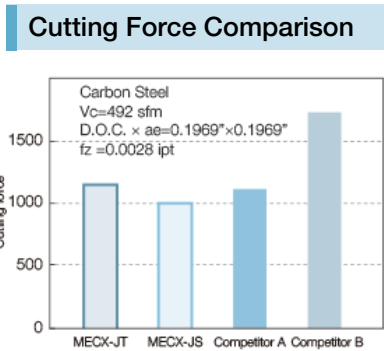
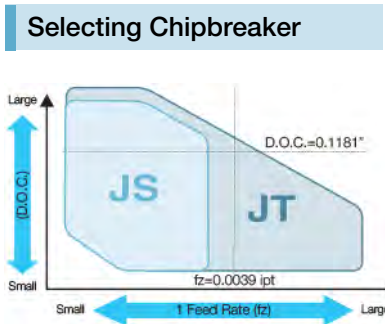
When running the end mill and inserts at the maximum revolution, the insert or toolholder may be damaged by centrifugal force. For more details, see "Warning" in the next page.

For good shoulder finishes when taking multiple depths of cut with MECX.

In order to obtain smooth wall surface set each DOC to less than 0.197"

Applicable Inserts

Part Number	Applicable Inserts M2	
MECX...-07..		
	BDMT 070300ER-JT	BDMT 070300ER-JS



Recommended Cutting Conditions

Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)				
	JS Chipbreaker	JT Chipbreaker	MEGACOAT NANO PR1535	MEGACOAT PR1225 PR1210		PVD Coated Carbide PR830	CVD Coated Carbide CA6535
Carbon Steel	0.002- 0.003 -0.004	0.002- 0.004 -0.005	☆ 390- 590 -820	★ 390- 590 -820	-	☆ 390- 490 -590	-
Alloy Steel	0.002- 0.0025 -0.003	0.002- 0.003 -0.004	☆ 330- 520 -720	★ 330- 520 -720	-	☆ 330- 460 -590	-
Mold Steel	0.002- 0.0025 -0.003	0.002- 0.003 -0.004	☆ 260- 460 -590	★ 260- 460 -590	-	☆ 260- 390 -490	-
Austenitic Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.003	★ 390- 590 -820	☆ 390- 590 -820	-	-	-
Martensitic Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.004	☆ 490- 660 -820	-	-	-	★ 590- 790 -980
Precipitation Hardened Stainless Steel	0.001- 0.0015 -0.002	0.002- 0.0025 -0.004	★ 300- 390 -490	-	-	-	-
Gray Cast Iron	0.002- 0.003 -0.004	0.003- 0.004 -0.006	-	-	★ 390- 590 -820	-	-
Nodular Cast Iron	0.002- 0.0025 -0.003	0.003- 0.004 -0.005	-	-	★ 330- 490 -660	-	-
Ni-base Heat Resistant Alloy	0.001- 0.0015 -0.002	0.002- 0.0025 -0.003	☆ 70- 100 -160	-	-	-	★ 70- 100 -160
Titanium Alloy	0.002- 0.0025 -0.003	0.003- 0.004 -0.005	★ 130- 200 -260	-	☆ 100- 160 -230	-	-

※ Machining with coolant is recommended for Titanium Alloy.

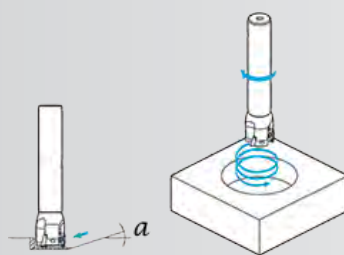
★ 1st Recommendation ☆ 2nd Recommendation

Ramping, Helical Milling

Ramping, Helical Milling

- Ramping angle is recommended to be α°.
- Refer to each tool's cutting performance list for the depth of helical milling.

Use compressed air during cutting.



Cutting Dia.	Unit	Applicable Inserts	Maximum Ramping Angle (α°)
Ø0.315	inch	BDMT0703 type	Not Recommended
Ø0.400			1.5°
Ø0.472, Ø0.551			2.0°
Ø0.630			3.0°
Ø0.669, Ø0.709	1.5°		
Ø8	metric		Not Recommended
Ø10			1.5°
Ø12, Ø14			2.0°
Ø16			3.0°
Ø17, Ø18			1.5°
Ø20		2.0°	
Ø21		1.8°	
Ø25		1.3°	

Guidance of minimum cutting dia. for helical cutting.

MECX	Toolholder Dia.	Ø8	Ø10	Ø12	Ø14	Ø16	Ø17	Ø18	Ø20
BDMT0703 type	Guidance of minimum cutting dia. for helical cutting.	Helical cutting is not recommended.	Ø14	Ø18	Ø22	Ø26	Ø28	Ø30	Ø34
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.		Ø17	Ø21	Ø25	Ø29	Ø31	Ø33	Ø37

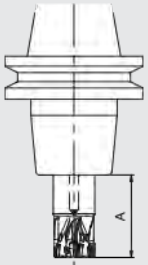
MECX	Toolholder Dia.	Ø21	Ø25
BDMT0703 type	Guidance of minimum cutting dia. for helical cutting.	Ø36	Ø44
	Guidance of minimum cutting dia. to have flat bottom by helical cutting.	Ø39	Ø47

GRADES **A**
 INSERTS **B**
 CBN & POD **C**
 TURNING **E**
 BORING **F**
 GROOVING **G**
 CUT-OFF **H**
 THREADING **J**
 SOLID END MILLS **L**
MILLING **M**
 SPARE PARTS **P**
 TECHNICAL **R**
 INDEX **T**

Cutting Performance of MECX End Mill

(JT chipbreaker Vc=400 SFM Workpiece :1049)

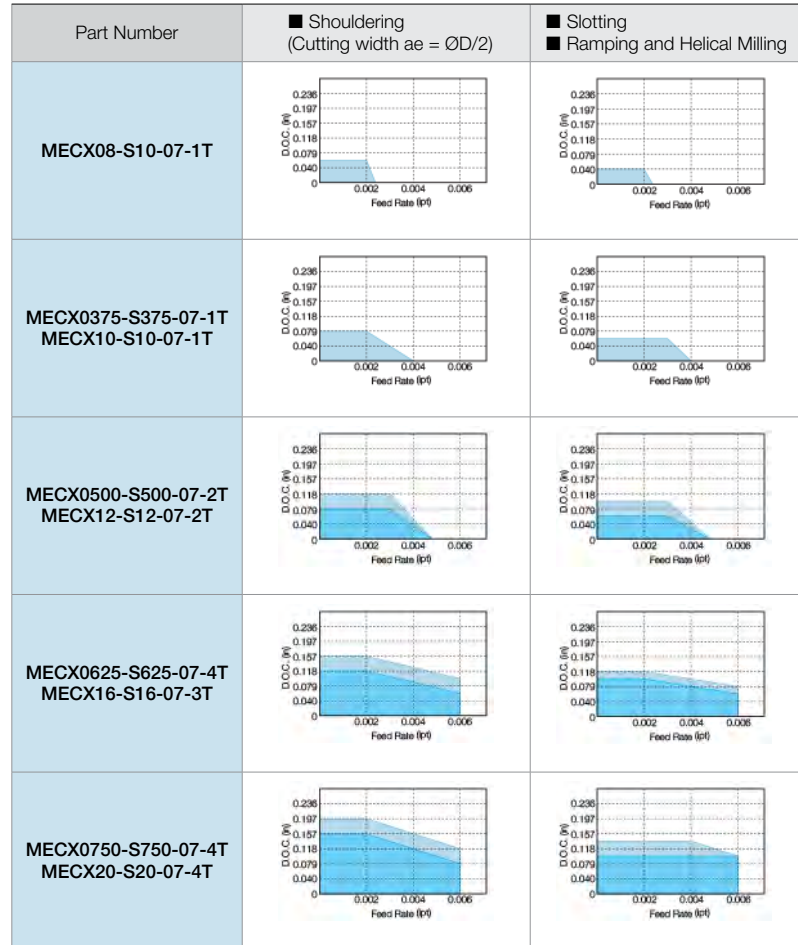
Cutting Dia.	Part Number (mm / inch)	Overhang Length A (in)	
		(Colors Refer to charts on right)	
Ø8mm	MECX08-S10-07-1T	0.630	-
Ø0.375in Ø10mm	MECX0375-S375-07-1T MECX10-S10-07-1T	0.670	-
Ø0.500in Ø12mm	MECX0500-S500-07-2T MECX12-S12-07-2T	0.709	1.18
Ø0.625in Ø16mm	MECX0625-S625-07-4T MECX16-S16-07-3T	0.787	1.57
Ø0.750in Ø20mm	MECX0750-S750-07-4T MECX20-S20-07-4T	0.787	1.57



- Machining with extended overhang length is not recommended for Ø0.315" and Ø0.394".
- The cutting performance chart shows the applicable range of JT Chipbreaker (PR830) with standard flute-number type.
For Multi-Edge type, use with 70% or less of ap.

Cutting conditions of JS Chipbreaker

- ① For MECX0375~MECX0500 / MECX08~MECX12
Decrease the feed rate by 25% according to cutting capability list.
- ② For MECX 0625 / MECX16 and over
Decrease the feed rate and ap by 30% according to cutting application chart



Warning

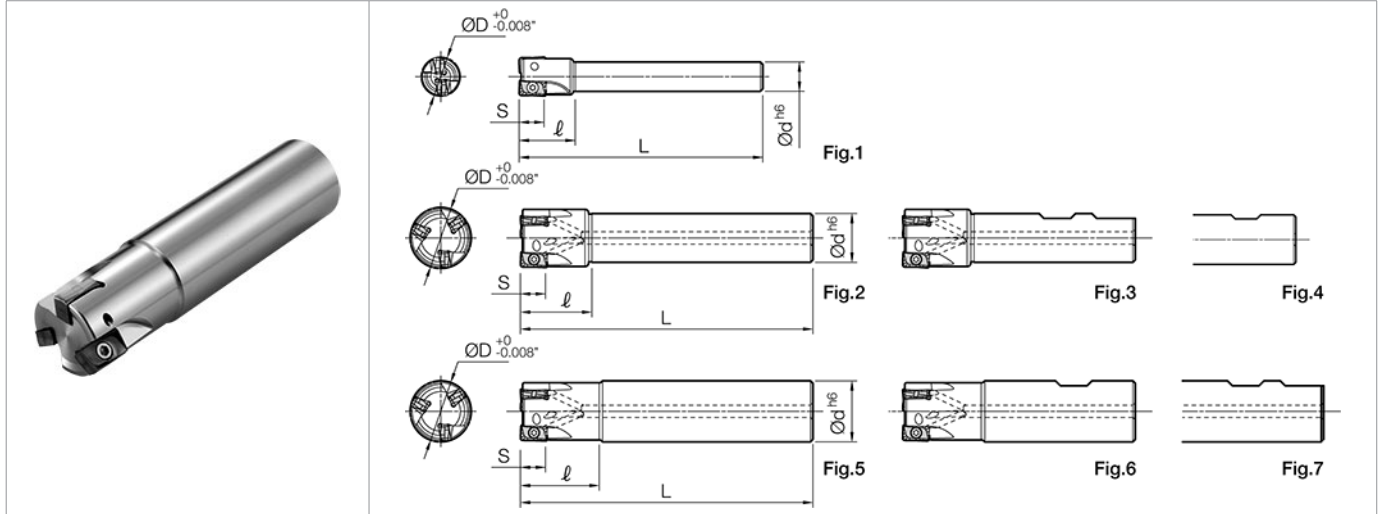
Please observe below precautions fully. Failure to observe the precautions may cause serious damage to human body.

Warning about Max. Revolution indicated on main body

1. 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.
2. For actual practical revolution, please set within recommended cutting condition.
3. When using at a higher revolution (over 10,000RPM), refer to the table to adjust the balance of MECX and suitable arbor.

Max. Revolution (RPM)	Balance quality grade G ISO 1940-1 / 8821 (JIS B0905)
~20,000	G16.0
~30,000	G6.3
30,000~	G2.5

MEW End Mill



Toolholder Dimensions

Part Number	Stock	Unit	No. of Inserts	Dimension (inch)					Rake Angle (°)		Coolant Hole	Drawing	Max. Revolution (min ⁻¹)	
				ØD	Ød	L	ℓ	S	A.R. (MAX)	R.R.				
Weldon Standard Shank	MEW	●	2	0.625	0.500	2.75	0.969	0.393	+7°	-22°	No	Fig.4	43,900	
														0625-W625-10-2T
														0750-W625-10-2T
														0750-W750-10-2T
														0750-W750-10-3T
Cylindrical Same Shank Standard Shank	MEW	○	2	16	12	100	23	10	+7°	-22°	No	Fig.1	43,750	
														16-S12-10-2T
														18-S16-10-2T
														20-S16-10-2T
														16-S16-10-2T
														20-S20-10-2T
20-S20-10-3T														

Max. Revolution

When running the end mill and inserts at the maximum revolution, the insert or toolholder may be damaged by centrifugal force.

Spare parts and applicable inserts (end mill / face mill)

Part Number	Spare Parts				Applicable Inserts M10		
	Insert Screw	Wrench	Anti-seize Compound	Pre-set Torque Wrench	General Purpose	Low Cutting Force	Tough Edge (Heavy Milling)
MEW ...-10_T	SB-3065TRP for Insert Screw Recommended torque 1.2Nm	DTPM-8	MP-1	PST-IP8*	LOMU 100408ER-GM	LOMU 100408ER-SM	LOMU 100408ER-GH

Coat Anti-seize Compound (MP-1) thinly on portion of taper and thread when insert is fixed.

*Pre-set Torque Wrench sold separately

Recommended Cutting Conditions M11

About wrench specifications

Wrenches and clamp screws are "Torx Plus".

- 1) Ref. to Fig. 2 for "Torx Plus" Wrench. (Blue 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)

● : U.S. Stock Standard
○ : World Express (Shipping: 7-10 Business Days)



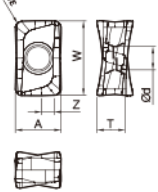

GRADES A
INSERTS B
CBN & POD C
TURNING E
BORING F
GRINDING G
CUT-OFF H
THREADING J
SOLID END MILLS L
MILLING M
SPARE PARTS P
TECHNICAL R
INDEX T

Milling Inserts

- A GRADES
- B INSERTS
- C CBN & PCD
- E TURNING
- F BORING
- G GROOVING
- H CUT-OFF
- J THREADING
- L SOLID END MILLS
- M MILLING
- P SPARE PARTS
- R TECHNICAL
- T INDEX

Classification of Usage
 ★ : Roughing / 1st Choice
 ☆ : Roughing / 2nd Choice
 ■ : Finishing / 1st Choice
 □ : Finishing / 2nd Choice
 In case hardness is under 45HRC

P	Carbon Steel / Alloy Steel			★	
	Mold Steel			★	
M	Austenitic Stainless Steel		★	☆	
	Martensitic Stainless Steel	★		☆	
	Precipitation Hardened Stainless Steel			★	
K	Gray Cast Iron				★
	Nodular Cast Iron				★
N	Non-Ferrous Metal				
S	Heat-resistant Alloy	★			
	Titanium Alloy			★	
H	Hard Materials				□

Insert	Part Number	Dimensions (inch)						Angle			CVD MEGACOAT NANO			
		A	T	Ød	W	Z	rε	α	β	γ	CA6535	PR1535	PR1525	PR1510
 General Purpose Handed Insert shows Right-hand	LOMU 100408ER-GM	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	●	●	●	●
 Low Cutting Force 	LOMU 100408ER-SM	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	○	●	●	●
 Tough Edge (Heavy Milling)	LOMU 100408ER-GH	0.260	0.157	0.134	0.429	0.067	0.031	-	-	-	○	○	●	●

Inserts are sold in 10 piece boxes

■ Mounting the 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.)
Align M3 screw slightly inclined.
(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 **M9**
- 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.

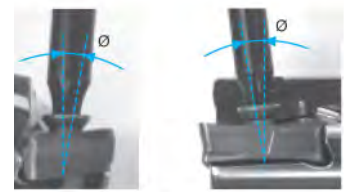
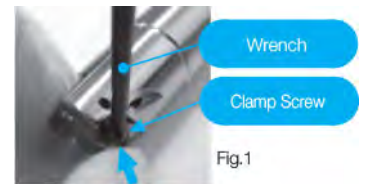


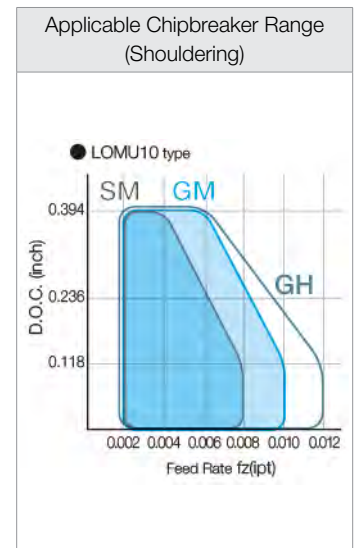
Fig.2

■ Recommended Cutting Conditions

Chipbreaker	Workpiece Material	Feed Rate fz (ipt)		Recommended Insert Grade Vc (sfm)			
		Toolholder Description		MEGACOAT NANO			CVD Coated Carbide
		MEW0625-MEW0750 MEW16-MEW18	MEW20	PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.002-0.004-0.008	0.003-0.006-0.010	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.004-0.006	0.003-0.006-0.008	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.005-0.008	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.006	325-525-650	325-525-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	500-650-825	-	-	600-775-975
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	300-400-500	-	-	-
	Gray Cast Iron	0.002-0.004-0.007	0.003-0.007-0.010	-	-	400-600-825	-
	Nodular Cast Iron	0.002-0.003-0.005	0.003-0.006-0.008	-	-	325-500-650	-
	Ni-base Heat Resistant Alloy	0.002-0.003-0.005	0.003-0.005-0.006	250-325-500	-	-	75-100-150
	Titanium Alloys	0.002-0.003-0.005	0.003-0.006-0.008	125-200-250	-	100-150-225	-
SM	Carbon Steel	0.002-0.004-0.007	0.003-0.006-0.008	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.003-0.005	0.003-0.005-0.007	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.004-0.006	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	325-525-650	325-525-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	500-650-825	-	-	600-775-975
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.004-0.006	300-400-500	-	-	-
	Ni-base Heat Resistant Alloy	0.002-0.003-0.004	0.003-0.004-0.005	75-100-150	-	-	75-100-150
	Titanium Alloys	0.002-0.003-0.005	0.003-0.005-0.006	125-200-250	-	100-150-225	-
GH	Carbon Steel	0.002-0.004-0.008	0.003-0.008-0.012	390-590-820	400-600-825	-	-
	Alloy Steel	0.002-0.004-0.006	0.003-0.008-0.010	330-520-720	325-525-725	-	-
	Mold Steel	0.002-0.003-0.005	0.003-0.006-0.009	260-460-590	250-450-600	-	-
	Austenitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.006	325-525-650	325-500-650	-	-
	Martensitic Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	500-650-825	-	-	590-790-980
	Precipitation Hardened Stainless Steel	0.002-0.003-0.005	0.003-0.005-0.008	300-400-500	-	-	-
	Gray Cast Iron	0.002-0.004-0.008	0.003-0.009-0.012	-	-	400-600-825	-
	Nodular Cast Iron	0.002-0.003-0.006	0.003-0.007-0.010	-	-	325-500-650	-
	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	-

* Machining with coolant is recommended for Titanium Alloy.

★ 1st Recommendation ☆ 2nd Recommendation

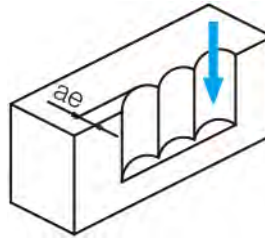


GRADES	A
INSERTS	B
CBN & POD	C
TUNING	E
BORING	F
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CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
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Ramping, Helical milling and Plunge milling

1. Available for plunge milling.
2. NOT available for ramping and helical milling, because interference between workpiece and insert may occur.

Plunge milling



Insert Part Number	Max. Width of Cut (ae)
LOMU10	0.197" (5mm)

Cutting Performance

Part Number	Shouldering (Cutting width ae = ØD/2)	Slotting
MEW0625...-10 MEW0750...-10 MEW16...-10 MEW18...-10		
MEW20...-10		

<Cutting Conditions>

- Vc=600 sfm
- GM Chipbreaker
- Workpiece Material: S50C
- Overhang Length
 1. End mill: Same length as ℓ of the dimension
 2. Face mill: H of the dimension + minimum overhang length of the arbor

SPARE PARTS



P

P1 - P5

SPARE PARTS	
SCREWS	P2
PINS / SHIMS	P3
CLAMP SETS	P4
WRENCHES AND OTHER SPARE PARTS	P5

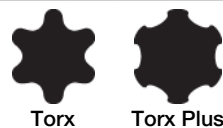
P2 - P5

Screws

A	GRADES	Insert	Part Number	Dimension (mm)						Angle (°)		Torque (N • m)	Remarks				
				A	B	C	D	E	F	α	θ						
B	INSERTS		HH 5X16	M5X0.8	16.0	8.5	5.0	4.0	-	-	-						
			5X25	M5X0.8	25.0	8.5	5.0	4.0	-	-	-						
C	CBN & PCD		HS 3X4P	M3X0.5	3.9	-	-	1.5	-	-	-	1.0	HS4X4P and HS6X4P have a flat edge Shim screw equivalent to JIS B-1101				
			4X4P	M4X0.7	3.9	-	-	2.0	-	-	-	2.0					
			6X4P	M6X0.75	3.9	-	-	3.0	-	-	-	4.0					
			HS 3X4	M3X0.5	4.0	-	-	1.5	-	-	-	1.0					
E	TURNING		HSB 4X8%	M4X0.7	8.0	R2.0	-	2.0	-	-	2.0	R...shows Right-hand Thread L...shows Left-hand Thread					
F	BORING		LS -1N	M6X1.0	17.0	6.0	-	2.5	2.5	-	-	3.0	N:Silver coated				
			-2N	M8X1.0	20.0	8.0	-	3.0	3.0	-	-	4.0					
G	GROOVING		SB -1TR	M2X0.4	5.3	3.8	-	-	T6	-	82°	0.5	R...shows Right-hand Thread				
			-2TR	M2.5X0.45	6.2	4.5	-	-	T8	-	82°	1.2					
			-3.5TR	M3.5X0.6	9.3	5.6	-	-	T15	-	82°	3.5					
			-5TR	M5X0.8	20.0	8.7	-	-	T20	-	90°	4.5					
			-5090TR	M5X0.8	9.0	6.8	-	-	T20	-	60°	4.5					
H	CUT-OFF		SB -1635TR	M1.6X0.35	3.3	2.6	-	-	T6	-	60°	0.5	R...shows Right-hand Thread ○○IP shows Torx Plus				
			-1STR	M2X0.4	5.0	3.1	-	-	T6	-	60°	0.5					
			-2035TR	M2X0.4	3.7	3.0	-	-	T6	-	60°	0.5					
			-2035TRG	M2X0.4	3.5	2.7	-	-	T6	-	60°	0.5					
			-2040TR	M2X0.4	3.8	3.0	-	-	T6	-	60°	0.5					
			-2042TRG	M2X0.4	4.1	2.7	-	-	T6	-	60°	0.5					
			-2045TRN	M2X0.4	4.3	2.8	-	-	T6	-	37°	0.5					
			-2050TR	M2X0.4	4.8	3.0	-	-	T6	-	60°	0.5					
			SB -2250TR	M2.2X0.45	5.1	3.1	-	-	T7	-	60°	0.8					
			-2255TR	M2.2X0.45	5.5	3.5	-	-	T7	-	60°	0.8					
			SB -2545TR	M2.5X0.45	4.6	3.5	-	-	T8	-	60°	1.2					
			-2555TRG	M2.5X0.45	5.4	3.5	-	-	T8	-	60°	1.2					
			-2560TR	M2.5X0.45	5.7	3.5	-	-	T8	-	60°	1.2					
			-2570TR	M2.5X0.45	6.8	3.5	-	-	T8	-	60°	1.2					
			SB -3060TR	M3X0.5	5.3	4.2	-	-	T10	-	60°	2.0					
-3065TRP	M3X0.5	6.5	4.0	-	-	8IP	-	60°	1.2								
-3080TR	M3X0.5	8.0	4.2	-	-	T10	-	60°	2.0								
M	MILLING		SB -4050TRN	M4X0.5	4.6	5.1	-	-	T10	-	57°	2.0					
			-4065TR	M4X0.7	6.7	5.5	-	-	T15	-	60°	3.5					
			-4070TRS	M4X0.7	6.7	5.5	-	-	T10	-	60°	2.0					
			-4085TR	M4X0.7	8.5	5.5	-	-	T15	-	60°	3.5					
			-40120TR	M4X0.7	12.0	5.1	-	-	T15	-	60°	3.5					
			-40125TRN	M4X0.7	12.5	5.2	-	-	T15	-	50°	3.5					
			P	SPARE PARTS		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	
R	TECHNICAL		SE -40120TR	M4X0.7	12.0	5.6	-	-	T15	-	60°	3.5					
			-50125TR	M5X0.8	12.5	6.4	-	-	T20	-	60°	4.5					
T	INDEX		SP 3X4	M3X0.5	4.0	4.0	-	-	-	-	90°	-	With additional machining below the filister head				
			3X8	M3X0.5	8.0	4.0	-	-	-	-	90°	-	Cross recessed flat head screw equivalent to JIS...B-1111				

Reference

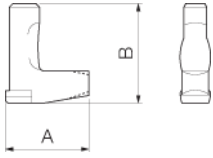
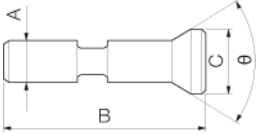
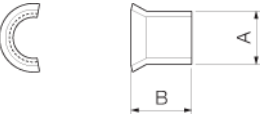
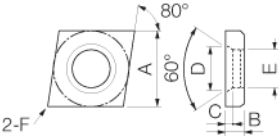
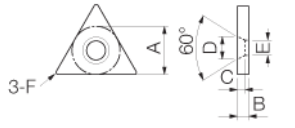
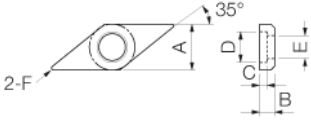
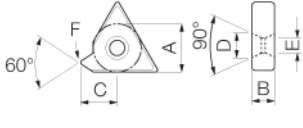

Torx and Torx Plus have different cross-section.



Torx

Torx Plus

■ Pins / Shims

Insert	Part Number	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	LL -1N	10.30	12.0	-	-	-	-	-	-	
	-2N	13.50	13.0	-	-	-	-	-	-	
	LPA -11	2.80	11.0	4.2	-	-	-	-	60°	
	-13	2.80	13.0	4.2	-	-	-	-	60°	
	-17	2.80	17.0	4.2	-	-	-	-	60°	
	LPF -11	2.50	11.0	3.5	-	-	-	-	60°	
	-1113	2.50	13.0	3.5	-	-	-	-	60°	
	-1117	2.50	17.0	3.5	-	-	-	-	60°	
	-13	3.80	13.0	5.5	-	-	-	-	60°	
-17	3.80	17.0	5.5	-	-	-	-	60°		
	LSP -1	5.00	5.3	-	-	-	-	-	-	
	-2	6.50	5.6	-	-	-	-	-	-	
	LC -42N	12.65	3.2	1.5	8.01	6.28	R0.8	-	-	Shim Pin: LSP-2
	LT -32N	9.47	2.7	1.3	6.18	4.68	R0.8	-	-	Shim Pin: LSP-1
	-32N-20	9.47	2.7	1.3	6.18	4.68	R2.0	-	-	
	SVN -32N	8.20	3.2	1.5	7.00	5.90	R0.6	-	-	Shim Screw: SS-4N
	TN -32	9.52	3.2	6.5	7.00	4.20	R0.4	-	-	Shim Screw: SP3X8
	SS -4N	M5.5X0.5	8.5	6.6	M4X0.7	4.00	-	-	-	A...External Thread / D...Internal Thread Both A and D are Right-hand Thread

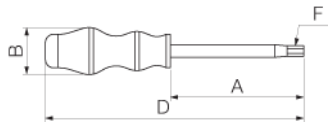
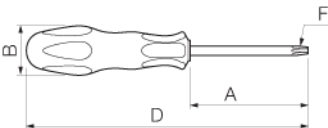
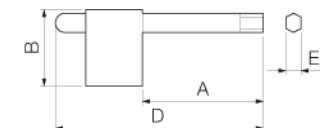
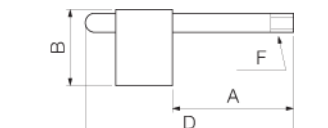

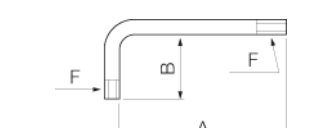
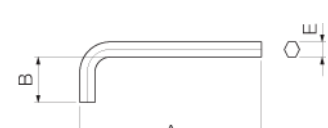
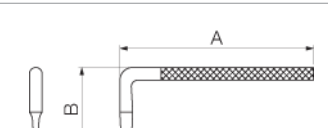
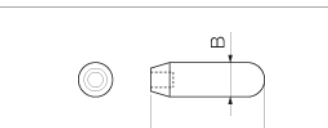
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Clamp Sets

A	GRADES	Insert Handed Spare Parts show Right-hand	Part Number	Dimension (mm)						Remarks	
				A	B	C	D	E	F		G
B	INSERTS		CPS -5S	M5X0.8	18.0	15.0	9.5	11.00	T15	2.5	G: Indicates hexagon hole two side widths of back side of bolts
C	CBN & PCD		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, L...shows Left-hand
E	TURNING		-22% S	M5X0.8	15.0	17.6	12.7	9.85	T15	2.0	

- A GRADES
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- M MILLING
- P SPARE PARTS**
- R TECHNICAL
- T INDEX

Wrenches and other spare parts

Insert	Part Number	Dimension (mm)						Angle (°)		Remarks
		A	B	C	D	E	F	α	θ	
	DT -7	44.0	16.0	-	114	-	T7	-	-	Torx
	DTM -6	39.0	17.0	-	113	-	T6	-	-	Top of Torx is magnetized
	-8	70.0	24.0	-	150	-	T8	-	-	
	DTPM -8	70.0	24.0	-	150	-	8IP	-	-	⊙OIP shows Torx Plus Top of Torx is magnetized
	FH -2	42.0	20.0	-	73	2.0	-	-	-	Hexagon
	-2.5	42.0	20.0	-	73	2.5	-	-	-	
	FT -5									Torx
	-6	30.0	20.0	-	65	-	T6	-	-	
	-7	34.0	15.0	-	62	-	T7	-	-	
	-8	35.0	20.0	-	74	-	T8	-	-	
	-10	40.0	20.0	-	74	-	T10	-	-	
	FT -15	43.0	25.0	10	80	-	T15	-	-	Torx
	LTW -8SS	45.0	6.0	-	-	-	T8	-	-	Torx
	-10S	65.0	10.0	-	-	-	T10	-	-	
	-10SS	50.0	7.0	-	-	-	T10	-	-	
	-15S	65.0	10.0	-	-	-	T15	-	-	
	-20	57.0	20.0	-	-	-	T20	-	-	
	LW -1.5	45.0	14.0	-	-	1.5	-	-	-	Hexagon
	-2	50.0	16.0	-	-	2.0	-	-	-	
	-3	63.0	20.0	-	-	3.0	-	-	-	
	-4	70.0	25.0	-	-	4.0	-	-	-	
	LTK -5	70.0	30.0	-	-	-	-	-	-	
	PC -1	60.0	8.5	-	-	-	-	-	-	Punch
	-2	65.0	10.0	-	-	-	-	-	-	

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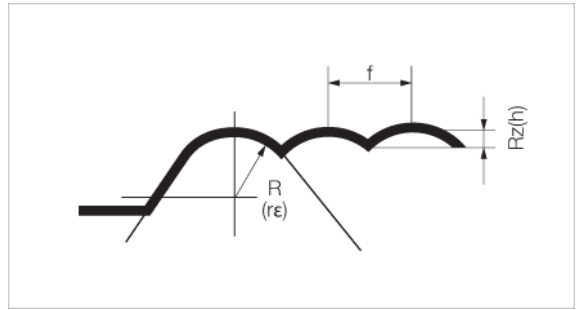
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Theoretical (Geometrical) Surface Roughness

Theoretical Surface Roughness for Turning indicates the minimum roughness value from the cutting conditions and it is shown by the formula as follows:

$$Rz(h) = \frac{f^2}{8R(r\epsilon)} \times 10^3$$

$Rz(h)$: Theoretical Surface Roughness [μm]
 f : Feed Rate [mm/rev]
 $R(r\epsilon)$: 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 $1.6\mu\text{m} \rightarrow 1.6\mu\text{m}Ra$
- ② When Rz is $6.3\mu\text{m} \rightarrow 6.3\mu\text{m}Rz$
- ③ When RzJIS is $6.3\mu\text{m} \rightarrow 6.3\mu\text{m}RzJIS$

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	\rightarrow Rz
Ten Points Mean Roughness	Rz	\rightarrow (RzJIS)
Arithmetical Mean Roughness	Ra	\rightarrow Ra

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	66.4	(107.0)	32.2	45	1005	
310	294	65.8	-	31.0	-	980	
300	284	65.2	(105.5)	29.8	42	950	
295	280	64.8	-	29.2	-	935	
290	275	64.5	(104.5)	28.5	41	915	
285	270	64.2	-	27.8	-	905	
280	265	63.8	(103.5)	27.1	40	890	
275	261	63.5	-	26.4	-	875	
270	256	63.1	(102.0)	25.6	38	855	
265	252	62.7	-	24.8	-	840	
260	247	62.4	(101.0)	24.0	37	825	
255	243	62.0	-	23.1	-	805	
250	238	61.6	99.5	22.2	36	795	
245	233	61.2	-	21.3	-	780	
240	228	60.7	98.1	20.3	34	765	
230	219	-	96.7	(18.0)	33	730	
220	209	-	95.0	(15.7)	32	695	
210	200	-	93.4	(13.4)	30	670	
200	190	-	91.5	(11.0)	29	635	
190	181	-	89.5	(8.5)	28	605	
180	171	-	87.1	(6.0)	26	580	
170	162	-	85.0	(3.0)	25	545	
160	152	-	81.7	(0.0)	24	515	
150	143	-	78.7	-	22	490	
140	133	-	75.0	-	21	455	
130	124	-	71.2	-	20	425	
120	114	-	66.7	-	-	390	
110	105	-	62.3	-	-	-	
100	95	-	56.2	-	-	-	
95	90	-	52.0	-	-	-	
90	86	-	48.0	-	-	-	
85	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

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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	
Steel Sheet	Hot-Rolled Steel Plate, Sheet and Strip for Automobile Structural Use	SAPH	
	Cold-Rolled Steel Plate, Sheet and Strip	SPC	
Steel Pipe	Hot-Rolled Soft Steel Plate, Sheet and Strip	SPH	
	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		Carbon Tool Steel	SK
		Hollow Drill Steel	SKC
		Alloy Tool Steel	SKS, SKD, SKT
	High Speed Tool Steel	SKH	
	Free Cutting Carbon Steel	SUM	
	High Carbon Chromium Bearing Steel	SUJ	
	Spring Steel	SUP	
	Stainless Steel Bar	SUS-B	
	Hot-Rolled Stainless Steel Plate, Sheet and Strip	SUS-HP, SUS-HS	
	Cold-Rolled Stainless Steel Plate, Sheet and Strip	SUS-CP, SUS-CS	
Heat-Resistant Steel	Heat-Resisting Steel Bar	SUH-B, SUH-CB	
	Heat-Resisting Steel Plate and Sheet	SUH-HP, SUH-CP	
Super Alloy	Corrosion-Resisting and Heat-Resisting Superalloy Bar	NCF-B	
	Corrosion-Resisting and Heat-Resisting Superalloy Plate and Sheet	NCF-P	
Forged Steel	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	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB	
CARBON STEEL FOR MACHINE STRUCTURAL USE	C10E C10R	040A10 045A10 045M10	XC10		1010	S10C	08 10	
		040A12	XC12		1012	S12C		
	C15E C15R	055M15			1015	S15C	15	
			XC18		1017	S17C		
	C22 C22E C22R	070M20 C22 C22E C22R	C22 C22E C22R		1020	S20C	20	
					1023	S22C		
	C25 C25E C25R	C25 C25E C22R	C25 C25E C25R		1025	S25C	25	
				25Г	1029	S28C		
	C30 C30E C30R	080A30 080M30 C30 C30E C30R	C30 C30E C30R		30Г	1030	S30C	30
					30Г		S33C	
	C35 C35E C35R	C35 C35E C35R	C35 C35E C35R		35Г	1035	S35C	35
					35Г	1038	S38C	
	C40 C40E C40R	080M40 C40 C40E C40R	C40 C40E C40R		40Г	1039 1040	S40C	40
		080A42			40Г	1042 1043	S43C	
	C45 C45E C45R	C45 C45E C45R	C45 C45E C45R		45Г	1045 1046	S45C	45
		080A47			45Г		S48C	
	C50 C50E C50R	080M50 C50 C50E C50R	C50 C50E C50R		50Г	1049	S50C	50
					50Г	1050 1053	S53C	
	C55 C55E C55R	070M55 C55 C55E C55R	C55 C55E C55R			1055	S55C	55
	C60 C60E C60R	C60 C60E C60R	C60 C60E C60R		60Г	1059 1060	S58C	60
C10E	045A10 045M10		XC10			S09CK		
C15E			XC12			S15CK	15F	
			XC18			S20CK		

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CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB	
NICKEL CHROMIUM STEEL	36NiCr6			40XH		SNC236		
	14NiCr10					SNC415	12CrNi2	
	36NiCr10			30XH3A		SNC631	30CrNi3	
	15NiCr13	655M13				SNC815	12Cr2Ni4	
	31NiCr14					SNC836	37CrNi3	
NICKEL CHROMIUM MOLYBDENUM STEEL	20NiCrMo2 20NiCrMoS2	805A20 805M20 805A22 805M22	20NCD 2		8615 8617 8620 8622	SNCM220	20CrNiMo	
	40NiCrMo2-2				8637 8640	SNCM240		
						SNCM415		
	17NiCrMo6-4			20XH2M (20XHM)	4320	SNCM420	18CrNiMnMoA	
	30CrNiMo8					SNCM431		
	40NiCrMo6				4340	SNCM439	40CrNiMoA	
	34CrNiMo6					SNCM447		
						SNCM616		
						SNCM625		
						SNCM630		
						SNCM815		
	CHROMIUM STEEL	17Cr3 17CrS3			15X 15XA		SCr415	15Cr 15CrA
					20X	5120	SCr420	20Cr
34Cr4 34CrS4		34Cr4 34CrS4	34Cr4 34CrS4	30X	5130 5132	SCr430	30Cr	
37Cr4 37CrS4		37Cr4 37CrS4	37Cr4 37CrS4	35X	5132	SCr435	35Cr	
41Cr4 41CrS4		530M40 41Cr4 41CrS4	41Cr4 41CrS4	40X	5140	SCr440	40Cr	
				45X		SCr445	45Cr 50Cr	
CHROMIUM MOLYBDENUM STEEL	15CrMo4					SCM415	15CrMo	
	18CrMo4 18CrMoS4			20XM		SCM418	20CrMo	
	20CrMo5	708M20		20XM		SCM420		
						SCM421		
				30XM 30XMA	4131	SCM430	30CrMo 30CrMoA	
						SCM432		
	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	35XM	4137	SCM435	35CrMo	
	42CrMo4 42CrMoS4	708M40 709M40 42CrMo4 42CrMoS4	42CrMo4 42CrMoS4		4140 4142	SCM440	42CrMo	
					4145 4147	SCM445		
					SCM822			

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB	
MANGANESE CHROMIUM STEEL MANGANESE STEEL	20Mn5	150M19			1522	SMn420	20Mn2	
	34Mn5	150M36		30Г2 35Г2	1534	SMn433	30Mn2 35Mn2	
	36Mn5	150M36		35Г2 40Г2	1541	SMn438	40Mn2	
				40Г2 45Г2	1541	SMn443	45Mn2	
	16MnCr5				5115	SMnC420	15CrMn	
					5140	SMnC443	40CrMn	
STRUCTURAL STEEL WITH SPECIFIED HARDENABILITY BAND (H-SHAPE STEEL)					1522H	SMn420H		
						SMn433H		
					1541H	SMn438H		
					1541H	SMn443H		
						SMnC420H		
						SMnC443H		
	17Cr3 17CrS3				15X	SCr415H	15CrH	
	17Cr3				20X	5120H	SCr420H	20Cr1H
	34Cr4 34CrS3	34Cr4 34CrS4	34Cr4 34CrS4	30X	5130H 5132H	SCr430H		
	37Cr4 34CrS4	37Cr4 37CrS4	37Cr4 37CrS4	35X	5135H	SCr435H		
	41Cr4 41CrS4	41Cr4 41CrS4	41Cr4 41CrS4	40X	5140H	SCr440H	40CrH	
	15CrMo5				4118H	SCN415H	15CrMoH	
	18CrMo4 18CrMoS4					SCM418H		
	18CrMo4	708H20			4118H	SCM420H	20CrMoH	
	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4	34CrMo4 34CrMoS4		4135H 4137H	SCM435H		
	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4	42CrMo4 42CrMoS4		4140H 4142H	SCM440H		
					4145H 4147H	SCM445H		
						SCM822H		
						SNC415H		
						SNC631H		
15NiCr13	655H13				SNC815H	12Cr2Ni4H		
21NiCrMo2	805H17 805H20 805H22	20N CD 2			8617H 8620H 8622H	SNCM220H	20CrNiMoH	
20NiCrMoS6-4					4320H	SNCM420H	20CrNi2MoH	

GRADES	A
INSERTS	B
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TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
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MATERIAL CROSS REFERENCE CHART

Steel

A GRADES	CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA		JAPAN JIS	CHINA GB
						UNS	AISI		
B INSERTS			284S16	Z12CMN17-07Az		S20100	201	SUS 201	1Cr17Mn6Ni5N
		X12CrNi17 7	301S21	Z11CN17-08	12X17T9AH4	S20200	202	SUS 202	1Cr18Mn8Ni5N
C CBN & PCD		X2CrNiN18-7						SUS 301L	
		X12CrNi17 7						SUS 301J1	
E TURNING			302S25	Z12CN18-09	12X18H9	S30200	302	SUS 302	1Cr18Ni9
						S30215	302B	SUS 302B	
F BORING		X10CrNiS18 9	303S21	Z8CNF18-09		S30300	303	SUS 303	Y1Cr18Ni9
			303S41		12X18H10E	S30323	303Se	SUS 303Se	Y1Cr18Ni9Se
G GROOVING		X5CrNi18 10	304S31	Z7CN18-09	08X18H10	S30400	304	SUS 304	0Cr18Ni9
		X2CrNi19 11	304S11	Z3CN19-11	03X18H11	S30403	304L	SUS 304L	00Cr18Ni10
H CUT-OFF				Z6CN19-09Az		S30451	304N	SUS 304N1	0Cr18Ni9N
		X2CrNiN18 10		Z3CN18-10Az		S30452		SUS 304N2	0Cr19Ni10NbN
J THREADING						S30453	304LN	SUS 304LN	00Cr18Ni10N
								SUS 304J1	
L SOLID END MILLS								SUS 304J2	
		X5CrNi18 12	305S19	Z8CN18-12	06X18H11	S30431	S30431	SUS 304J3	
M MILLING						S30500	305	SUS 305	1Cr18Ni12
								SUS 305J1	
P SPARE PARTS				Z10CN24-13		S30908	309S	SUS 309S	0Cr23Ni13
			310S31	Z8CN25-20	10X23H18	S31008	310S	SUS 310S	0Cr25Ni20
R TECHNICAL		X5CrNiMo17 12 2	316S31	Z7CND17-12-02		S31600	316	SUS 316	0Cr17Ni12Mo2
		X5CrNiMo17 13 3		Z6CND18-12-03					
T INDEX		X2CrNiMo17 13 2	316S11	Z3CND17-12-02		S31603	316L	SUS 316L	00Cr17Ni14Mo2
		X2CrNiMo17 14 3		Z3CND17-13-03	03X17H14M3				
						S31651	316N	SUS 316N	0Cr17Ni12Mo2N
		X2CrNiMoN17 12 2		Z3CND17-11Az		S31653	316LN	SUS 316LN	00Cr17Ni13Mo2N
		X2CrNiMoN17 13 3		Z3CND17-12Az					
		X6CrNiMoTi17 12 2		Z6CNDT17-12	08X17H13M2T	S31635		SUS 316Ti	
								SUS 316J1	0Cr18Ni12Mo2Cu2
								SUS 316J1L	00Cr18Ni14Mo2Cu2
			317S16			S31700	317	SUS 317	0Cr19Ni13Mo3
		X2CrNiMo18 16 4	317S12	Z3CND19-15-04		S31703	317L	SUS 317L	00Cr19Ni13Mo3
				Z3CND19-14Az		S31753		SUS 317LN	
								SUS 317J1	0Cr18Ni16Mo5
								SUS 317J2	
								SUS 317J3L	
						N08367		SUS 836L	
			904S14	Z2NCDU25-20		N08904	N08904	SUS 890L	
		X6CrNiTi18 10	321S31	Z6CNT18-10	08X18H10T	S32100	321	SUS 321	1Cr18Ni9Ti 0Cr18Ni10Ti
		X6CrNiNb18 10	347S31	Z6CNNb18-10	08X18H12B	S34700	347	SUS 347	0Cr18Ni11Nb
				Z6CN18-16		S38400	384	SUS 384	
			394S17	Z2CNU18-10		S30430	304Cu	SUS XM7	0Cr18Ni9Cu3
				Z15CNS20-12		S38100		SUS XM15J1	0Cr18Ni13Si4
						S32900	329	SUS 329J1	0Cr26Ni5Mo2
				Z3CNDU22-05Az	08X21H6M2T	S39240	S31803	SUS 329J3L	
				Z3CNDU25-07Az		S39275	S31260	SUS 329J4L	

MATERIAL CROSS REFERENCE CHART

Steel

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA		JAPAN JIS	CHINA GB
					UNS	AISI		
STAINLESS STEEL	X6CrAl13	405S17	Z8CA12		S40500	405	SUS 405	0Cr13Al 0Cr13
			Z3C14				SUS 410L	00Cr12
					S42900	429	SUS 429	
	X6Cr17	430S17	Z8C17	12X17	S43000	430	SUS 430	1Cr17
	X7CrMoS18		Z8CF17		S43020	430F	SUS 430F	Y1Cr17
	X6CrTi17		Z4CT17		S43035		SUS 430LX	
	X6CrNb17		Z4CNb17				SUS 430J1L	
	X6CrMo17 1	434S17	Z8CD17-01		S43400	434	SUS 434	1Cr17Mo
					S43600	436	SUS 436L	
							SUS 436J1L	
			Z3CDT18-02		S44400	444	SUS 444	
					S44700		SUS 447J1	00Cr30Mo2
			Z1CD26-01		S44627		SUS XM27	00Cr27Mo
					S40300	403	SUS 403	1Cr12
	X10Cr13	410S21	Z13C13		S41000	410	SUS 410	1Cr13
	X6Cr13	403S17	Z8C12	08X13	S41008	410S	SUS 410S	
							SUS 410F2	
	X12CrS13				S41025		SUS 410J1	1Cr13Mo 1Cr12Mo
		416S21	Z11CF13		S41600	416	SUS 416	Y1Cr13
	X20Cr13	420S29	Z20C13	20X13	S42000	420	SUS 420J1	2Cr13
	X30Cr13	420S37	Z33C13	30X13	S42000	420	SUS 420J2	3Cr13
			Z30CF13		S42020	420F	SUS 420F	Y3Cr13
							SUS 420F2	
							SUS 429J1	
X20CrNi17 2	431S29	Z15CN16-02	20X17H2	S43100	431	SUS 431	1Cr17Ni2	
		Z70C15		S44002	440A	SUS 440A	7Cr17	
				S44003	440B	SUS 440B	8Cr17	
		Z100CD17	95X18	S44004	440C	SUS 440C	9Cr18 11Cr17 9Cr18Mo	
				S44020	S44020	SUS 440F	Y11Cr17	
X5CrNiCuNb16-4		Z6CNU17-04		S17400	S17400	SUS 630	0Cr17Ni4CuNb	
X7CrNiAl17 7		Z9CNA17-07	09X17H7 IO	S17700	S17700	SUS 631	0Cr17Ni7Al	
						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

GRADES
A

INSERTS
B

CBN & POD
C

TURNING
E

BORING
F

GRINDING
G

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MATERIAL CROSS REFERENCE CHART

Steel

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA		JAPAN JIS	CHINA GB
					UNS	AISI		
HEAT RESISTING STEEL		331S42	Z35CNWS14-14	45X14H14B2M			SUH 31	
			349S52	Z52CMN21-09Az			SUH 35	
	X53CrMnNi21-9	349S54	Z55CMN21-09Az	55X20 Г 9AH4	S63008		SUH 36	5Cr21Mn9Ni4N
		381S34			S63017		SUH 37	2Cr21Ni12N
							SUH 38	
		309S24	Z15CN24-13		S30900	309	SUH 309	2Cr23Ni13
	CrNi2520	310S24	Z15CN25-20	20X25H20C2	S31000	310	SUH 310	2Cr25Ni20
			Z12NCS35-16		N08330	N08330	SUH 330	1Cr16Ni35
			Z6NCTV25-20		S66286		SUH 660	0Cr15Ni25Ti2MoAlVB
					R30155		SUH 661	
	CrAl1205						SUH 21	
	X6CrTi12	409S19	Z6CT12		S40900	409	SUH 409	
			Z3CT12				SUH 409L	
			Z12C25	15X28	S44600	446	SUH 446	2Cr25N
	X45CrSi9-3	401S45	Z45CS9		S65007		SUH 1	4Cr9Si2
			Z40CSD10	40X10C2M			SUH 3	4Cr10Si2Mo
		443S65	Z80CSN20-02				SUH 4	8Cr20Si2Ni
				40X 9C2			SUH 11	
			20X12BHMBФP			SUH 600	2Cr12MoVNbN	
				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	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB
CARBON TOOL STEEL			C140E3U	Y13		SK140 (SK1)	T13
			C120E3U	Y12	W1-11½	SK120 (SK2)	T12
	C105W1		C105E2U	Y11	W1-10	SK105 (SK3)	T11
			C90E2U	Y10	W1-9	SK95 (SK4)	T10
	C80W1		C90E2U C80E2U	Y8Г Y9	W1-8	SK85 (SK5)	T8Mn T9
	C80W1		C80E2U C70E2U	Y8		SK75 (SK6)	T8
	C70W2		C70E2U	Y7		SK65 (SK7)	T7
HIGH SPEED TOOL STEEL		BT1	HS18-0-1	P18	T1	SKH2	W18Cr4V
	S18-1-2-5	BT4	HS18-1-1-5	P18K5Φ2	T4	SKH3	W18Cr4VCo5
		BT5	HS18-0-2-9	P18K5Φ	T5	SKH4	W18Cr4V2Co8
	S12-1-4-5	BT15	HS12-1-5-5		T15	SKH10	W12Cr4V5Co5
	S6-5-2	BM2	HS6-5-2	P6M5	M2	SKH51	W6Mo5Cr4V2 W6Mo5Cr4V3
				P6M5Φ3	M3-1	SKH52	CW6Mo5Cr4V2 W6Mo5Cr4V3
	S6-5-3		HS6-5-3	P6M5Φ3	M3-2	SKH53	CW6Mo5Cr4V3
		BM4	HS6-5-4		M4	SKH54	
	S6-5-2-5	BM35	HS6-5-2-5HC	P6M5K5	M35 M41	SKH55	W6Mo5Cr4V2Co5 W7Mo5Cr4V2Co5
					M36	SKH56	
S10-4-3-10	BT42	HS10-4-3-10			SKH57		
		HS2-9-2		M7	SKH58	W2Mo9Cr4V2	
S2-10-1-8	BM42	HS2-9-1-8		M42	SKH59	W2Mo9Cr4VCo8	
ALLOY TOOL STEEL				XB4	F2	SKS11	
	105WCr6		105WCr5	XBГ		SKS2	
						SKS21	W
						SKS5	
					L6	SKS51	
						SKS7	
			C140E3UCr4	13X		SKS8	Cr06
				6XB2C 5XB2CΦ	S1	SKS4	5CrW2Si 6CrW2Si
				4XB2C	S1	SKS41	4CrW2Si
		BW2	100V2		W2-9½ W2-8	SKS43 SKS44	
				9XBГ		SKS3	9CrWMn
	105WCr6		105WCr5	XBГ		SKS31	CrWMn
						SKS93	
						SKS94	
						SKS95	8MnSi
	X210Cr12	BD3	X200Cr12	X12	D3	SKD1	Cr12
	X153CrMoV12			X12MΦ	D2	SKD10	Cr12Mo1V1
	X153CrMoV12	BD2	X160CrMoV12		D2	SKD11	Cr12MoV
		BA2	X100CrMoV5		A2	SKD12	Cr5Mo1V
			X32WCrV3			SKD4	
X30WCrV9-3	BH21	X30WCrV9		H21	SKD5	3Cr2W8V	
X38CrMoV51	BH11	X38CrMoV5	4X5MΦC	H11	SKD6	4Cr5MoSiV	
X40CrMoV51	BH13	X40CrMoV5	4X5MΦ1C	H13	SKD61	4Cr5MoSiV1	
	BH12	X35CrWMoV5	3X3M3Φ	H12	SKD62		
X32CrMoV33	BH10	32CrMoV12-18		H10	SKD7	4Cr3Mo3SiV	
	BH19			H19	SKD8		
		55CrNiMoV4			SKT3		
55NiCrMoV6	BH224 / 5	55NiCrMoV7	5XHМ		SKT4	5CrNiMo	

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MATERIAL CROSS REFERENCE CHART

Steel

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB
SPRING STEEL				75 80 85	1075 1078	SUP3	
	56SiCr7		60Si7	60C2		SUP6	55Si2Mn
	61SiCr7		60Si7	60C2Г	9260	SUP7	60Si2Mn 60Si2MnA
	55Cr3		55Cr3		5155	SUP9	55CrMnA
	55Cr3		60Cr3		5160	SUP9A	60CrMnA
	50CrV4	735A51, 735H51	51CrV4	XΦA50XΓΦA	6150	SUP10	50CrVA
	51CrV4			50XΓP	51B60	SUP11A	60CrMnBA
	54SiCr6	685A57, 685H57	54SiCr6		9254	SUP12	
FREE CUTTING CARBON STEEL					4161	SUP13	60CrMnMoA
					1110	SUM11	
					1108	SUM12	Y12
					1212	SUM21	
	9SMn28	(230M07)	S250		1213	SUM22	Y15
	9SMnPb28		S250Pb		12L13	SUM22L	Y12Pb
					1215	SUM23	
						SUM23L	
	9SMnPb28		S250Pb		12L14	SUM24L	Y15Pb
	9SMn36		S300			SUM25	
	15S10				1117	SUM31	
						SUM31L	
		210M15, 210A15	(13MF4)			SUM32	Y20
			(35MF6)		1137	SUM41	Y30 Y35
			(45MF6.1)		1141	SUM42	Y40Mn
	(226M44)	(45MF6.3)		1144	SUM43		
CARBON CHROMIUM BEARING STEEL					51100	SUJ1	GCr4
	100Cr6		100Cr6	ИИХ15	52100	SUJ2	GCr5
					ASTM A 485 Grade 1	SUJ3	GCr15SiMn
						SUJ4	GCr15SiMo
						SUJ5	GCr18Mo

MATERIAL CROSS REFERENCE CHART

Cast Iron

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB
GRAY CAST IRON		100		CY10	NO.20	FC100	HT100
	GG15	150	FGL150	CY15	NO.30	FC150	HT150
	GG20	200	FGL200	CY20	NO.35	FC200	HT200
	GG25	250	FGL250	CY25	NO.45	FC250	HT250
	GG30	300	FGL300	CY30	NO.50	FC300	HT300
	GG35	350	FGL350	CY35	NO.60	FC350	HT350
	GG40			FGL400	CY40		
NODULAR CAST IRON	GGG40	400/17	FGS370-17	BY40	60-40-18	FCD400	QT400-18
		420/12	FGS400-12	BY45	65-45-12	FCD450	QT450-10
	GGG50	500/7	FGS500-7	BY50	70-50-05	FCD500	QT500-7
	GGG60	600/7	FGS600-2	BY60	80-60-03	FCD600	QT600-3
	GGG70	700/2	FGS700-2	BY70	100-70-03	FCD700	QT700-2
	GGG80	800/2	FGS800-2	BY80	120-90-02	FCD800	QT800-2
		900/2		BY100			QT900-2

Non-Ferrous Metal

CLASS	GERMANY DIN	UK BS	FRANCE NF	RUSSIA ГОСТ	USA AISI / SAE	JAPAN JIS	CHINA GB	
ALUMINUM ALLOY	A199.99R			A99	1199		1A99	
	A199.98R			A97			1A97	
				A95			1A95	
	A199.90	1080(1A)	1080A	A8		A1080	1A80	
	A199.50	1050(1B)	1050A	A5	1050	A1050	1A50	
	AlMg2.5	NS4	5052	Amg	5052	A5052	5A02	
		NS5		AMg3			5A03	
	AlMg5	NB6		AMg5V	5056	A5056	5A05	
		NG61	5957		5456	A5556	5A30	
	AlCu2.5Mg0.5		2117	D18	2036	A2117	2A01	
	AlCuMg1	HF15	2017S	D1		A2017	2A11	
	AlCuMg2		2024	D16AVTV	2124	A2024	2A12	
					2319		2B16	
				AK4			A2N01	2A80
				AK2	2218		A2018	2A90
	AlCuSiMn		2014	AK8	2014		A2014	2A14
	6061	6061		6061		A6061		
AlZnMgCu1.5		7075	V95P	7175		A7075	7A09	
ALUMINUM ALLOY CASTING	G-AlSi7Mg	LM25			356.2	AC4C	ZAlSi7Mn	
	G-Al12	LM6	A-S12-Y4	AL2	413.2	AC3A	ZAlSi12	
				AL5	355.2		ZAlSi5Cu1Mg	
	G-Al12(Cu)				413.0	AC8A	ZAlSi2Cu2Mg1	
				AL19			ZAlCu5Mn	
					201.0		ZAlCu5MnCdVA	
	G-AlMg10	LM10	AG11	AL8	520.2		ZAlMg10	
G-AlMg5Si			AL13			ZAlMg5Si		

GRADES	A
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CHIPBREAKER CROSS REFERENCE TABLE

Molded Chipbreaker Cross Reference Table

Positive Inserts (For Automatic Lathe)

• 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
Minute ap	CF	-	-	-	-	-	-	-	01	-	-
Finishing	CK GF	ASF	JQ	FP FV SMG	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
Finishing	MQ	-	MP	FM FV SV	-	MF	-	LU	PF PSF	FW FP MW	WF
Finishing - Medium	AH	ALU	-	AZ	-	AL	AL	AG AW	AL	HP	AF AS

Positive Inserts

Cutting Range	Kyocera		Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
	General Chipbreaker	Chipbreaker for Sticky Material / Soft Steel										
Minute ap	CF	-	-	-	-	-	-	-	-	01	-	-
Finishing	DP GP PP VF	XP	ASF	-	FV SQ FP SMG	AZ3 AMX AZ7	PF UF XF	FF1	FB 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	LB SF SU	PS PSS 24	LF	14
Finishing - Medium ②	GK	-	BM	JQ	No Indication	QD CL	PF PM XM	MF2	-	-	-	-
Medium	Standard	-	-	J	MP Standard	AM3	PR UR KM XR	F2	MU SC	PM	GM MP MR	Standard
Finishing	MQ	-	-	MP	FM FV SV	-	MF MMC	-	LU	PF PSF	FW FP MW	WF
Finishing - Medium	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 CROSS REFERENCE TABLE

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	-	GC4005 GC4205	TP0500 TP1000	AC700G AC810P	T9005 T9105	KCP05 KCK05 KC9105	IC8150 IC9150
	P10	CA510 CA515 CA5505 CA5515	JC110V JC215V	GM10 GM20 GM8015 HG8010	UE6105 UE6110 UE6005 UE6010 UE6020	CP2 CP5 CP7	GC4205 GC4015 GC3115 GC4215 GC4315	TP1000 TP1500 TP100	AC700G AC2000 AC810P AC820P	T9005 T9105 T9015 T9115	KCP10 KCM15 KC9010 KC9110	IC8150 IC9150 IC9250
	P20	CA525 CA5515 CA5525 CR9025	JC110V JC215V	GM20 GM8020 HG8025	MC6025 UC6010 UE6110 UE6020	CP2 CP5 CP7	GC4025 GC4215 GC4220 GC4225 GC4325	TP2000 TP2500 TP200	AC2000 AC3000 AC820P AC830P	T9015 T9115 T9025 T9125	KCP25 KC9125 KC9225 KC9325	IC8250 IC9125 IC9250 IC9350
	P30	CA525 CA5525 CA530 CA5535 CR9025	JC215V JC325V	GM25 GM8035 HG8025	MC6025 UE6020 UE6035 UH6400	-	GC4225 GC4230 GC4235 GC2135	TP2500 TP2000 TP3500 TP200	AC3000 AC630M AC830P ACP100	T9125 T9035 T9135 T3130	KCP30 KCM25 KC9040 KC9140	IC635 IC8350 IC9350
	P40	CA530 CA5535	JC325V JC450V JC540V	GX30	UE6035 UH6400	-	GC4235 GC4240	TP40	AC630M AC830P ACP100	T9035 T3130	KCP40 KC9140 KC9240	IC635
M (Stainless Steel)	M10	CA6515	JC110V	GM10	US7020 MC7015	CP2 CP5	GC2015	TP1500 TP100	AC610M	T9015 T9115	KCM15 KC9010 KC9110 KC9210	IC8250 IC9250 IC9350
	M20	CA6525	JC110V JC215V	GM8020 HG8025	US7020 MC7025	CP2 CP5	GC1515 GC2015 GC2025	TM2000 TP200	AC6030M AC610M AC630M AC830P	T6020 T6120 T9115 T9125	KCM25 KC9025 KC9125 KC9225	IC6015 IC8350 IC9250 IC9350
	M30	-	JC215V JC325V JC525X	GM25 GM8035	MC7025 US735	-	GC2040 GC235	TM4000 TP300	AC6030M AC630M AC830P	T6030 T6130 T9125	KCP40 KCM35 KC9240	IC6025 IC8350 IC9350 IC4050
	M40	-	JC525X	GX30	US735	-	-	TP40	-	-	KC9045 KC9245	IC635
K (Cast Iron)	K01	CA4010 CA4505 CA5505	JC105V JC605X JC605W JC050W	HG3305 HG3315 HX3505 HX3515	MC5005 UC5105 UC5015	CP1	GC3205 GC3210	TK1000 TH1000 TK1001	AC300G AC405K AC410K	T5105 T5010	KC9105 KC9315 KCK05	IC428 IC5010 IC9007 IC9150
	K10	CA4010 CA4015 CA4505 CA4515 CA5505	JC050W JC110V JC605X JC605W JC610	GM8015 HX3515 HG8010 HG3315	UC5015 UC5105 UC5115 UE6010 MC5015	CP1 CP2 CP5	GC3205 GC3210 GC3215 GC3115	TK1000 TK2000 TK2001 MK1500	AC700G AC410K AC415K	T5105 T5115 T5010	KCP10 KC9110 KC9120 KC9315 KCK15	IC418 IC428 IC9015 IC9007
	K20	CA4115 CA4120 CA4515	JC110V JC215V JC605X JC605W JC610	GM8020 HG8025	MC5015 UE6010 UC5115	CP2 CP5	GC4225 GC3215 GC3220	TK2000 TX150 TP200	AC700G AC820P AC420K	T5115 T5125 T5020	KCP25 KC9125 KC9320 KC9325 KCK20	IC418 IC9015
	K30	-	JC215V JC610	GM25	-	-	GC3040	TP2500 TP200	-	T5125 T9125	KC9320	-

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
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INSERT GRADES CROSS REFERENCE TABLE

PVD Coated Carbide (for Turning)

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

A GRADES	Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
	Class	Symbol											
B INSERTS	P (Steel)	P01	PR1005	JC5003	-	-	-	-	-	ACZ150	-	KC5510	-
C CBN & PCD		P10	PR930 PR1005 PR1025 PR1115 PR1215 PR1425 PR1225	JC5003 JC5030	CY15 CY150 IP2000	VP10MF	VM1 TM1 TA1 TAS DT4 DM4	GC1025	CP200	ACZ150 ACZ310 AC520U	AH710	KC5010 KC5510 KU10T	IC507 IC807 IC907
E TURNING		P20	PR930 PR1025 PR1115 PR1215 PR1425 PR1225	JC5015 JC5030 JC5040	CY150 IP2000	VP10RT VP15TF VP20MF UP20M VP20RT	QM1 VM1 TA1 TAS	GC1020 GC1025 GC4125 GC1125	CP250	ACZ310 ACZ330 AC520U	AH710 AH725 AH730 SH730	KC5025 KC5525 KC7215 KC7315 KU25T	IC507 IC907 IC908
F BORING		P30	PR1025 PR1225	JC5015 JC5040	CY250 CY9020 HC844 IP3000	VP10RT VP15TF VP20MF UP20M	ZM3 QM3 TAS	GC1125 GC1145 GC1115 GC1105	CP500	ACZ330 ACZ350 AC530U	GH330 AH120 AH740	KC7015 KC7020 KC7235 KU25T	IC328 IC928 IC3028
G GROOVING		P40	-	JC5040	CY250 HC844		ZM3 QM3 TAS	GC1145 GC2145	CP500	ACZ350	AH140 AH740 J740	KC7030 KC7040 KC7140	IC328 IC3028
H CUT-OFF		M (Stainless Steel)	M10	PR1025 PR1215 PR1225	JC5003	IP050S	VP10MF VP10RT	VM1 TM1 TA1	GC1005 GC1025 GC1105 GC15	TS2000 CP200 CP250	EH510Z ACZ150 AC510U	AH710	KC5010 KC5510 KC6005 KCU10
J THREADING	M20		PR930 PR1025 PR1125 PR1215 PR1425 PR1225	JC5015 JC5030 JC5040 JC8015	IP100S	VP10RT VP15TF VP20MF UP20M VP20RT	QM1 VM1 TA1 TAS DT4 DM4	GC1025 GC1115 GC4125 GC1125 GC30	TS2500 CP200 CP250 CP500	EH520Z ACZ150 ACZ310 AC520U	AH630 AH725 AH730 GH330 GH730 SH730	KC5025 KC5525 KC7020 KC7025 KCU25	IC308 IC507 IC907 IC908 IC3028
L SOLID END MILLS	M30		PR1125 PR1225	JC5015 JC5030 JC5040	CY250 CY9020	VP15TF VP20MF UP20M MP7035	ZM3 QM3 TAS	GC1020 GC2035 GC2030	CP500	ACZ330 ACZ350 AC530U AC6040M	AH120 AH725	KC7030 KC7225	IC908 IC1008 IC1028 IC3028
M MILLING	M40		-	-	-	MP7035	ZM3 QM3 TAS	GC2145 GC1145		AC6040M ACZ350	J740 AH140 AH645	-	IC228 IC928 IC328
P SPARE PARTS	K (Cast Iron)		K01	-	JC5003	-	-	-	-	-	EH10Z	AH110	KC5515
R TECHNICAL		K10	PR905 PR1215	JC5003 JC5015	CY100H CY10H	VP05RT	TA1 TM1	GC1010	TS2000 CP200	EH10Z EH510Z AC510U	GH110 AH110	KC5010 KC7210	IC807 IC910 IC507 IC908
T INDEX		K20	PR905 PR1215	JC5015	IP2000 CY9020	VP10RT VP15TF VP20RT	QM1 TA1	GC1020 GC1120	TS2500 CP200 CP250	EH20Z ACZ310 AC520U AC530U	AH120 AH725	KC5025 KC5525 KC7015 KC7215 KC7315	IC508 IC908
		K30	-	-	-	VP15TF VP20RT	QM3 TA3	GC1030	CP500	ACZ310	-	KC7225	IC508 IC908

INSERT GRADES CROSS REFERENCE TABLE

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	TN6010 PV7010	LN10 CX50	CH350	AP25N VP25N NX1010	T3N T15 Q15	-	-	T110A T1000A	NS520 GT530 GT720 J530	KT1120 KT125 HTX	IC20N IC520N
	P10	TN620 TN60 TN6010 TN6020 PV7010 PV720 PV7020 PV7025	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	KT315 KT175 HT2	IC20N IC520N IC530N IC75T
	P20	TN620 TN90 TN6020 PV720 PV7020 PV7025	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 T1500Z T2000Z T3000Z	NS9530 NS530/730 GT9530 GT530/730	PS5 KT5020	IC20N IC520N IC530N IC75T IC30N
	P30	-	CX90 CX99 SUZ	-	NX4545 VP45N	N40 C7X	CT530 GC1525	TP1030	T3000Z T250A	NS740	-	IC75T IC30N
M (Stainless Steel)	M10	TN620 TN60 TN6020 PV720 PV7020 PV7025	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 PV7020 PV7025	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	-	CX75 CX90 PX90 CX99 SUZ	CZ25	NX4545	C7X	-	TP1030	T3000Z T250A	NS740	-	-
K (Cast Iron)	K01	PV7005	LN10	-	AP25N VP25N	T3N T15 Q15	-	-	T110A T1000A	NS520	KT1120	-
	K10	TN60 TN6010 PV7005 PV7010	LN10	CH350	NX2525 AP25N VP25N	T15 C7X C7Z Z15	CT5015	-	T1200A T1500A T2000Z	NS530 NS730 GT530 GT730	KT315 HTX	-
	K20	-	NIT	CZ25	NX2525 AP25N VP25N	-	-	-	T3000Z	-	KT5020	-

• Boldface grade shows PVD Coated Cermet.

Carbide

Classification		Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
Class	Symbol											
P (Steel)	P10	-	SRT	WS10	STI10T	-	S1P	-	ST10P	TX10S	K2885	IC70
	P20	-	SRT DX30	EX35	STI20 UTI20T	-	SMA	S10M	ST20E	TX20 TX25	K125M	IC70 IC50M
	P30	-	SR30 DX30 DX35	EX35 EX40	UTI20T	-	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	HTI05T	-	H1P	-	H1 H2	TH03 KS05F	K68 K10	IC04
	K10	KW10 GW15	KG10 KT9	WH10	HTI10	KM1	H1P H10 HM	890	EH10 EH510	G1F TH10 H10T	KMI K8735 K313	IC20
	K20	GW25	CR1 KG20	WH20	HTI20T UTI20T	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	GTI30	-	-	-	G5	D40	-	-
	V50	VW50	MH3 MH4 GD174 GD201	WH60	GTI35 GTI40 GTI30S	-	-	-	G6	D50	-	-
	V60	-	MH5 MH7 MH8 GD206	WB60	GTI40S GTI50S	-	-	-	G7 G8	D60	-	-

GRADES
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INSERT GRADES CROSS REFERENCE TABLE

Ceramic

• This table is Kyocera's own estimation based on publications and is not authorized by companies mentioned in it.

Classification	GRADES												
	Class	Symbol	Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
K (Cast Iron)	K01	KA30 A65 KT66 PT600M CS7050	-	-	NPC-H2 NPC-A2	-	SE1 HC1 HC2 HC5 HC6 HW2	CC620 CC650	-	NB90S NB90M WX120	-	KW80 KY1615 AC5	-
	K10	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	-
	K20	KS6050	-	-	-	-	SX6 SX9 SP9	CC6090 CC6190 GC1690	-	WX120	WG300 FX105 CX710	KYK35 KY3400 KY3500	-
S (Difficult-to-cut Material)	S01	-	-	-	-	-	-	CC650	-	-	-	KY2100	-
	S10	CF1 KS6040	CA200	Whiskal WIN	-	-	WA1 WA5 SX9	CC670 CC6060 CC6065	-	WX120	WG300	KYS25 KY4300 KY1525 KY1540	-
	S20	-	-	-	-	-	-	-	-	WX120	-	KYS30	-
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 Cermet.

CBN

Classification	GRADES											
	Class	Symbol	Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal
K (Cast Iron)	K01	KBN475	JBN795	-	MB710	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 KB9610	IB55 IB90
	K20	KBN900	-	BH250	MB730 MBS140 BC5030	B16 B40	-	CBN350 CBN500 CBN600	BN7000 BNS800	BX950 BXC90 BX90S	KB9640	-
H (Hardened Material)	H01	KBN510 KBN05M KBN10M	-	-	BC8110 MBC010 MB810	B24 B52	CB20	CBN050C CBN010 CBN10 CBN100	BN1000 BNX10 BNC100 BNC160 BNC2010	BXA30 BX310 BXC30 BXM10	KB1610	IB20H IB25HC IB50
	H10	KBN525 KBN05M KBN25M	JBN300 JBN500	BH200	MBC020 BC8020 MB8025 MB825	B24 B36 B54 B52	CB7015 CB7050 CB50	CBN150 CBN060K CBN200 CBN160C	BNC160 BNX20 BN2000 BNC200 BNC2020	BXM10 BXA40 BX330 BX360 BXC50	KB1615 KB1625 KB5610 KB9610	IB50
	H20	KBN30M KBN35M KBN900	JBN245	BH250	MBC020 BC8020 MB8025	B22 B36	CB7025 CB7525	CBN350 CBN300P CNB400C CBN500	BNX25 BN350 BNC300	BX380 BXC50 BXM20	KB1340 KB5625 KB9640	IB55 IB25HA
Stainless Steel	-	KBN65B KBN570 KBN65M KBN70M	JBN795 JBN500	-	MB4020	-	-	-	BN350 BN7000 BN7500	BX450 BX470 BX480	-	-

• Boldface grade shows PVD Coated Cermet.

PCD (Diamond)

Classification	GRADES												
	Class	Symbol	Kyocera	Dijet	Hitachi	Mitsubishi	NTK	Sandvik	Seco	Sumitomo	Tungaloy	Kennametal	Iscar
N (Non-ferrous Metals)	N01	KPD001	JDA30 JDA735	-	-	MD205	PD01	CD05 CD10	PCD05 PCD10	DA90 DA1000 DA2200	DX180 DX160	PD100 KD1400 KD1405	-
	N10	KPD001 KPD010 KPD230 KPD250	JDA40 JDA745	-	-	MD220	-	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	-

AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

CITIZEN MACHINERY MIYANO CO., LTD. (Cincom Products)

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
A12	10×10×100	5	-	-	Ø19.050/Ø20.000	-	Ø12	-
A16	10×10×100	5	-	-	Ø19.050/Ø20.000	-	Ø16	-
A20	12(13)×12(13)×120	7	-	-	Ø25.400	-	Ø20	-
A32	16×16×150	6	-	-	Ø25.400	-	Ø32	-
B12	10×10×100	5	-	-	Ø19.050/Ø20.000	-	Ø12	-
B20	12(13)×12(13)×120	6	-	-	Ø19.050/Ø20.000	-	Ø20	-
BL12	10×10×60~120	5	-	-	Ø20.000(Ø19.050)	-	Ø12	-
BL20	12(13)×12(13)×120	4~7	-	-	Ø20.000(Ø19.050)	-	Ø20	-
BL25	12(13)×12(13)×120	4~7	-	-	Ø20.000(Ø19.050)	-	Ø25	-
C12	10×10×120	6	-	-	Ø19.050	-	Ø12	-
C16	10×10×120	6	-	-	Ø19.050	-	Ø16	-
C32	16×16×130	5	-	-	Ø25.400	-	Ø32	-
E16	10×10×60	20	-	-	Ø19.050	-	Ø16	-
E20	16×16×90	20	-	-	Ø25.400	-	Ø20	-
E25	16×16×90	20	-	-	Ø25.400	-	Ø25	-
E32	-	-	16(19)×16(13)×90	20	Ø25.400	-	Ø32	-
F10	-	-	10×10×60	10	Ø19.050	-	Ø10	-
F12	-	-	10×10×60	10	Ø19.050	-	Ø12	-
F16	-	-	10×10×60	10	Ø19.050	-	Ø16	-
F20	-	-	16(19)×16(13)×90	10	Ø25.400	-	Ø20	-
F25	-	-	16(19)×16(13)×90	10	Ø25.400	-	Ø25	-
FL25	-	-	16×16×90	12	Ø16.000	-	Ø25	-
FL42	-	-	16×16×90	12	Ø16.000	-	Ø42	-
G32	-	-	16(19)×16(19)×90	10	-	-	Ø32	-
K12,K12E	12(10)×12(10)×100	6(7)	-	-	Ø19.050/Ø20.000	-	Ø12	-
K16,K16E	12×12×100	6	-	-	Ø19.050/Ø20.000	-	Ø16	-
L10	8×8×100~130	5	-	-	Ø15.875	-	Ø10	-
L16	12(10)×12(10)×130	5	-	-	Ø19.050	-	Ø16	-
L20,L20E	12×12×130	5	-	-	Ø19.050	-	Ø20	-
L25	16×16×130	5	-	-	Ø25.400	-	Ø25	-
L32	16×16×130	5	-	-	Ø25.400	-	Ø32	-
M212, M312	10×10×120	5	10×10×60	10	Ø19.050	-	Ø12	-
M216, M316	10×10×120	5	10×10×60	10	Ø19.050	-	Ø16	-
M220, M320	16×16×130	5	16×16×90	10	Ø25.400	-	Ø20	-
M232, M332,M432	16×16×130	5	16×16×90	10	Ø25.400	-	Ø32	-
M20	13(12)×13(12)×130	5	10×10×60	10	Ø19.050	-	Ø20	-
MSL12	10×10×120	-	-	-	-	-	Ø12	-
R04	8×8×120	5	-	-	Ø15.875	-	Ø4	-
R07	8×8×120	5	-	-	Ø15.875	-	Ø7	-
RL01	10(8)×10(8)×90	-	-	-	Ø16.000(Ø20.000)	-	Ø10	-
RL02	16×16×90	-	-	-	Ø20.000	-	Ø20	-
RL21	10(12)×10(12)×90	-	-	-	Ø19.050	-	Ø35	-

- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
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AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

■ CITIZEN MACHINERY MIYANO CO., LTD. (Miyano Products)

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
ABX-51SY	-	-	20×20×125(100)	24	Ø25	48	Ø51	-
ABX-51SYY	-	-	20×20×125(100)	24	Ø25	48	Ø51	-
ABX-51TH3	-	-	20×20×125(100)	36	Ø25	72	Ø51	-
ABX-51THY	-	-	20×20×125(100)	36	Ø25	72	Ø51	-
ABX-64SY	-	-	20×20×125(100)	24	Ø25	48	Ø64	-
ABX-64SYY	-	-	20×20×125(100)	24	Ø25	48	Ø64	-
ABX-64TH3	-	-	20×20×125(100)	36	Ø25	72	Ø64	-
ABX-64THY	-	-	20×20×125(100)	36	Ø25	72	Ø64	-
BNA-34C	-	-	20×20×125(100)	8(16)	Ø25	24	Ø34	-
BNA-34DHY	-	-	20×20×125(100)	14(22)	Ø25	27	Ø34	-
BNA-34S	-	-	20×20×125(100)	8(16)	Ø25	24	Ø34	-
BNA-42C	-	-	20×20×125(100)	8(16)	Ø25	24	Ø42	-
BNA-42DHY	-	-	20×20×125(100)	14(22)	Ø25	27	Ø42	-
BNA-42S	-	-	20×20×125(100)	8(16)	Ø25	24	Ø42	-
BND-51C2	-	-	20×20×125(100)	12	Ø25	24	Ø51	-
BND-51S2	-	-	20×20×125(100)	12	Ø25	24	Ø51	-
BND-51SY2	-	-	20×20×125(100)	12	Ø25	24	Ø51	-
BNE-34S5	-	-	20×20×125(100)	24	Ø25	48	Ø34	-
BNE-34SY5	-	-	20×20×125(100)	24	Ø25	48	Ø34	-
BNE-51S5	-	-	20×20×125(100)	24	Ø25	48	Ø51	-
BNE-51SY5	-	-	20×20×125(100)	24	Ø25	48	Ø51	-
BNJ-34S3	-	-	20×20×125(100)	18	Ø25	30	Ø34	-
BNJ-34SY3	-	-	20×20×125(100)	18	Ø25	30	Ø34	-
BNJ-42S3	-	-	20×20×125(100)	18	Ø25	30	Ø42	-
BNJ-42SY3	-	-	20×20×125(100)	18	Ø25	30	Ø42	-
BNJ-51SY3	-	-	20×20×125(100)	18	Ø25	30	Ø51	-
LX-06E2	-	-	20×20×125(100)	8	Ø32	8	Ø31	-
LX-08C	-	-	25×25×150	10	Ø40	10	Ø51	-
LX-08E2	-	-	25×25×150	8	Ø40	8	Ø51	-
LX-08R	-	-	20×20×125(100)	10	Ø25	20	Ø51	-
LZ-01R2	-	-	20×20×125(100)	12	Ø25	24	Ø31	-
LZ-01RY2	-	-	20×20×125(100)	12	Ø25	24	Ø31	-
LZ-02R2	-	-	20×20×125(100)	10	Ø25	20	Ø51	-
LZ-02RY2	-	-	20×20×125(100)	10	Ø25	20	Ø51	-
GN-3200	12(16)×12(16)×70-120	4-5	-	-	Ø20	4-5	Ø40	-
GN-3200W	12(16)×12(16)×70-120	4-5	-	-	Ø20	4-5	Ø40	-
RL01 III	10×10×70-120	2-3	-	-	Ø16	2-3	Ø10	-
RL01 V	10×10×70-120	2-3	-	-	Ø16	2-3	Ø10	-
RL03	12(16)×12(16)×70-120	4-5	-	-	Ø20	4-5	Ø40	-
GN-4200	12(16)×12(16)×70-120	7-8	-	-	Ø20	7-8	Ø40	-

- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

STAR MICRONICS CO., LTD.

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
ECAS-12	10x10x95~150	6	-	-	Ø22	-	Ø13	-
ECAS-20	12x12x80~150	6	-	-	Ø22	-	Ø20	-
	16x16x80~144							
ECAS-20T	-	-	16x16x60~78	-	Ø22 / Ø32	-	Ø20	-
			16x16x80~88					
ECAS-32T	-	-	16x16x60~78	10	Ø22 / Ø32	-	Ø32	-
ECAS-32T	-	-	16x16x80~88	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-25 II / 32 II	-	-	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	5	-	-	Ø22 / (Ø22)	4/4	-	Only D/E for back clamp sleeves
	12x12x95~130	6	-	-	Ø22 / (Ø22)	4/4	-	
	10x10x95~130	6	-	-	Ø22 / (Ø22)	4/4	-	
SB-12 II (C / E)	12x12x95~130	6	-	-	Ø22 / (Ø22)	4/4	-	Only E for back clamp sleeves
SB-16 II (C / E)	12x12x95~130	6	-	-	Ø22 / (Ø22)	4/4	-	
SB-16 II (C / E)	10x10x95~130	6	-	-	Ø22 / Ø22	4/4	-	
SB-20 A / C / E	12x12x95~130	6	-	-	Ø22 / (Ø22)	4/4	-	
SC20	12x12x95~130	5	-	-	Ø22 / -	4	-	-
SC20	10x10x95~130	6	-	-	-	4/4	-	-
SE-12B / 16B	10x10x95~120	5	-	-	Ø22	-	Ø13 / 16	-
SG-42	-	-	16x16x84~88	-	Ø22 / Ø32	-	Ø42	-
SG-42	-	-	16x16x71~82	-	Ø22 / Ø32	-	Ø42	-
SG-42	-	-	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-16 / 20	-	-	-	-	-	-	-	-
SR-20R II	12x12x100~135	6	-	4	Ø22	-	Ø20	-
SR-20 III	12x12x95~135	6	Additional two tools for deep drilling	4/2	Ø22	-	Ø20	-
SR-25J / 32J	16x16x95~155	6	-	4	Ø22 / Ø32	-	Ø32	-
ST-38	-	-	16x16x84~88	-	Ø22 / Ø32	-	Ø38	-
ST-38	-	-	16x16x71~82	-	Ø22 / Ø32	-	Ø38	-
ST-38	-	-	20x20x84~88	-	Ø22 / Ø32	-	Ø38	-
SV-12 / 20	12x12x95~135	5	12x12x70~78	-	Ø22 / 32	-	-	-
SV-12 / 20	16x16x95~135	4	16x16x65~70	-	Ø22 / 32	-	-	-
SV-32	16x16x95~135	4	16x16x60~78	-	Ø22 / 32	-	-	-
SV-32	16x16x95~135	4	16x16x80~88	-	Ø22 / 32	-	-	-
SW-7	8x8x80~120	6	-	-	-	-	Ø7	-
VNC-12	-	-	-	-	-	-	-	-
VNC-20	-	-	-	-	-	-	-	-
VNC-32	-	-	-	-	-	-	-	-

• This table is approved by machine manufacturers.
• Manufacturers are in no particular order.

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

TSUGAMI CORPORATION

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
B007- II	7×7×85	8	-	-	Ø25	-	Ø7.0	-
B007- II	(8)×(8)×(85)	8	-	-	Ø25	-	Ø7.0	-
B007- II	(10)×(10)×(85)	8	-	-	Ø25	-	Ø7.0	-
B012- III / V	12×12×85	9	-	-	Ø20	-	Ø12.0	-
B018- III	12×12×85	9	-	-	Ø20	-	Ø18.0	-
B020- V	12×12×85	9	-	-	Ø20	-	Ø20.0	-
BA20	12×12×85	6	-	-	Ø25	-	Ø20.0	-
BA26	12(16)×12(16)×85	6	-	-	Ø25	-	Ø26.0	-
BC18	12×12×85	10	-	-	Ø25 / Ø10	-	Ø18.0	-
BC25	12×12×85	10	-	-	Ø10 / Ø25	-	Ø25.0	-
BE12	12×12×85	9	-	-	Ø20	-	Ø12.0	-
BE18	12×12×85	9	-	-	Ø20	-	Ø18.0	-
BH20	12×12×85	4	12×12×90	St.12	Ø25 / Ø32	-	Ø20.0	-
BH20	12×12×85	4	16×16×90	St.12	Ø25 / Ø32	-	Ø20.0	-
BH38	16×16×100	7	20×20×125	St.12	Ø25 / Ø32	-	Ø38.1	-
BM07	8×8×85	9	-	-	Ø20	-	Ø7.0	-
BM16	12×12×85	9	-	-	Ø20	-	Ø16.0	-
BM16E	12×12×85	9	-	-	Ø20	-	Ø16.0	-
BN12	12×12×85	7	-	-	Ø20	-	Ø12.0	-
BN20	12(16)×12(16)×85	7	-	-	Ø20	-	Ø20.0	-
BS12- III	12×12×85	7 or 10	-	-	Ø14 / Ø25	-	Ø12.0	-
BS12- V	12×12×85	8 or 12	-	-	Ø20 / Ø25	-	Ø12.0	-
BS18- III	12×12×85	7 or 10	-	-	Ø14 / Ø25	-	Ø18.0	-
BS20- III	16×16×100	7 or 10	-	-	Ø16 / Ø25	-	Ø20.0	-
BS20- V	12×12×85	8 or 12	-	-	Ø20 / Ø25	-	Ø20.0	-
BS26- III	16×16×100	7 or 10	-	-	Ø16 / Ø25	-	Ø26.0	-
BS32- III	16×16×100	6	-	-	Ø16 / Ø25	-	Ø32.0	-
BU12	12×12×85	4	12×12×80	St.8	Ø20	-	Ø51.0	-
BU20	12×12×85	4	12×12×80	St.8	Ø20	-	Ø20.0	-
BU26	16×16×100	7	20×20×90	St.8	Ø20 / Ø32	-	Ø26.0	-
BU38	16×16×100	7	20×20×90	St.8	Ø20 / Ø32	-	Ø38.0	-
BW07	12×12×85	7	-	-	Ø20	-	Ø7.0	-
BW12	12×12×85	7	-	-	Ø20	-	Ø12.0	-
BW20	12(16)×12(16)×85	7	-	-	Ø20	-	Ø20.0	-
C004- II / III	12×12×60~100	6~8	-	-	-	-	Ø100.0	-
C15	10×10×60~100	10~14	-	-	-	-	Ø75.0	-
C150	12×12×60~100	4~6	-	-	-	-	Ø75.0	-
C220	12×12×60~100	6~8	-	-	-	-	Ø100.0	-
C300	16×16×100~130	6~10	-	-	-	-	Ø150.0	-
M34J	-	-	20×20×125	St.12	Ø20 / Ø32	-	Ø34.0	-
M42J	-	-	20×20×125	St.12	Ø25 / Ø32	-	Ø42.0	-
M42SD	-	-	20×20×125	St.12	Ø25 / Ø32	-	Ø42.0	-
M50	-	-	20×20×100	St.12	Ø32	-	Ø51.0	-
M50J	-	-	20×20×100	St.12	Ø20 / Ø32	-	Ø51.0	-
MB35	-	-	20×20×90	2 × St.8	Ø20 / Ø32	-	Ø35.0	-
MB38	-	-	20×20×90	2 × St.8	Ø20 / Ø32	-	Ø38.0	-
MB50	-	-	20×20×90	2 × St.8	Ø20 / Ø32	-	Ø50.0	-
MU26	-	-	20×20×90	2 × St.8	Ø20 / Ø32	-	Ø26.0	-
MU38	-	-	20×20×90	2 × St.8	Ø20 / Ø32	-	Ø38.0	-
NU50	-	-	20×20×100	St.12	Ø20 / Ø32	-	Ø51.0	-
TMA8- II	20×20×100~125	1	-	-	Ø25 / Ø32	-	Ø65.0	-
TMU1	20×20×100~125	1	20×20×125	St.16	Ø25 / Ø32	-	Ø38.0	-

- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

AMADA MACHINE TOOLS CO., LTD.

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
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	-

Nomura VTC Automatic Lathe Co., Ltd.

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
NN-10C	10x10x130	6	-	-	Ø17	-	Ø10	-
NN-10CS	10x10x130	6	-	-	Ø17	4	Ø10	-
NN-10S II	10x10x130	5	-	-	Ø23	-	Ø10	-
NN-10T	10x10x130	7	-	-	Ø23	-	Ø10	-
NN-10SB5	10x10x130	5	-	-	Ø23	-	Ø10	-
NN-16SB5	10x10x130	5	-	-	Ø23	-	Ø16	-
NN-16SB6	12.7x12.7x130	5	-	-	Ø17(Ø22)	4(3)	Ø16	-
NN-16H III	12x12x130	6	-	-	Ø23	-	Ø16	-
NN-20H III	12x12x130	6	-	-	Ø23	-	Ø20	-
NN-16U III	12x12x130	5	-	-	Ø23	-	Ø16	-
NN-20U III	12x12x130	5	-	-	Ø23	-	Ø20	-
NN-20CS	12.7x12.7x130	5(6)	-	-	Ø22	4	Ø20(Ø25)	-
NN-20U5	12.7x12.7x130	5(6)	-	-	Ø22	4	Ø20(Ø25)	-
NN-16UB5	12x12x130	5	-	-	Ø23	-	Ø16	-
NN-20UB5	12x12x130	5	-	-	Ø23	-	Ø20	-
NN-20UB7	12x12x130	6	-	-	Ø23	-	Ø20	-
NN-20UB8	12.7x12.7x130	5(6)	-	-	Ø22	4	Ø20(Ø25)	-
NN-20YB	12x12x130	8	-	-	Ø23	-	Ø20	-
NN-25YB / 32YB	16x16x130	8	-	-	Ø23 / Ø32	-	Ø25	-
NN-32YB2	16x16x130	5	-	-	Ø22 / Ø32	4	Ø32	-
NN-16J	12.7x12.7x130	6	-	-	Ø23	-	Ø16	-
NN-20J	12.7x12.7x130	6	-	-	Ø23	-	Ø20	-
NN-20J2	12.7x12.7x130	6	-	-	Ø22	4	Ø20	-

- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

AUTOMATIC LATHE LIST OF MACHINE MANUFACTURERS

EGURO. LTD

Model	Toolholder Dimensions (Gang-Type)	Number of tools	Toolholder Dimensions (Turret-Type)	Number of tools	Sleeve Dimensions	Number of tools	Max. Cutting Dia.	Remarks
SANAX-6	12×12	5 (Max.)	-	5	Ø16	-	Ø15.0	-
SANAX-8	16×16	5 (Max.)	-	5	Ø25 / Ø30	-	Ø20.0	-
SANAX-8	12×12	7 (Max.)	-	5	Ø25 / Ø30	-	Ø20.0	-
SANAX-10	16×16	5 (Max.)	-	5	Ø25 / Ø30	-	Ø25.5	-
EBN-10EX	12×12	6 (Max.)	-	-	Ø20	-	Ø25.5	-
NUCBOY-8EX	12×12	6 (Max.)	-	-	Ø20	-	Ø20.0	-
NUCLET-10EX	16×16	10 (Max.)	-	-	Ø20	-	Ø25.5	-
NUCPAL-10EX	16×16	10 (Max.)	-	-	Ø20	-	Ø25.5	-

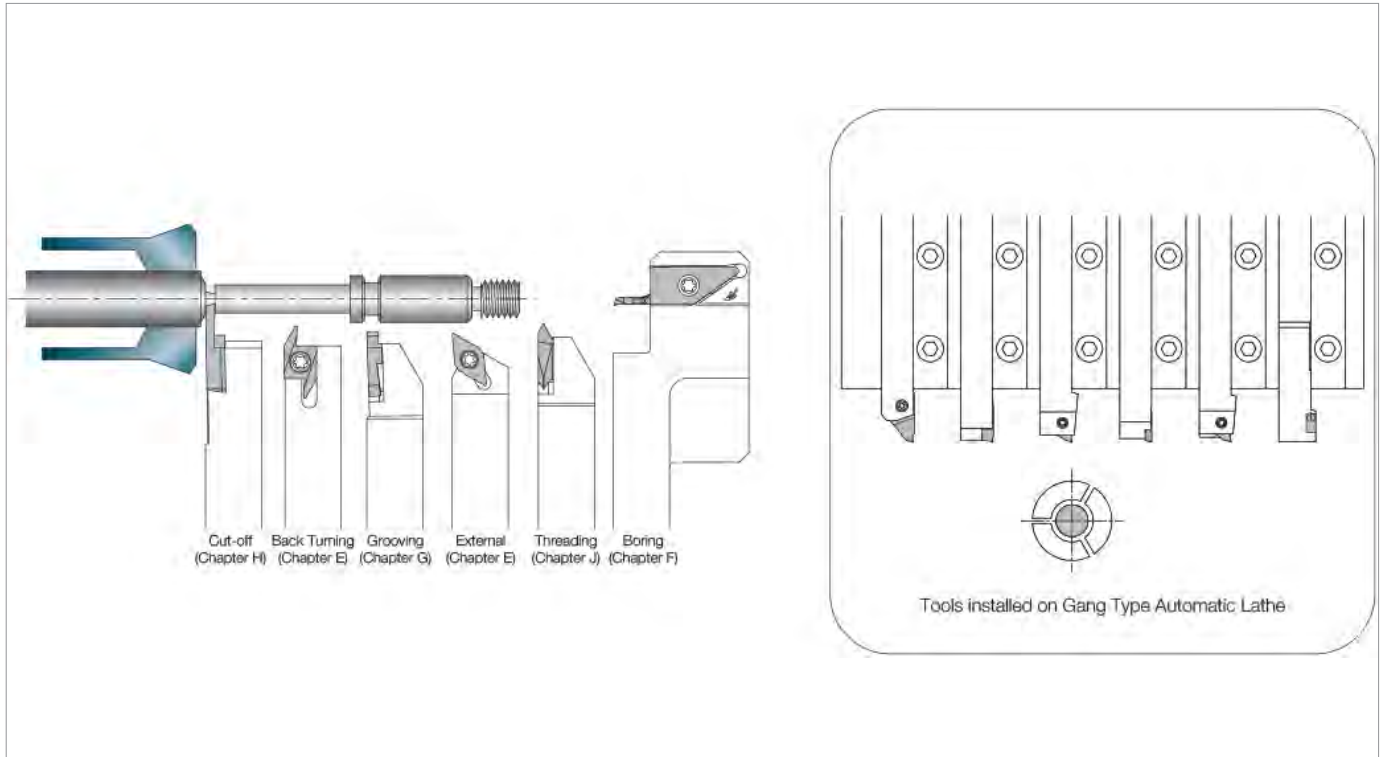
- This table is approved by machine manufacturers.
- Manufacturers are in no particular order.

List of Instruments and Applicable Small Tools and Toolholders

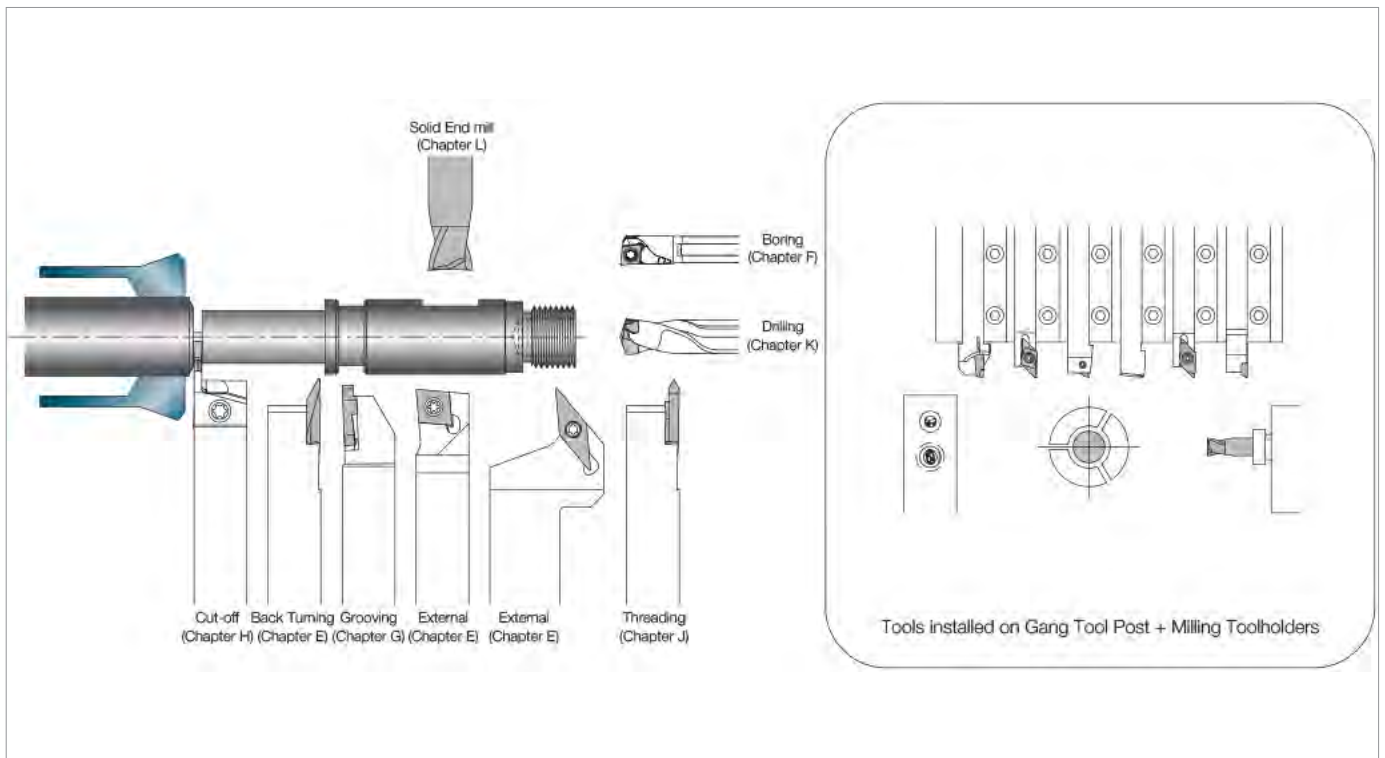
Models of major machine tool manufacturers				Applicable Toolholders
Manufacturer	Model (Automatic Lathe)	Toolholder Size	Total Length of Attached Toolholder (MAX)	
CITIZEN MACHINERY MIYANO CO., LTD.	A12,A16,B12,RL01,RL21	10×10	100	...1010F-..
	K16,K20	12×12	100	...1212F-..
	RL02	16×16	100	...1616H-..
	BL12,C12,C16,M212,M216 M312,MSL12	10×10	120	...1010JX-..
	A20,B20,BL20,BL25	12×12	120	...1212JX-..
	L16,L20,M20 C32,L25,L32,M220,M232	12×12 16×16	130 130	...1212JX-.. ...1616JX-..
STAR MICRONICS CO., LTD.	SB16A,SB16C,SB16D,SC20	12×12	130	...1212JX-..
	SR20R II,SR20 III,SV12,SV20	12×12	135	...1212JX-..
	SV32,SV32J,SV32J II	16×16	135	...1616JX-..
	ECAS12	10×10	150	...1010JX-..
	ECAS20	12×12	150	...1212JX-..
	SR25J,SR32J	16×16	150	...1616JX-..
Nomura VTC Automatic Lathe Co., LTD.	NN-10C,NN-10CS,NN-10SB5,NN-10S II NN-10T,NN-16SB5	10×10	130	...1010JX-..
	NN-16H III,NN-16UB5,NN-16U III,NN-16J NN-20H III,NN-20U III,NN-20UB5,NN-20YB	12×12	130	...1212JX-..
	NN-25YB	16×16	130	...1616JX-..
TSUGAMI CORPORATION	B007	10×10	85	...1010F-..
	B0,BA,BC,BM,BU12,BU20 BS12,BS18,BS20	12×12	85	...1212F-..
	C004	12×12	100	...1212F-..
	BH38,BS26,BS32,BU26,BU32	16×16	100	...1616H-..

- Manufacturers are in no particular order.

■ Tooling Example ① CNC Automatic Lathe (Gang Type)

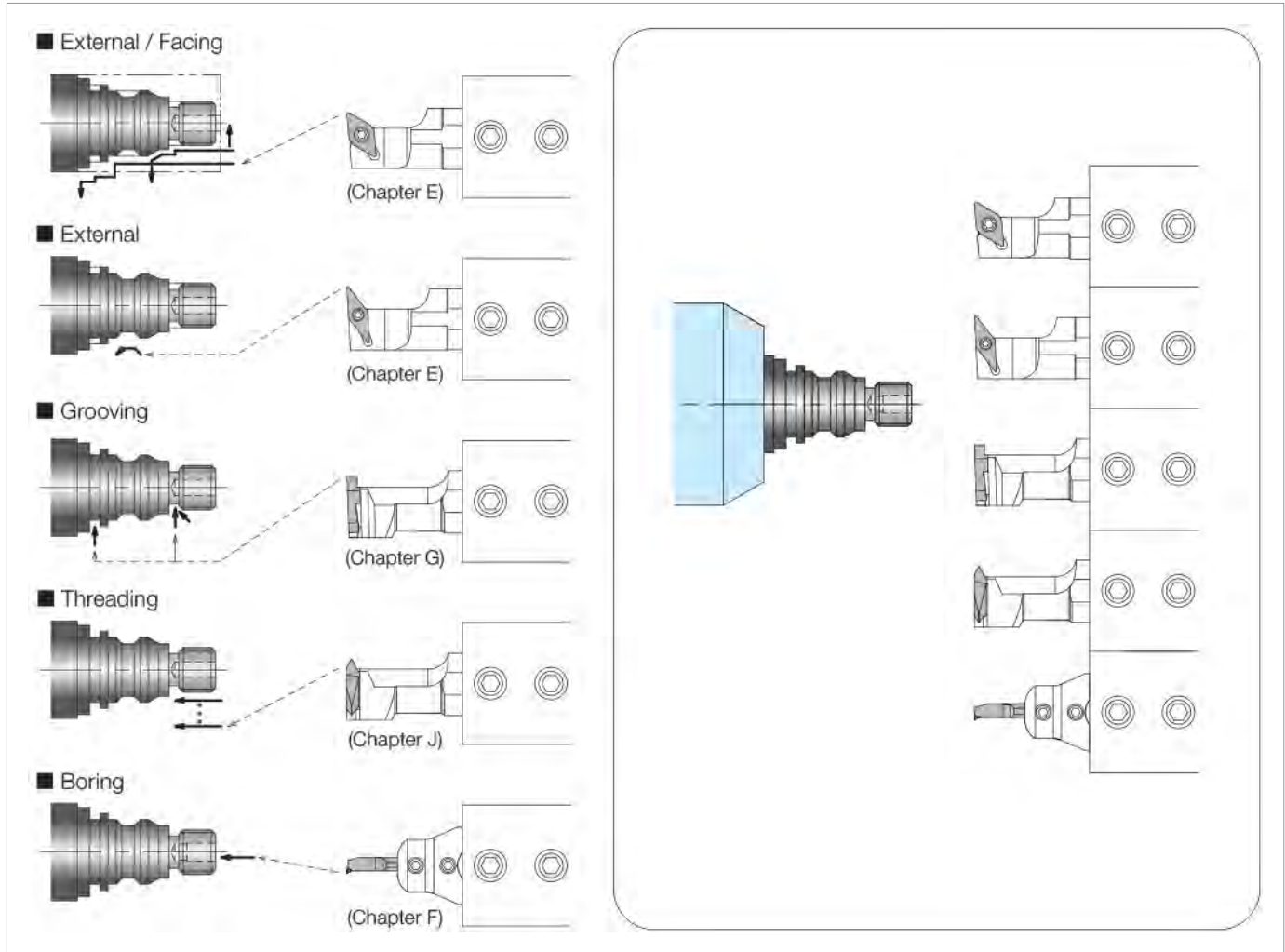


■ Tooling Example ② CNC Automatic Lathe (Gang Type)



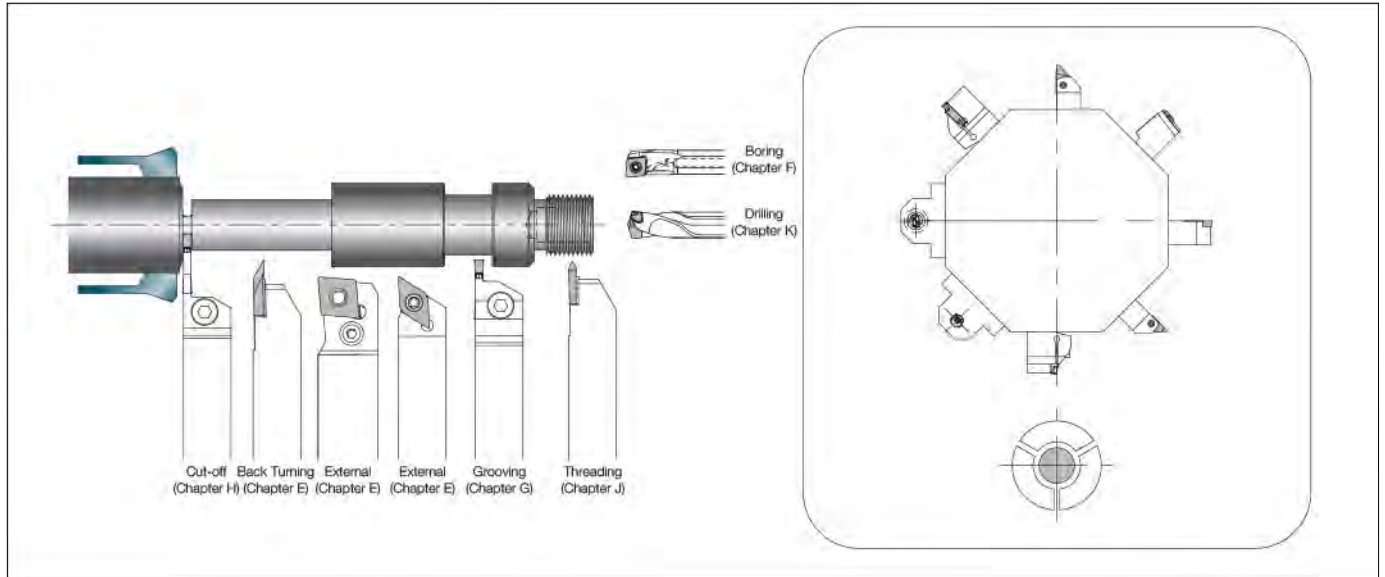
GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

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



A	GRADES
B	INSERTS
C	CBN & PCD
E	TURNING
F	BORING
G	GROOVING
H	CUT-OFF
J	THREADING
L	SOLID END MILLS
M	MILLING
P	SPARE PARTS
R	TECHNICAL
T	INDEX

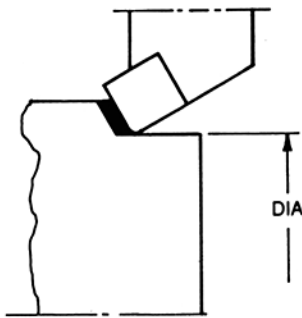
■ Tooling Example ④ CNC Automatic Lathe (Turret Type)



Automatic Lathe List by Manufacturer and Tooling Examples see page [R19](#)~ [R24](#)

GRADES	A
INSERTS	B
CBN & PCD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Turning



Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

Revolutions per Minute
 $RPM = \frac{3.820 \times SFM}{DIA}$

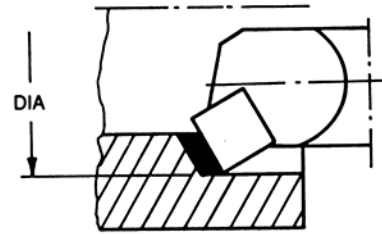
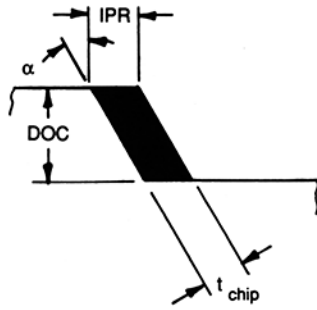
Feedrate (inches/minute)
 $IPM = IPR \times RPM$

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
 $Q = 12 \times DOC \times IPR \times SFM \text{ (in}^3\text{/minute)}$

Horsepower Required at the Spindle
 $HPS = Q \times UHP$

Horsepower Required at the Motor
 $HPM = \frac{HPS}{EFF}$

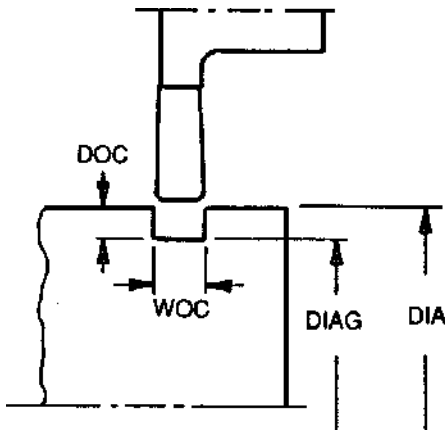
Time in Cut (seconds)

$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR}$

or

$T = \frac{60 \times LOC}{IPM}$

External Grooving



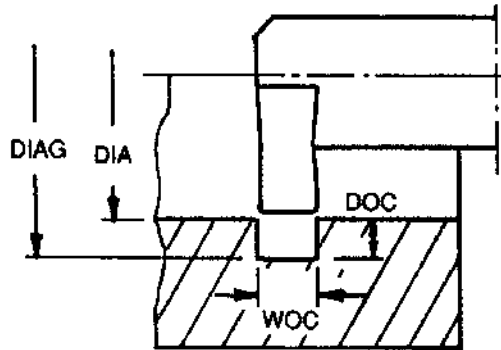
Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

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
 $Q = 12 \times WOC \times IPR \times SFM \text{ (cu.in/minute)}$

Horsepower Required at the Spindle
 $HPS = Q \times UHP$

Horsepower Required at the Motor
 $HPM = \frac{HPS}{EFF}$

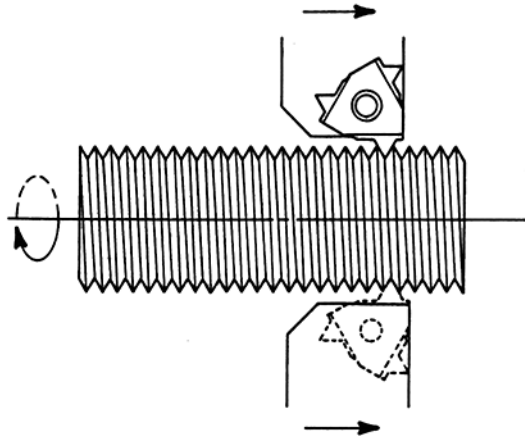
Time in Cut (seconds)

$T = \frac{7.85 \times DOC \times (DIA + DIAG)}{SFM \times IPR}$

or

$T = \frac{60 \times LOC}{IPM}$

External Threading

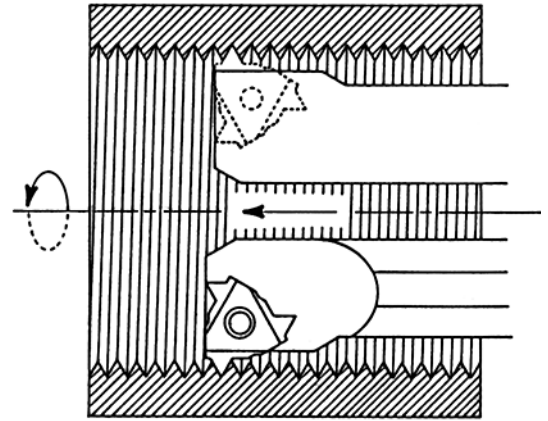


Surface Speed per Minute
 $SFM = 0.262 \times DIA \times RPM$

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

GRADES	A
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SOLID END MILLS	L
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SPARE PARTS	P
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Turning

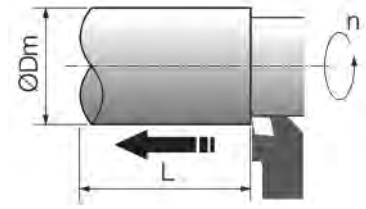
Cutting Speed

$$V_c = \frac{\pi \times D_m \times n}{1000}$$

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

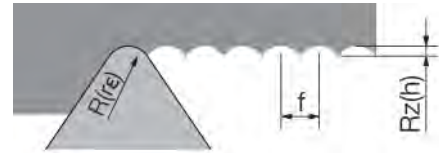
Surface Roughness

$$R_z = h = \frac{f^2}{8 \times R(\epsilon)} \times 1000$$

$R_z = h$: Theoretical Surface Roughness [μ m]

f : Feed Rate [mm/rev]

$R(\epsilon)$: 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]

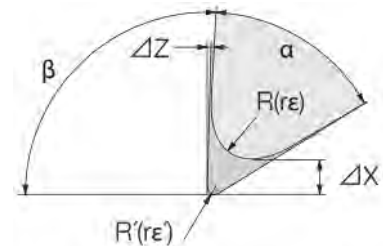
a_p : Depth Of Cut [mm]

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]

α : Insert Corner Angle [°]

β : Toolholder's Cutting Edge Angle [°]

Toolholder Type	Insert Corner Angle α	Cutting Edge Angle β	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)

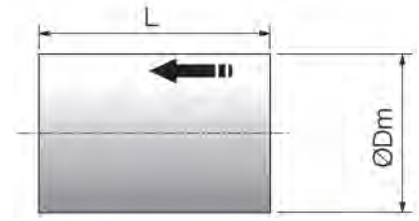
- At Constant Revolution

$$T = \frac{60 \times L}{f \times n}$$

- 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)

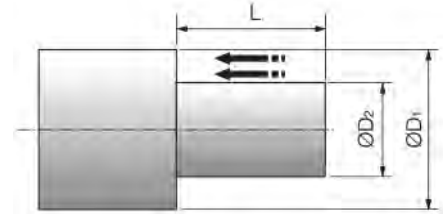
- At Constant Revolution

$$T = \frac{60 \times L}{f \times n} \times N$$

- 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]
- ap : 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)/ap/2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting Time (Facing)

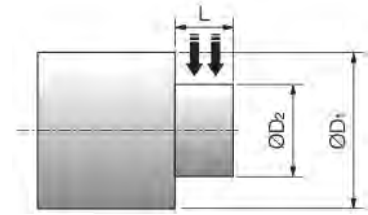
- At Constant Revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

- 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]
- ap : 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)/ap/2 (if it is indivisible, obtain integer by rounding up one place of decimals.)



Cutting Time (Grooving)

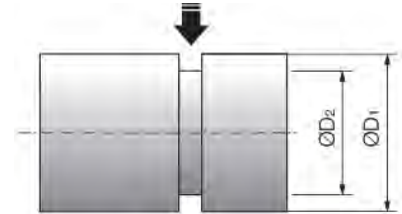
- At Constant Revolution

$$T = \frac{60 \times (D_1 - D_2)}{2 \times f \times n} \times N$$

- At Constant Cutting Speed

$$T_1 = \frac{60 \times \pi \times (D_1 + D_2) \times (D_1 - D_2)}{4000 \times f \times V_c} \times N$$

- 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

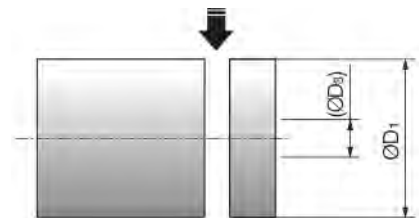
$$T = \frac{60 \times D_1}{2 \times f \times n}$$

- 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]



GRADES	A
INSERTS	B
CBN & POD	C
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THREADING	J
SOLID END MILLS	L
MILLING	M
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Milling (Inch)

Surface Speed per Minute

$$SFM = .262 \times DIA \times RPM$$

Revolutions per Minute

$$RPM = \frac{3.82 \times SFM}{DIA}$$

Feedrate (inches/minute)

$$IPM = IPT \times N \times RPM$$

Feedrate (inches/tooth)

$$\text{Programmed IPT} = \frac{t_{\text{chip Max}}}{\cos \alpha}$$

Radial Chip Thinning for 90° Cutters

$$f_1 = \frac{1/2 \left(\frac{D_{\text{dia}}}{A_e} \right)}{\sqrt{\left(\frac{D_{\text{dia}}}{A_e} \right) - 1}}$$

Table Feed with f_1 Compensation (inches/minute)
 = IPT x N x RPM x f_1

Metal Removal Rate

$$Q = WOC \times DOC \times IPM \text{ (in/min)}$$

Horsepower Required at the Spindle

$$HPS = Q \times UHP$$

Horsepower Required at the Motor

$$HPM = \frac{HPS}{EFF}$$

Time in Cut (seconds)

$$T = \frac{15.7 \times DIA \times LOC}{SFM \times IPR \times N}$$

or

$$T = \frac{60 \times LOC}{IPM}$$

Definition of Terms

DIA = Cutter Diameter (Inches)

ap= 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)

$t_{\text{chip Max}}$ = Maximum Recommended Chip Thickness (Inches)

UHP = Unit Horsepower Factor

α = Lead Angle

Milling (Metric)

Cutting Speed

$$Vc = \frac{\pi \times D_s \times n}{1000}$$

Vc : Cutting Speed [m/min]

Ds : End Mill Diameter [mm]

n : Spindle Revolution [min⁻¹]

Power Requirement

$$fz = \frac{Vf}{Z \times n}$$

fz : Feed Per Tooth [mm/t]

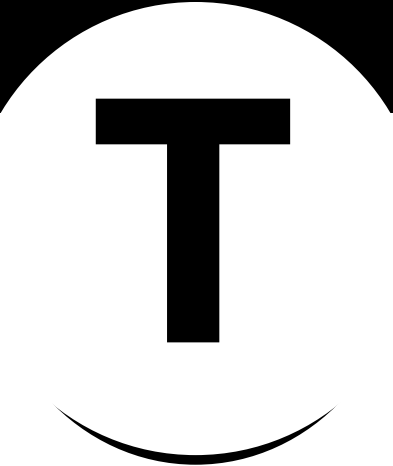
Vf : Table Feed [mm/min]

Z : Number of Inserts

n : Spindle Revolution [min⁻¹]



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T

T2 - T11

Listed in Alphanumeric Order

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

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	06I% ○○○○(○)	J23,J25	Insert (Threading)	
	08I% ○○○○(○)	J23,J25	Insert (Threading)	
	B INSERTS	11I% A○○	J23,J25	Insert (Threading)
		11I% ○○BSPT	J21	Insert (Threading)
	C CBN & PCD	11I% ○○BSPT-TF	J21	Insert (Threading) / TF series
		11I% ○○○ISO	J17	Insert (Threading)
		11I% ○○○ISO-TF	J17	Insert (Threading) / TF series
		11I% ○○○○○	J23,J25	Insert (Threading)
	E TURNING	16E% A○○	J22,J24	Insert (Threading)
16E% AG○○		J22,J24	Insert (Threading)	
16E% G○○		J22,J24	Insert (Threading)	
F BORING	16E% A○○-TF	J22,J24	Insert (Threading) / TF series	
	16E% AG○○-TF	J22,J24	Insert (Threading) / TF series	
	16E% G○○-TF	J22,J24	Insert (Threading) / TF series	
	16E% ○○BSPT	J20	Insert (Threading)	
G GROOVING	16E% ○○BSPT-TF	J20	Insert (Threading) / TF series	
	16E% ○○(○)NPT	J20	Insert (Threading)	
	16E% ○○UN	J18	Insert (Threading)	
H CUT-OFF	16E% ○○UN-TF	J18	Insert (Threading) / TF series	
	16E% ○○W	J18	Insert (Threading)	
J THREADING	16E% ○○W-TF	J18	Insert (Threading) / TF series	
	16E% ○○○ISO	J16	Insert (Threading)	
	16E% ○○○ISO-TF	J16	Insert (Threading) / TF series	
	16E% ○○○TR	J24	Insert (Threading)	
L SOLID END MILLS	16E% ○○○○	J22,J24	Insert (Threading)	
	16I% A○○	J23,J25	Insert (Threading)	
	16I% AG○○	J23,J25	Insert (Threading)	
	16I% G○○	J23,J25	Insert (Threading)	
M MILLING	16I% ○○BSPT	J20	Insert (Threading)	
	16I% ○○BSPT-TF	J20	Insert (Threading) / TF series	
	16I% ○○(○)NPT	J21	Insert (Threading)	
	16I% ○○UN	J19	Insert (Threading)	
P SPARE PARTS	16I% ○○UN-TF	J19	Insert (Threading) / TF series	
	16I% ○○W	J19	Insert (Threading)	
	16I% ○○W-TF	J19	Insert (Threading) / TF series	
	16I% ○○○ISO	J17	Insert (Threading)	
R TECHNICAL	16I% ○○○ISO-TF	J17	Insert (Threading) / TF series	
	16I% ○○○TR	J23	Insert (Threading)	
	16I% ○○○○(○)	J23,J25	Insert (Threading)	
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2FEKS ○○○-○○○-○○	L7	Solid End Mill		
2FESL ○○○-○○○-○○	L6	Solid End Mill		
2FESM ○○○-○○○-○○	L5,L6	Solid End Mill		
2FESS ○○○-○○○-○○	L5	Solid End Mill		
2FESW ○○○-○○○-○○(A)	L9	Solid End Mill		

Part Number	Page	Description
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3ZFKM ○○○-○○○-○○	L11	Solid End Mill
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4FEKM ○○○-○○○-○○	L8	Solid End Mill
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A○○□- SCLC%○OAE	F39	Boring Bars (Dynamic Bar)
A○○□- SCLC%○○-○○OAE	F39	Boring Bars (Dynamic Bar)
A○○□- SCLP%○(○)OAE	F41	Boring Bars (Dynamic Bar)
A○○□- SCLP%○○-○○OAE	F41	Boring Bars (Dynamic Bar)
A○○□- SDQC%○OAE	F46	Boring Bars (Dynamic Bar)
A○○□- SDQC%○○-○○OAE	F46	Boring Bars (Dynamic Bar)
A○○□- SDUC%○OAE	F43	Boring Bars (Dynamic Bar)
A○○□- SDUC%○○-○○OAE	F45	Boring Bars (Dynamic Bar)
A○○□- SDZC%○○-○○OAE	F47	Boring Bars (Dynamic Bar)
A○○□- STL B%○(○)OAE	F53	Boring Bars (Dynamic Bar)
A○○□- STLC%○○-○○OAE	F51	Boring Bars (Dynamic Bar)
A○○□- STLP%○(○)OAE	F53	Boring Bars (Dynamic Bar)
A○○□- STLP%○○-○○OAE	F53	Boring Bars (Dynamic Bar)
A○○□- SVJC%○○-○○OAE	F58	Boring Bars (Dynamic Bar)
A○○□- SVJP%○○-○○OAE	F58	Boring Bars (Dynamic Bar)
A○○□- SVPB%○OAE	F61	Boring Bars (Dynamic Bar)
A○○□- SVPB%○○-○○OAE	F61	Boring Bars (Dynamic Bar)
A○○□- SVPC%○(○)OAE	F61	Boring Bars (Dynamic Bar)
A○○□- SVPC%○○-○○OAE	F61	Boring Bars (Dynamic Bar)
A○○□- SVUB%○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVUB%○○-○○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVUC%○(○)OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVUC%○○-○○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVZB%○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVZB%○○-○○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVZC%○(○)OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SVZC%○○-○○OAE	F63	Boring Bars (Dynamic Bar)
A○○□- SWUB%○(○)OAE	F65	Boring Bars (Dynamic Bar)
A○○□- SWUB%○○-○○OAE	F65	Boring Bars (Dynamic Bar)
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AABSR ○○○○□□-○○F	E17	Toolholder (Turning)
AABWR ○(○)-○○JXF	E18,E19	Toolholder (Turning)
AABWR ○○○○□□-○○F	E18,E19	Toolholder (Turning)
ABS ○○R○○○○○	B37	Insert (Turning)
ABS ○○R○○○○○M	B37	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
ABW ○○R○○○○	B37	Insert (Turning)
ABW ○○R○○○○M	B37	Insert (Turning)
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ACL□% ○○○○□□-○○FF	E22	Toolholder (Turning)
ADJ□% ○(○)-○JXF	E24	Toolholder (Turning)
ADJ□% ○○○○□□-○○FF	E24	Toolholder (Turning)
AVJB% ○(○)-○JXF	E30	Toolholder (Turning)
AVJB% ○○○○□□-○○FF	E30	Toolholder (Turning)
B		
BDGT ○○○○○FR-JA	M2	Insert (Milling)
BDMT ○○○○○ER-JS	M2	Insert (Milling)
BDMT ○○○○○ER-JT	M2	Insert (Milling)
BDMT ○○○○○FR	C17,M2	Insert (Milling)
BDMT ○○○○○ER-JS	M2	Insert (Milling)
BDMT ○○○○○ER-JT	M2	Insert (Milling)
C		
○○○○□- SCLCRO○-○○○EZ	F18	Toolholder (EZ Bar-Plus)
○○○(○)□- SCL□%○	F43	Boring Bars
○○○(○)□- SCL□%○○-○○A	F39	Boring Bars (Dynamic Bar)
○○○□- SCLP%○	F43	Boring Bars
○○○□- SJLC%○○-○○○	F50	Boring Bars
○○○□- SJZC%○○-○○○	F50	Boring Bars
○○○□- STLB%○○-○○A	F53	Boring Bars (Dynamic Bar)
○○○□- STXB%○○-○○○	F50	Boring Bars / Previous Part Number
○○○□- STXP%○○-○○○	F56	Boring Bars / Previous Part Number
○○○□- STZB%○○-○○○	F56	Boring Bars / Previous Part Number
○○○□- SWUB%○	F66	Boring Bars
○○○□- SWUB%○○-○○A	F65	Boring Bars (Dynamic Bar)
CCET ○○○○○F%-USF	B11	Insert (Turning)
CCET ○○○○○(○)(○)M%-F	B10	Insert (Turning)
CCET ○○○○○(○)(○)MF%-J	B12	Insert (Turning)
CCET ○○○○○(○)(○)MF%-U	B11	Insert (Turning)
CCET ○○○○○(○)MF%-USF	B11	Insert (Turning)
CCET ○○○○○(○)(○)M%-FSF	B10	Insert (Turning)
CCET ○○○○○(○)%-FSF	B10	Insert (Turning)
CCGT ○○○○(○)	B9	Insert (Turning)
CCGT ○○○○AH	B12	Insert (Turning)
CCGT ○○○○○(○)E%-U	B12	Insert (Turning)
CCGT ○○○○○F%-U	B12	Insert (Turning)
CCGT ○○○○○(○)(○)M	B9	Insert (Turning)
CCGT ○○○○○○M-CF	B8	Insert (Turning)
CCGT ○○○○○○MP-CF	B8	Insert (Turning)
CCGT ○○○○○○MP-CK	B8	Insert (Turning)
CCGT ○○○○○(○)ME%-U	B12	Insert (Turning)
CCGT ○○○○○(○)(○)MF	B10	Insert (Turning)

Part Number	Page	Description
CCGT ○○○○(○)MF-GF	B8	Insert (Turning)
CCGT ○○○○(○)MFP-GF	B8	Insert (Turning)
CCGT ○○○○(○)MF-GQ	B8	Insert (Turning)
CCGT ○○○○(○)MFP-GQ	B9	Insert (Turning)
CCGT ○○○○(○)MFP-SK	B8	Insert (Turning)
CCGT ○○○○(○)(○)MF%-U	B12	Insert (Turning)
CCGT ○○○○○(○)(○)M%-F	B11	Insert (Turning)
CCGT ○○○○(○)(○)%-A3	B13	Insert (Turning)
CCGT ○○○○○(○)%-F	B11	Insert (Turning)
CCGW ○○○○(○)(○)	B13,C12	Insert (Turning)
CCGW ○○○○(○)(○)NE	C12	Insert (Turning)
CCGW ○○○○(○)(○)SE	C12	Insert (Turning)
CCMT ○○○○(○)	B9,C12	Insert (Turning)
CCMT ○○○○(○)(○)GK	B9	Insert (Turning)
CCMT ○○○○(○)HQ	B9	Insert (Turning)
CCMT ○○○○MQ	B10	Insert (Turning)
CCMT ○○○○(○)NE	C12	Insert (Turning)
CCMT ○○○○(○)PP	C9	Insert (Turning)
CCMT ○○○○(○)SE	C12	Insert (Turning)
CCMW ○○○○MEF	C4	Insert (Turning)
CCMW ○○○○S○○○○○MES	C4	Insert (Turning)
CCMW ○○○○S○○○○○MET	C4	Insert (Turning)
CCMW ○○○○(○)(○)S○○○○○SET	C4	Insert (Turning)
CCMW ○○○○(○)T○○○○○OME	C4	Insert (Turning)
CCMW ○○○○(○)(○)T○○○○○OSE	C4	Insert (Turning)
CKC-2%	G24,J27	Spare Parts (Clamp)
CNGG ○○○○FP-TK	B41	Insert (Turning)
CNGG ○○○○(○)MFP-SK	B41	Insert (Turning)
CNGU ○○○○(○)ME%-U	B38	Insert (Turning)
CNGU ○○○○(○)(○)MF%-F	B38	Insert (Turning)
CNGU ○○○○(○)(○)MF%-U	B38	Insert (Turning)
CNGU ○○○○○MF-SK	B38	Insert (Turning)
CNGU ○○○○○MFP-SK	B38	Insert (Turning)
CNMU ○○○○(○)E-GK	B38	Insert (Turning)
CPGB ○○○○S○○○○○MES	C4	Insert (Turning)
CPGB ○○○○(○)(○)S○○○○○MET	C4	Insert (Turning)
CPGB ○○○○(○)(○)S○○○○○SET	C4	Insert (Turning)
CPGB ○○○○(○)(○)T○○○○○OME	C4	Insert (Turning)
CPGB ○○○○(○)(○)T○○○○○OSE	C4	Insert (Turning)
CPGT ○○○○(○)	B13	Insert (Turning)
CPMB ○○○○(○)(○)(○)	B14	Insert (Turning)
CPMH ○○○○(○)(○)(○)	B13,G13	Insert (Turning)
CPMH ○○○○(○)(○)HQ	B13	Insert (Turning)
CPMH ○○○○(○)(○)(○)NE	C13	Insert (Turning)
CPMH ○○○○(○)(○)%-Y	B14	Insert (Turning)
CPMH ○○○○(○)(○)SE	C13	Insert (Turning)
CPMT ○○○○(○)(○)GP	B13	Insert (Turning)

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GRINDING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
M MILLING
P SPARE PARTS
R TECHNICAL
T INDEX

Part Number	Page	Description
CPMT ○○○(○)(○)PP	B13	Insert (Turning)
CPMT ○○○(○)(○)XP	B14	Insert (Turning)
CPMT ○○○XQ	B14	Insert (Turning)
CPS-5S	J28,P3	Spare Parts (Clamp Set)
D		
DCET ○○○○○F% -JSF	B20	Insert (Turning)
DCET ○○○○○F% -USF	B19	Insert (Turning)
DCET ○○○○(○)(○)MF% -J	B20	Insert (Turning)
DCET ○○○○○(○)MF% -JSF	B20	Insert (Turning)
DCET ○○○○(○)(○)MF% -U	B19	Insert (Turning)
DCET ○○○○○(○)MF% -USF	B19	Insert (Turning)
DCET ○○○○(○)(○)M% -F	B18	Insert (Turning)
DCET ○○○○(○)(○)M% -FSF	B18	Insert (Turning)
DCET ○○○○(○)% -FSF	B18	Insert (Turning)
DCGT ○○○○(○)	B17	Insert (Turning)
DCGT ○○○○AH	B21	Insert (Turning)
DCGT ○○○○○CF	B15	Insert (Turning)
DCGT ○○○○○CK	B15	Insert (Turning)
DCGT ○○○○(○)E% -J	B20	Insert (Turning)
DCGT ○○○○(○)E% -U	B19	Insert (Turning)
DCGT ○○○○○F% -J	B20	Insert (Turning)
DCGT ○○○○○F% -U	B19	Insert (Turning)
DCGT ○○○○(○)(○)M	B17	Insert (Turning)
DCGT ○○○○(○)(○)ME% -J	B20	Insert (Turning)
DCGT ○○○○(○)ME% -U	B19	Insert (Turning)
DCGT ○○○○(○)(○)MF	B17	Insert (Turning)
DCGT ○○○○(○)MF-GF	B15	Insert (Turning)
DCGT ○○○○(○)MF-GQ	B16	Insert (Turning)
DCGT ○○○○(○)MFP-GF	B15	Insert (Turning)
DCGT ○○○○(○)MFP-GQ	B16	Insert (Turning)
DCGT ○○○○(○)MFP-SK	B15	Insert (Turning)
DCGT ○○○○(○)(○)MF% -J	B20	Insert (Turning)
DCGT ○○○○(○)(○)MF% -U	B19	Insert (Turning)
DCGT ○○○○(○)(○)M% -F	B18	Insert (Turning)
DCGT ○○○○○M-CF	B15	Insert (Turning)
DCGT ○○○○○MP-CF	B15	Insert (Turning)
DCGT ○○○○○M-CK	B15	Insert (Turning)
DCGT ○○○○○MP-CK	B16	Insert (Turning)
DCGT ○○○○(○)% -A3	B21	Insert (Turning)
DCGT ○○○○(○)% -F	B18	Insert (Turning)
DCGW ○○○○(○)	B21	Insert (Turning)
DCMT ○○○○(○)	B17,C13	Insert (Turning)
DCMT ○○○○(○)GK	B16	Insert (Turning)
DCMT ○○○○(○)GP	B16	Insert (Turning)
DCMT ○○○○(○)HQ	B16	Insert (Turning)
DCMT ○○○○(○)MQ	B17	Insert (Turning)

Part Number	Page	Description
DCMT ○○○○(○)NE	C13	Insert (Turning)
DCMT ○○○○(○)PP	B16	Insert (Turning)
DCMT ○○○○(○)% -NE	C13	Insert (Turning)
DCMT ○○○○(○)SE	C13	Insert (Turning)
DCMT ○○○○(○)XP	B17	Insert (Turning)
DCMT ○○○○XQ	B17	Insert (Turning)
DCMW ○○○○MEF	C5	Insert (Turning)
DCMW ○○○○(○)S○○○○OMES	C5	Insert (Turning)
DCMW ○○○○(○)S○○○○OMET	C5	Insert (Turning)
DCMW ○○○○(○)S○○○○OSET	C5	Insert (Turning)
DCMW ○○○○(○)T○○○○OME	C5	Insert (Turning)
DCMW ○○○○(○)T○○○○OSE	C5	Insert (Turning)
DNGG ○○○FP-TK	B41	Insert (Turning)
DNGU ○○○○(○)ME% -U	B39	Insert (Turning)
DNGU ○○○○(○)(○)MF% -F	B39	Insert (Turning)
DNGU ○○○○(○)(○)MF% -U	B39	Insert (Turning)
DNGU ○○○○(○)MF-SK	B39	Insert (Turning)
DNGU ○○○○(○)MFP-SK	B39	Insert (Turning)
DNMU ○○○○(○)E-GK	B39	Insert (Turning)
DPET ○○○○○F% -USF	B21	Insert (Turning)
DPET ○○○○○(○)M% -FSF	B21	Insert (Turning)
DPET ○○○○○(○)MF% -USF	B21	Insert (Turning)
DPET ○○○○○% -FSF	B21	Insert (Turning)
DT-7	G40,G41,P5	Spare Parts (Torx Wrench / Screwdriver type)
DTM-6	M6,P5	Spare Parts (Torx Wrench / Screwdriver type)
DTM-8	M3,P5	Spare Parts (Torx Wrench / Screwdriver type)
DTPM-8	M9,P5	Spare Parts (Torx Plus Wrench / Screwdriver type)
E		
E○○□- SCLC% OA	F39	Boring Bars (Dynamic Bar)
E○○□- SCLC% OA-O/O	F39	Boring Bars (Dynamic Bar)
E○○□- SCLC% OO-OOA	F39	Boring Bars (Dynamic Bar)
E○○□- SCLC% OO-OOA-O/O	F39	Boring Bars (Dynamic Bar)
E○○□- SCLP% OO-OOA	F41	Boring Bars (Dynamic Bar)
E○○□- SCLP% OO-OOA-O/O	F41	Boring Bars (Dynamic Bar)
E○○□- SDQC% OO-OOA	F46	Boring Bars (Dynamic Bar)
E○○□- SDQC% OO-OOA-O/O	F46	Boring Bars (Dynamic Bar)
E○○□- SDUC% OO-OOA	F45	Boring Bars (Dynamic Bar)
E○○□- SDUC% OA	F45	Boring Bars (Dynamic Bar)
E○○□- SDUC% OA-O/O	F45	Boring Bars (Dynamic Bar)
E○○□- SDUC% OO-OOA-O/O	F45	Boring Bars (Dynamic Bar)
E○○□- SDZC% OO-OOA	F47	Boring Bars (Dynamic Bar)
E○○□- STLP% OO-OOA	F53	Boring Bars (Dynamic Bar)
E○○□- STLP% OO-OOA-O/O	F53	Boring Bars (Dynamic Bar)
E○○□- SVPB% OO-OOA	F61	Boring Bars (Dynamic Bar)
E○○□- SVPC% OO-OOA	F61	Boring Bars (Dynamic Bar)
E○○□- SVUB% OO-OOA	F63	Boring Bars (Dynamic Bar)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
E○○□- SVUC%○○-○○A	F63	Boring Bars (Dynamic Bar)
E○○□- SWUB%○○-○○A	F65	Boring Bars (Dynamic Bar)
E○○□- SWUB%○○-○○A-○/○	F65	Boring Bars (Dynamic Bar)
E○○□- SWUP%○○-○○A	F65	Boring Bars (Dynamic Bar)
E○○□- SWUP%○○-○○A-○/○	F65	Boring Bars (Dynamic Bar)
EZBR ○○○○○○-○○○NB	C10,C21,F16	EZ Bars (Boring)
EZBR ○○○○○○□□-○○○F	F14,F15	EZ Bars (Boring)
EZBR ○○○○○○□□-○○○H	F14,F15	EZ Bars (Boring)
EZFGR ○○○○○○-○○○	G45	EZ Bars (Face Grooving)
EZGR ○○○○○○-○○○	G34	EZ Bars (Internal Grooving)
EZGR ○○○○○○-○○○S	G34	EZ Bars (Internal Grooving)
EZH ○○○○○(○)□□-○○(○)	F20-F25	Sleeve (for EZ Bars)
EZTR ○○○○○○-○○-○○○	J10	EZ Bars (Internal Threading)
EZVBR ○○○○○○-○○○	F19	EZ Bars (Copying / Profiling)
F		
FH-2	E17-E19,E22,E24,E30,P5	Spare Parts (Hexagon Wrench / Flag type)
FH-2.5	E41,P5	Spare Parts (Hexagon Wrench / Flag type)
FT-5	E34,P5	Spare Parts (Torx Wrench / Flag type)
FT-6	E29,E32,E33,E36,F18,F39,F43,F50,F53,F56,F58,F61,F63,F65,F59,G40,G41,J29,P5	Spare Parts (Torx Wrench / Flag type)
FT-7	F47,G42,P5	Spare Parts (Torx Wrench / Flag type)
FT-8	E21,E23,E25-E35,E42,F39,F41,F43-F45,F47,F49,F50,F55,F57,F59,G4,G40-G42,J6,J29,P5	Spare Parts (Torx Wrench / Flag type)
FT-10	E17-E19,E29,E43,F32,F33,F35,F41,F49,G4,G5,P5	Spare Parts (Torx Wrench / Flag type)
FT-15	E20,E21,E23,E25-E28,E30,E31,E35,E42,F39,F43,F45,F59,G12,G13,J28,J29,P5	Spare Parts (Torx Wrench / Flag type)
G		
GBA ○○%○○○	G8-G10	Insert (Grooving / Previous Part Number)
GBA ○○%○○○MY	G9	Insert (Grooving / Previous Part Number)
GBA ○○%○○○MYN	G7	Insert (Grooving)
GBA ○○%○○○N	G6	Insert (Grooving)
GBA ○○%○○○OR	G10	Insert (Grooving / Previous Part Number)
GBA ○○%○○○-○○○	C9,C20,G8-G10	Insert (Grooving / Previous Part Number)
GBA ○○%○○○-○○○GM	G9	Insert (Grooving)
GBA ○○%○○○-○○○MY	G9	Insert (Grooving / Previous Part Number)
GBA ○○%○○○-○○○OR	G10	Insert (Grooving / Previous Part Number)
GDG ○○○○N-○○○GS	G17	Insert (Grooving)
GDG ○○○○N-○○○PG	H12	Insert (Cut-Off)
GDG ○○○○%-○○○PG-15D	H12	Insert (Cut-Off)
GDGS ○○○○N-○○○NB	C9,C20,G17	Insert (Grooving)

Part Number	Page	Description
GDM ○○○○N-○○○GL	G16	Insert (Grooving)
GDM ○○○○N-○○○GM	G16	Insert (Grooving)
GDM ○○○○N-○○○PF	H12	Insert (Cut-Off)
GDM ○○○○N-○○○PH	G17,H13	Insert (Grooving / Cut-Off)
GDM ○○○○N-○○○PM	H13	Insert (Cut-Off)
GDM ○○○○N-○○○PQ	H12	Insert (Cut-Off)
GDM ○○○○N-○○○R-CM	G17	Insert (Grooving)
GDM ○○○○%-○○○PF-15D	H12	Insert (Cut-Off)
GDM ○○○○%-○○○PM-6D	H13	Insert (Cut-Off)
GDM ○○○○%-○○○PQ-15D	H12	Insert (Cut-Off)
GDMS ○○○○N-○○○GM	G16	Insert (Grooving)
GDMS ○○○○N-○○○PH	G17,H13	Insert (Grooving / Cut-Off)
GDMS ○○○○N-○○○PM	H13	Insert (Cut-Off)
GDMS ○○○○%-○○○PM-6D	H13	Insert (Cut-Off)
GE% ○○○-○○○A	G38	Insert (Grooving)
GE% ○○○-○○○B	G38	Insert (Grooving)
GE% ○○○-○○○C	G39	Insert (Grooving)
GER ○○○-○○○AR	G38	Insert (Grooving)
GER ○○○-○○○BR	G38	Insert (Grooving)
GER ○○○-○○○CM	G39	Insert (Grooving)
GER ○○○-○○○CR	G39	Insert (Grooving)
GM% ○-TK-8D	G27,H18	Insert (Grooving / Plunge & Turn)
GM% ○(○)○(○)D	G27,H18	Insert (Grooving / Plunge & Turn)
GMG ○○○○-○○	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMG ○○○○-○○(○)MG	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMG ○○○○-○○(○)R	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMG ○○○○-○○○MS	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMM ○○○○-MT	G27,H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○-NB	G27,H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○%-MT-15D	G27,H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○%-TK-8D	G27,H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○%-TMR-6D	H18	Insert (Grooving / Plunge & Turn)
GMM ○(○)(○)(○)-TK	G27,H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○-TMR	H18	Insert (Grooving / Plunge & Turn)
GMM ○○○○-○○	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMM ○○○○-○○(○)MS	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMM ○○○○-○○(○)R	G26	Insert (Grooving / Plunge & Turn) / Previous Part Number
GMM ○○○○-○○○MW	G26	Insert (Grooving / Plunge & Turn)
GMN ○(○)	C9,C20,G27,G28,H18	Insert (Grooving / Plunge & Turn)
GMN ○-TK	G27,H18	Insert (Grooving / Plunge & Turn)
H		
HH5X16	G20,G21,G30,G31,H17,H20,H21,P2	Spare Parts (Screw)
HH5X25	G20,G21,G30,G31,H17,P2	Spare Parts (Screw)
HPB% ○○○○-○○○	F28	2-Edge Tip-Bars (Boring)
HPB% ○○○○-○○○NB	F28	2-Edge Tip-Bars (Boring)

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
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A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
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P SPARE PARTS
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Part Number	Page	Description
HPBT% ○○○○-○○○	F28	2-Edge Tip-Bars (Back Boring)
HPFG% ○○○○-○○	G47	2-Edge Tip-Bars (Internal Face Grooving)
HPG% ○○○○-○○	G36	2-Edge Tip-Bars (Internal Grooving)
HPTR ○○○○○-○○-○○○	J14	2-Edge Tip-Bars (Internal Threading)
HS3X4	F32,F34,P2	Spare Parts (Screw)
HS3X4P	F20,F22,F25,P2	Spare Parts (Screw)
HS4X4P	F20,F22,F25,P2	Spare Parts (Screw)
HS6X4P	F62,G42,P2	Spare Parts (Screw)
HSB4X8%	E17-E19,E22,E24,E30,P2	Spare Parts (Screw)
J		
JCET ○○○○○(○)M%-F	B22	Insert (Turning)
JCET ○○○○○(○)M%-FSF	B22	Insert (Turning)
JCET ○○○○○(○)M%-FSF	B22	Insert (Turning)
JCGT ○○○○○(○)M%-F	B22	Insert (Turning)
JCGT ○○○○○(○)M%-F	B22	Insert (Turning)
K		
KCG ○○○○%	G25	Insert (Grooving) / Cera-Notch
KCGP ○○○○%	G25	Insert (Grooving) / Cera-Notch
KCRP ○○○○%	G25	Insert (Grooving) / Cera-Notch
KCT ○%	J26	Insert (Threading) / Cera-Notch
KCTK ○%	J26	Insert (Threading) / Cera-Notch
KCTP ○%	J26	Insert (Threading) / Cera-Notch
KGBA% ○○-○	G12	Toolholder (Grooving)
KGBA% ○○-○-○○(□)	G12	Toolholder (Grooving)
KGBA% ○○○○□-○○	G12	Toolholder (Grooving)
KGBA% ○○○○□22-○○	G12	Toolholder (Grooving)
KGBA% ○○○○□22-○○T5	G12	Toolholder (Grooving)
KGBAS% ○○-○	G13	Toolholder (Grooving)
KGBAS% ○○-○-○○	G13	Toolholder (Grooving)
KGBAS% ○○○○□-○○	G13	Toolholder (Grooving)
KGBAS% ○○○○□22-○○	G13	Toolholder (Grooving)
KGBAS% ○○○○□22-○○T5	G13	Toolholder (Grooving)
KGD% ○(○)-○(○)JX	G19,H16	Toolholder (Grooving / Cut-Off)
KGD% ○○-○D○○JX	G19,H16	Toolholder (Grooving / Cut-Off)
KGD% ○○-○T○○	G20,H17	Toolholder (Grooving / Cut-Off)
KGD% ○○○○□(□)-○(○)	G19,H16	Toolholder (Grooving / Cut-Off)
KGD% ○○○○□□-○D○○	G19,H16	Toolholder (Grooving / Cut-Off)
KGD% ○○○○□-○(○)T○○	G21,H17	Toolholder (Grooving / Cut-Off)
KGM% ○-○-○	H20	Toolholder (Grooving / Cut-Off)
KGM% ○○-○	G30,H20	Toolholder (Grooving / Plunge & Turn)
KGM% ○○-○T	G31	Toolholder (Grooving / Plunge & Turn)
KGM% ○○○○□-○	G30,H20	Toolholder (Grooving / Plunge & Turn)
KGM% ○○○○□-○T○○	G31,H21	Toolholder (Grooving / Plunge & Turn)
KGM% ○○○○□-○(○)-○○	G30,H20	Toolholder (Grooving / Plunge & Turn)
KGM% ○○○○□□-○(○)	G30,H20	Toolholder (Grooving / Plunge & Turn)

Part Number	Page	Description
KKC% ○(○)-○□(□)	G24,J27	Toolholder (Grooving / Threading)
KKC% ○○○○□-○-○○○F	G24,J27	Toolholder (Grooving / Threading)
KSTB	E42,E43	Toolholder (Sup-Spindle)
KTGF% ○(○)-○○JXF	G4	Toolholder (Grooving)
KTGF% ○○○○□-○○	G4	Toolholder (Grooving)
KTGF% ○○○○□(□)-○○F	G4	Toolholder (Grooving)
KTKF% ○(○)(○)-○○JX	E12,H8,J6	Toolholder (Back Turning / Cut-Off / Threading)
KTKF% ○○○○□(□)-○○	E12,H8,J6	Toolholder (Back Turning / Cut-Off / Threading)
KTKFS% ○-○○JX	H10	Toolholder (Cut-Off)
KTKFS% ○○○○□-○○□	H10	Toolholder (Cut-Off)
KTKH% ○-○(○)-○S	H24,H25	Toolholder (Cut-Off)
KTKH% ○○○○□-○S	H25	Toolholder (Cut-Off)
KTKH% ○○○○□-○-○○○S	H24	Toolholder (Cut-Off)
KTKH% ○○○○□-○T○○○S	H25	Toolholder (Cut-Off)
KTN% ○○○○□-○○	J28	Toolholder (Threading)
KTNS% ○○○○□-○○	J28	Toolholder (Threading)
KTTXR ○(○)-○JXF	J8	Toolholder (Threading)
KTTXR ○○○○□(□)-○○F	J8	Toolholder (Threading)
L		
LC-42N	E40,P3	Spare Parts (Shim)
LCP025097	F20	Spare Parts (Adjustment Pin)
LCP025140	F22,P3	Spare Parts (Adjustment Pin)
LGBA-16% S	G12,G13,P4	Spare Parts (Clamp Set)
LGBA-22% S	G12,G13,P4	Spare Parts (Clamp Set)
LL-1N	E41,P3	Spare Parts (Lock Pin)
LL-2N	E40,P3	Spare Parts (Lock Pin)
LOMU ○○○○○○ER-GH	M10	Insert (Milling)
LOMU ○○○○○○ER-GM	M10	Insert (Milling)
LOMU ○○○○○○ER-SM	M10	Insert (Milling)
LPA-11	E17-E19,E30,P3	Spare Parts (Anchor Pin)
LPA-13	E17-E19,P3	Spare Parts (Anchor Pin)
LPA-17	E17-E19,P3	Spare Parts (Anchor Pin)
LPF-11	E22,P3	Spare Parts (Anchor Pin)
LPF-13	E22,P3	Spare Parts (Anchor Pin)
LPF-17	E22,P3	Spare Parts (Anchor Pin)
LPF-1113	E30,P3	Spare Parts (Anchor Pin)
LPF-1117	E30,P3	Spare Parts (Anchor Pin)
LS-1N	E41,P2	Spare Parts (Lock Screw)
LS-2N	E40,P2	Spare Parts (Lock Screw)
LSP-1	E41,P3	Spare Parts (Shim Pin)
LSP-2	E40,P3	Spare Parts (Shim Pin)
LT-32N	E41,P3	Spare Parts (Shim)
LT-32N-20	E41,P3	Spare Parts (Shim)
LTK-5	H24,H25,P5	Spare Parts (Wrench)
LTW-8SS	E39,P5	Spare Parts (Torx Wrench / L-sharp type)

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Part Number	Page	Description
LTW-10S	E12, E35-E37, G48, G49, H8, H10, J6, P5	Spare Parts (Torx Wrench / L-sharp type)
LTW-10SS	E38, P5	Spare Parts (Torx Wrench / L-sharp type)
LTW-15S	F32, G19, G30, H16, H20, P5	Spare Parts (Torx Wrench / L-sharp type)
LTW-20	E23, G19, G30, G31, H16, H20, H21, P5	Spare Parts (Torx Wrench / L-sharp type)
LTW-25	H17, P5	Spare Parts (Torx Wrench / L-sharp type)
LW-1.5	F20, F22, F25, F34, P5	Spare Parts (Hexagon Wrench / L-sharp type)
LW-2	F20, F22, F25, P5	Spare Parts (Hexagon Wrench / L-sharp type)
LW-3	E40, F62, G42, P5	Spare Parts (Hexagon Wrench / L-sharp type)
LW-4	E30, E31, G20, E21, G30, G31, H17, H20, H21, P5	Spare Parts (Hexagon Wrench / L-sharp type)
M		
MEC ○○(○)(○)-○○(○)-○○	M3	End Mill (MEC)
MEC ○○(○)(○)-○○(○)-○○T	M3	End Mill (MEC)
MECX ○○(○)(○)-○○(○)-○○-OT	M6	End Mill (MECX)
MEW ○○-○○-○○-OT	M9	End Mill (MEW)
MEW ○○○○-W○○○-○○-OT	M9	End Mill (MEW)
MP-1	M9, P5	Anti-seize Compound
P		
PC-1	E41, P5	Spare Parts (Punch)
PC-2	E40, P5	Spare Parts (Punch)
PCLNR ○○○○□□-○○FF	E40	Toolholder (Double Sided Tooling)
PSB% ○○○○-○○NBS	F29	Tip-Bar (Boring)
PSB% ○○○○-○○S	F29	Tip-Bar (Boring)
PSBT% ○○○○-○○S	F29	Tip-Bar (Boring)
PTLNR ○○○○□□-○○FF	E40	Toolholder (Double Sided Tooling)
S		
○○○□- CTUP%○	F55	Boring Bars
○○○(○)□- KTGL16	G5	Sleeve Holder (Grooving)
○○○(○)□- KTTXL16	J8	Sleeve Holder (Threading)
○○○(○)□- SCLGLOO	E34	Sleeve Holder (Turning)
○○○○□- SCLCROO-○○OEZ	F18	Toolholder (EZ Bar-Plus)
○○○□- SCLC%○	F43	Boring Bars
○○○□- SCLC%○○-○○A	F39	Boring Bars (Dynamic Bar)
○○○□- SCLC%○○-○○AE	F39	Boring Bars (Dynamic Bar)
○○○□- SCLP%○	F43	Boring Bars
○○○□- SCLP%○○-○○A	F41	Boring Bars (Dynamic Bar)
○○○(○)□- SDLGLOO	E35	Sleeve Holder (Turning)
○○○□- SDQC%○○-○○A	F46	Boring Bars (Dynamic Bar)
○○○(○)□- SDUGLOO	E35	Sleeve Holder (Turning)
○○○□- SDUC%○	F48	Boring Bars
○○○□- SDUC%○○-○○A	F45	Boring Bars (Dynamic Bar)
○○○□- SDZC%○	F49	Boring Bars
○○○□- SDZC%○○-○○A	F47	Boring Bars (Dynamic Bar)
○○○□- STLB%○.○AE	F53	Boring Bars (Dynamic Bar)

Part Number	Page	Description
○○○□- STLB%○○-○○A	F53	Boring Bars (Dynamic Bar)
○○○□- STLB%○○-○○AE	F53	Boring Bars (Dynamic Bar)
○○○□- STLC%○○-○○A	F51	Boring Bars (Dynamic Bar)
○○○□- STLP%○○-○○A	F53	Boring Bars (Dynamic Bar)
○○○□- STUB%○	F54	Boring Bars
○○○□- STUP%○	F54	Boring Bars
○○○(○)□- STW% 15	F36, G48	Toolholder (for Twin Bars)
○○○□- STWP%○	F54	Boring Bars
○○○□- SVJB%○	F63	Boring Bars
○○○□- SVJC%○○-○○A	F58	Boring Bars (Dynamic Bar)
○○○□- SVJP%○○-○○A	F58	Boring Bars (Dynamic Bar)
○○○□- SVNR12N	F33	Toolholder (for System Tip-Bars)
○○○(○)□- SVNR12SN	F33	Toolholder (for System Tip-Bars)
○○○(○)□- SVNR12SXN	F35	Toolholder (for System Tip-Bars)
○○○□- SVNR12XN	F35	Toolholder (for System Tip-Bars)
○○○□- SVPB%○○-○○A	F61	Boring Bars (Dynamic Bar)
○○○□- SVPC%○○-○○A	F61	Boring Bars (Dynamic Bar)
○○○(○)□- SVUBLOO	E36	Sleeve Holder (Turning)
○○○□- SVUB%○○-○○A	F63	Boring Bars (Dynamic Bar)
○○○□- SVUCLOO	E36	Sleeve Holder (Turning)
○○○□- SVUC%○○-○○A	F63	Boring Bars (Dynamic Bar)
○○○□- SVZB%○○-○○A	F63	Boring Bars (Dynamic Bar)
○○○□- SVZC%○○-○○A	F63	Boring Bars (Dynamic Bar)
○○○□- SWUB%○	F63	Boring Bars
○○○□- SWUB%○.○AE	F65	Boring Bars (Dynamic Bar)
○○○□- SWUB%○○-○○A	F65	Boring Bars (Dynamic Bar)
○○○□- SWUB%○○-○○AE	F65	Boring Bars (Dynamic Bar)
○○○□- SWUP%○○-○○A	F65	Boring Bars (Dynamic Bar)
SABSR ○(○)-○○JXF	E17	Toolholder (Turning)
SABSR ○○○○□(□)-○○F	E17	Toolholder (Turning)
SABWR ○(○)-○○JXF	E18, E19	Toolholder (Turning)
SABWR ○○○○□(□)-○○F	E18, E19	Toolholder (Turning)
SB-1STR	F56, P2	Spare Parts (Screw)
SB-1TR	F53, F56, P2	Spare Parts (Screw)
SB-2TR	F56, J29, P2	Spare Parts (Screw)
SB-3.5TR	J28, J29, P2	Spare Parts (Screw)
SB-5TR	G30, G31, G20, H21, P2	Spare Parts (Screw)
SB-1635TR	F18, F39, F50, P2	Spare Parts (Screw)
SB-2035TR	F18, F39, P2	Spare Parts (Screw)
SB-2035TRG	F53, F63, M6, P2	Spare Parts (Screw)
SB-2040TR	J29, P2	Spare Parts (Screw)
SB-2042TRG	M6, P2	Spare Parts (Screw)
SB-2045TRN	G40, G41, P2	Spare Parts (Screw)
SB-2050TR	E29, E32, E33, E36, F58, F61, F63, F65, P2	Spare Parts (Screw)
SB-2250TR	F51, P2	Spare Parts (Screw)
SB-2255TR	G40-G42, P2	Spare Parts (Screw)

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
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	Part Number	Page	Description
A	SB-2545TR	F39,F41,F47,F53,F63,M3,P2	Spare Parts (Screw)
	SB-2555TRG	M3,P2	Spare Parts (Screw)
B	SB-2560TR	E34,E35,E42,F45-F47,F49,P2	Spare Parts (Screw)
	SB-2570TR	E21,E23,E25-E34,E39,E42,F57,F63,G40-G42,P2	Spare Parts (Screw)
C	SB-3060TR	F41,F51,P2	Spare Parts (Screw)
	SB-3065TRP	M9,P2	Spare Parts (Screw)
E	SB-3080TR	E17-E19,E29,E38,F32,F33,F35-F37,G48,G49,P2	Spare Parts (Screw)
	SB-4050TRN	H10,P2	Spare Parts (Screw)
F	SB-4065TR	E34,F39,F41,F45,F47,F65,P2	Spare Parts (Screw)
	SB-4070TRS	E43,G4,P2	Spare Parts (Screw)
G	SB-4070TRW	G4,G5,J8,P2	Spare Parts (Screw)
	SB-4085TR	E20,E23,E25-E28,E35,E42,P2	Spare Parts (Screw)
H	SB-4590TRWN	E12,H8,J6,P2	Spare Parts (Screw)
	SB-5090TR	E23,P2	Spare Parts (Screw)
I	SB-40120TR	G19,H16,P2	Spare Parts (Screw)
	SB-40125TRN	E30,P2	Spare Parts (Screw)
J	SCLC% ○(○)-○JXF	E23	Toolholder (Turning)
	SCLC% ○○○○□-○○	E23	Toolholder (Turning)
K	SCLC% ○○○○□(□)-○○FF	E23	Toolholder (Turning)
	SCLNR ○(○)-○(○)□F	E38	Toolholder (for Small Double-Sided Tools)
L	SCLNR ○○○○□-○○FF	E38	Toolholder (for Small Double-Sided Tools)
	SDJC% ○(○)-○JXFF	E25	Toolholder (Turning)
M	SDJC% ○○○○□-○○	E25	Toolholder (Turning)
	SDJC% ○○○○□(□)-○○FF	E25	Toolholder (Turning)
N	SDJCR ○○(○)-○○□-FO	E20	Toolholder (Goose-neck holder)
	SDJCR ○○○○□□-○○-FOO	E20	Toolholder (Goose-neck holder)
O	SDLC% ○(○)-○JXFF	E26	Toolholder (Turning)
	SDLC% ○○○○□(□)-○○FF	E26	Toolholder (Turning)
P	SDLNR ○(○)-○.○□F	E38	Toolholder (for Small Double-Sided Tools)
	SDLNR ○○○○□-○○FF	E38	Toolholder (for Small Double-Sided Tools)
Q	SDLP% ○(○)-○JXFF	E28	Toolholder (Turning)
	SDLP% ○○○○□(□)-○○FF	E28	Toolholder (Turning)
R	SDNCN ○(○)-○JX	E27	Toolholder (Turning)
	SDNCN ○○○○□(□)-○○	E27	Toolholder (Turning)
S	SDNC% ○-○JXF	E27	Toolholder (Turning)
	SDNC% ○○○○□□-○○F	E27	Toolholder (Turning)
T	SDXC% ○○○○□□-○○	E26	Toolholder (Turning)
	SE-40120TR	E30,H20,P2	Spare Parts (Screw)
U	SE-50125TR	G19,G30,H16,H20,P2	Spare Parts (Screw)
	SHA ○○○○(○)-○○○	F62,G42	Sleeve (for Automatic Lathe SIGE)
V	SIGE% ○○EH	G40	Toolholder (Grooving)
	SIGE% ○○(○)(○)(□)-EH	G40	Toolholder (Grooving)

Part Number	Page	Description
SIGE% ○○○○□-WH	G41	Toolholder (Grooving)
SIGER ○○○○□-WH-90	G42	Toolholder (Grooving / for Automatic Lathe)
SIN% ○○○○S-○○	J29	Toolholder (Threading)
SIN% ○○○○S-○○E	J29	Toolholder (Threading)
SKC-2	G24,J27	Spare Parts (Clamp Bolt)
SP3X4	F32,F33,F35,P2	Spare Parts (Screw)
SP3X8	J28,P2	Spare Parts (Screw)
SS-4N	E30,E31,P3	Spare Parts (Shim Screw)
STGC% ○○○○□-○○	E29	Toolholder (Turning)
STGP% ○○○○□-○○	E29	Toolholder (Turning)
STLNR ○(○)-○.○□F	E39	Toolholder (for Small Double-Sided Tools)
STLNR ○○○○□-○○FF	E39	Toolholder (for Small Double-Sided Tools)
STW% ○○○○□-15	F36,G48	Toolholder (for Twin Bars)
STWSR ○○○○□(□)-15T	F37,G49	Toolholder (for Twin Bars)
STXB% ○○○○□B-○○W	F56	Toolholder (Boring / Previous Part Number)
STXP% ○○○○□B-○○W	F56	Toolholder (Boring / Previous Part Number)
STZB% ○○○○□B-○○W	F56	Toolholder (Boring / Previous Part Number)
SVJB% ○(○)-○JXFF	E30	Toolholder (Turning)
SVJB% ○○○○□-○○	E30	Toolholder (Turning)
SVJB% ○○○○□-○○N	E30	Toolholder (Turning)
SVJB% ○○○○□□-○○FF	E30	Toolholder (Turning)
SVJP% ○(○)-○JXFF	E32	Toolholder (Turning)
SVJP% ○○○○□(□)-○○FF	E32	Toolholder (Turning)
SVLP% ○(○)-○(○)JXFF	E32	Toolholder (Turning)
SVLP% ○○○○□(□)-○○FF	E32	Toolholder (Turning)
SVLPR ○○(○)-○□□-FO	E21	Toolholder (Goose-neck holder)
SVLPR ○○○○□□-○○-FOO	E21	Toolholder (Goose-neck holder)
SVN-32N	E30,E31,P3	Spare Parts (Shim)
SVNR ○○○○□-12N	F32	Toolholder (for System Tip-Bars)
SVNSR ○○○○□-12-○○N	F32	Toolholder (for System Tip-Bars)
SVNSR ○○○○□-12-○○XN	F35	Toolholder (for System Tip-Bars)
SVPB% ○○○○□(□)-○○	E31	Toolholder (Turning)
SVPB% ○○○○□-○○N	E31	Toolholder (Turning)
SVPPR ○(○)-○(○)JXFF	E33	Toolholder (Turning)
SVPPR ○○○○□(□)-○○FF	E33	Toolholder (Turning)
SVBN ○○○○□(□)-○○	E31	Toolholder (Turning)
SVBN ○(○)-○JX	E31	Toolholder (Turning)
SVBN ○○○○□-○○N	E31	Toolholder (Turning)
T		
TBET ○○○○(○)(○)M%	B23	Insert (Turning)
TBGT ○○○○(○)%	B23	Insert (Turning)
TBGT ○○○○□CF	B23	Insert (Turning)
TBGT ○○○○□(○)M%	B23	Insert (Turning)
TBGT ○○○○□M-CF	B23	Insert (Turning)
TBGT ○○○○□MP-CF	B23	Insert (Turning)
TBGW ○○○○(○)	B23,C14	Insert (Turning)

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

Part Number	Page	Description
TBGW ○○○○(○)NE	C14	Insert (Turning)
TBMT ○○○○(○)	C14	Insert (Turning)
TBMT ○○○○(○)DP	B23	Insert (Turning)
TBMT ○○○○(○)NE	C14	Insert (Turning)
TCET ○○○○(○)(○)F%-USF	B24	Insert (Turning)
TCET ○○○○(○)MF%-USF	B24	Insert (Turning)
TCGT ○○○(○)(○)(○)E%-U	B24	Insert (Turning)
TCGT ○○○○(○)(○)F%-U	B24	Insert (Turning)
TCGT ○○○(○)(○)(○)ME%-U	B24	Insert (Turning)
TCGT ○○○(○)(○)(○)(○)MF%-U	B24	Insert (Turning)
TCGT ○○○(○)%-A3	B24	Insert (Turning)
TCGW ○○○(○)(○)(○)	B24,C14	Insert (Turning)
TCGW ○○○(○)NE	C14	Insert (Turning)
TCGW ○○○(○)SE	C14	Insert (Turning)
TCMT ○○○○(○)(○)	C14	Insert (Turning)
TCMT ○○○○(○)(○)HQ	B23	Insert (Turning)
TCMT ○○○(○)(○)(○)NE	C14	Insert (Turning)
TCMT ○○○(○)SE	C14	Insert (Turning)
TGF ○○%○○○N	G3	Insert (Grooving)
TGF ○○%○○○-○○○	C20,G3	Insert (Grooving)
TK% ○(.○)	H23	Insert (Cut-Off)
TK% ○(.○)-P	H23	Insert (Cut-Off)
TKF ○○%○○○-AS	C18,E16	Insert (Grooving / Turning)
TKF ○○%○○○-ASR	C18,E16	Insert (Grooving / Turning)
TKF ○○%○○○-NB(○.○)	C18,E16,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 ○○L○○○○○○MR	B35	Insert (Back turning)
TKFB ○○R○○○○○○M	B35	Insert (Back turning)
TKFB ○○R○○○○○○-GQ	B36	Insert (Back turning)
TKFS ○○%○○○-S	H11	Insert (Cut-Off)
TKFT ○○L□○○○○○(○)	J6	Insert (Threading)
TKFT ○○R□○○○○○(○)	J6	Insert (Threading)
TKN ○(.○)	H23	Insert (Cut-Off)
TKN ○(.○)-P	H23	Insert (Cut-Off)
TN-32	J28,P3	Spare Parts (Shim)
TNEG ○○○(○)%-SSF	B41	Insert (Turning)
TNGG ○○○FP-TK	B41	Insert (Turning)
TNGG ○○○(○)MFP-SK	B41	Insert (Turning)
TNGG ○○○(○)%-S	B41	Insert (Turning)
TNGU ○○○○(○)ME%-U	B40	Insert (Turning)
TNGU ○○○○(○)(○)MF%-F	B40	Insert (Turning)
TNGU ○○○○(○)(○)MF%-U	B40	Insert (Turning)
TNN ○○E%○○(○)NPT	J20	Insert (Threading / Previous Part Number)

Part Number	Page	Description
TNN ○○E%○○OPT	J20	Insert (Threading / Previous Part Number)
TNN ○○E%○○OUN	J18	Insert (Threading / Previous Part Number)
TNN ○○E%○○OW	J18	Insert (Threading / Previous Part Number)
TNN ○○E%○○OOM	J16	Insert (Threading / Previous Part Number)
TNN ○○E%○○OTR	J24	Insert (Threading / Previous Part Number)
TNN ○○E%○○○○	J22,J24	Insert (Threading / Previous Part Number)
TNN ○○I%○○(○)NPT	J21	Insert (Threading / Previous Part Number)
TNN ○○I%○○OPT	J21	Insert (Threading / Previous Part Number)
TNN ○○I%○○OUN	J19	Insert (Threading / Previous Part Number)
TNN ○○I%○○OW	J19	Insert (Threading / Previous Part Number)
TNN ○○I%○○OTR	J25	Insert (Threading / Previous Part Number)
TNN ○○I%○○○○(○)	J23,J25	Insert (Threading / Previous Part Number)
TNN ○○I%○○OOM	J17	Insert (Threading / Previous Part Number)
TPET ○○○○(○)(○)F%-USF	B27	Insert (Turning)
TPET ○○○○(○)(○)MF%-USF	B27	Insert (Turning)
TPET ○○○○(○)(○)M%-FSF	B27	Insert (Turning)
TPET ○○○○(○)(○)%-FSF	B27	Insert (Turning)
TPGB ○○○(○)(○)(○)	B27,C15	Insert (Turning)
TPGB ○○○MEF	C6	Insert (Turning)
TPGB ○○○(○)(○)(○)NE	C15	Insert (Turning)
TPGB ○○○(○)(○)(○)SE	C14	Insert (Turning)
TPGB ○○○S○○○○○○MES	C6	Insert (Turning)
TPGB ○○○(○)S○○○○○○MET	C6	Insert (Turning)
TPGB ○○○(○)(○)S○○○○○○SET	C6	Insert (Turning)
TPGB ○○○(○)T○○○○○○ME	C6	Insert (Turning)
TPGB ○○○(○)(○)(○)T○○○○○○SE	C6	Insert (Turning)
TPGH ○○○(○)(○)(○)M%	B26	Insert (Turning)
TPGH ○○○(○)M%-H	B27	Insert (Turning)
TPGH ○○○(○)(○)(○)%	B26	Insert (Turning)
TPGH ○○○(○)%-H	B27	Insert (Turning)
TPGT ○○○○○○CF	B25	Insert (Turning)
TPGT ○○○○○○M-CF	B25	Insert (Turning)
TPGT ○○○○○○MP-CF	B25	Insert (Turning)
TPMH ○○○(○)(○)(○)	C15	Insert (Turning)
TPMH ○○○(○)(○)(○)NE	C15	Insert (Turning)
TPMH ○○○(○)%-NE	C16	Insert (Turning)
TPMH ○○○(○)(○)(○)SE	C15	Insert (Turning)
TPMT ○○○(○)(○)(○)GP	B25	Insert (Turning)
TPMT ○○○(○)(○)(○)HQ	B25	Insert (Turning)
TPMT ○○○(○)(○)(○)PP	B25	Insert (Turning)
TPMT ○○○(○)(○)XP	B25	Insert (Turning)
TPMT ○○○XQ	B26	Insert (Turning)
TTX 32R○○○○(○)	J9	Insert (Threading)
TTX 32R○○○○(○)S	J9	Insert (Threading)
TWBR ○○○○○-○○○	F36	Twin Bars (Turning)
TWBTR ○○○○○-○○○	F37	Twin Bars (Turning)
TWFL ○○○	G48	Twin Bars (Grooving)
TWFLTR ○○○	G49	Twin Bars (Grooving)

GRADES	A
INSERTS	B
CBN & POD	C
TURNING	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
SOLID END MILLS	L
MILLING	M
SPARE PARTS	P
TECHNICAL	R
INDEX	T

Part Numbers in Alphanumeric Order

○ : NUMBER □ : LETTER

A GRADES
B INSERTS
C CBN & PCD
E TURNING
F BORING
G GROOVING
H CUT-OFF
J THREADING
L SOLID END MILLS
M MILLING
P SPARE PARTS
R TECHNICAL
T INDEX

Part Number	Page	Description
V		
VBET ○○○○(○)M%-F	B28	Insert (Turning)
VBET ○○○○(○)M%-FSF	B28	Insert (Turning)
VBET ○○○○%-FSF	B28	Insert (Turning)
VBET ○○○(○)(○)M%-Y	B29	Insert (Turning)
VBGT ○○○○(○)M%-F	B29	Insert (Turning)
VBGT ○○○(○)(○)M%-Y	B29	Insert (Turning)
VBGT ○○○○%-F	B29	Insert (Turning)
VBGT ○○○(○)%-Y	B29	Insert (Turning)
VBGW ○○○MEF	C7	Insert (Turning) / Previous Part Number
VBGW ○○○S○○○○OMES	C7	Insert (Turning)
VBGW ○○○(○)S○○○○OMET	C7	Insert (Turning)
VBGW ○○○(○)S○○○○OSET	C7	Insert (Turning)
VBGW ○○○(○)T○○○○OME	C7	Insert (Turning)
VBGW ○○○(○)T○○○○OSE	C7	Insert (Turning)
VBMT ○○○(○)	C16	Insert (Turning)
VBMT ○○○GP	B28	Insert (Turning)
VBMT ○○○HQ	B28	Insert (Turning)
VBMT ○○○(○)NE	C16	Insert (Turning)
VBMT ○○○(○)PP	B28	Insert (Turning)
VBMT ○○○(○)SE	C16	Insert (Turning)
VBMT ○○○(○)VF	B28	Insert (Turning)
VCGT ○○○AH	B30	Insert (Turning)
VCGT ○○○%-A3	B30	Insert (Turning)
VCGW ○○○○○(○)S○○○○OMET	C7	Insert (Turning)
VCGW ○○○○○S○○○○OSET	C7	Insert (Turning)
VCGW ○○○○○(○)T○○○○OME	C7	Insert (Turning)
VCGW ○○○○○(○)T○○○○OSE	C7	Insert (Turning)
VCMT ○○○○○(○)	C16	Insert (Turning)
VCMT ○○○○○(○)HQ	B30	Insert (Turning)
VCMT ○○○○○(○)NE	C16	Insert (Turning)
VCMT ○○○○○(○)PP	B30	Insert (Turning)
VCMT ○○○○○(○)SE	C16	Insert (Turning)
VCMT ○○○○○(○)VF	B30	Insert (Turning)
VNBR ○○○○-○○(○)	F31	System Tip-bars (Boring)
VNBR ○○○○-○○(○)NB	C21,F31	System Tip-bars (Boring)
VNBR ○○○○(○)(○)-○○(○)S	F30	System Tip-bars (Boring)
VNBTR ○○○○-○○(○)	F31	System Tip-bars (Boring)
VNBXR ○○○○(○)-○○(○)S	F34	System Tip-bars (Boring)
VNFR ○○○○-○○	G47	System Tip-bars (Grooving)
VNGR ○○○○-○○	G37	System Tip-bars (Grooving)
VNTR ○○○-○○	J15	System Tip-bars (Threading)
VPET ○○○○(○)(○)MF%-USF	B32	Insert (Turning)
VPET ○○○○(○)(○)M%-F	B32	Insert (Turning)
VPET ○○○○(○)(○)M%-FSF	B32	Insert (Turning)
VPET ○○○○(○)MF%-J	B32	Insert (Turning)

Part Number	Page	Description
VPET ○○○○(○)(○)MF%-U	B32	Insert (Turning)
VPET ○○○○(○)(○)MF%-USF	B32	Insert (Turning)
VPET ○○○○(○)(○)%-FSF	B32	Insert (Turning)
VPGT ○○○○CF	B31	Insert (Turning)
VPGT ○○○○(○)(○)CK	B31	Insert (Turning)
VPGT ○○○○M-CF	B31	Insert (Turning)
VPGT ○○○○(○)(○)M-CK	B31	Insert (Turning)
VPGT ○○○○MF-GF	B31	Insert (Turning)
VPGT ○○○○MFP-GF	B31	Insert (Turning)
VPGT ○○○○MP-CF	B31	Insert (Turning)
VPGT ○○○○(○)(○)MP-CK	B31	Insert (Turning)
W		
WBET ○○○○(○)(○)M%-F	B33	Insert (Turning)
WBGT ○○○○M%-CF	B33	Insert (Turning)
WBGT ○○○○MP%-CF	B33	Insert (Turning)
WBGT ○○○○(○)(○)M%-F	B33	Insert (Turning)
WBGT ○○○○(○)(○)%-F	B33	Insert (Turning)
WBGW ○○○○(○)(○)%	B34	Insert (Turning)
WBGW ○○○○(○)(○)S○○○○○%-SET	C8	Insert (Turning)
WBGW ○○○○(○)(○)T○○○○○%-SE	C8	Insert (Turning)
WBMT ○○○○(○)(○)L	C16,C17	Insert (Turning)
WBMT ○○○○(○)(○)L-NE	C16,C17	Insert (Turning)
WBMT ○○○○(○)L-SE	C16,C17	Insert (Turning)
WBMT ○○○○(○)(○)%-DP	B33	Insert (Turning)
WPGT ○○○○(○)M%-Y	B33	Insert (Turning)
WPGT ○○○(○)(○)%-Y	B33	Insert (Turning)
WPGW ○○○(○)(○)	B34	Insert (Turning)
WPMT ○○○○○	C17	Insert (Turning)
WPMT ○○○(○)GP	B34	Insert (Turning)
WPMT ○○○(○)(○)HQ	B34	Insert (Turning)
WPMT ○○○○○NE	C17	Insert (Turning)
WPMT ○○○○○SE	C17	Insert (Turning)

